MATERNAL SUBSTANCE USE TREATMENT DURING A TIME OF CRISIS: THE EFFECT OF COVID-19 RESTRICTIONS ON PROGRAMMING, FAMILY FUNCTIONING, AND COMMUNITY SERVICE ENGAGEMENT

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ABSTRACT

Substance use among pregnant and parenting women is a problem in Canada which was exacerbated by the COVID-19 pandemic. Stressors that drive and sustain maternal substance use can be understood through a domain-specific conceptualization of risk and protection. Although integrated treatment promotes positive outcomes in substance-involved families, there is limited understanding of how the pandemic affected clients referred to treatment. **Methods:** This study used qualitative and quantitative data to evaluate the influence of the pandemic and its related health restrictions on families referred to Breaking the Cycle (BTC), an integrated treatment program for maternal substance use. In Study 1, interviews from three BTC staff members were analysed using thematic analysis to investigate changes to BTC programming, client engagement and psychosocial functioning, and access to partnering agencies, from pre-pandemic to during the pandemic. Subsequently, quantitative analyses were completed to compare clients referred to BTC pre-pandemic vs. during the pandemic using the profiles of 68 families (Study 2) and to evaluate cumulative risk and protection profiles of 30 families (Study 3). **Results:** Thematic analyses in Study 1 yielded 2 primary themes, 5 secondary themes, and 12 tertiary themes. Marginalized, substance-involved families referred during the pandemic, compared to pre-pandemic, were found to have increased rates of displacement, interpersonal violence, substance use, and reduced access to family supports, among others. In turn, protective intervention factors, including the relational and predictable nature of programming, emerged as critical to service engagement. Study 2 indicated that women referred during the pandemic, compared to pre-pandemic, reported less engagement with services, more depressive symptoms, lower self-efficacy around their substance use and a trend suggesting increased use during pregnancy. Study 3 revealed that 7% of pre-pandemic families vs. 50% of pandemic families were characterized by

more domains of risk relative to protection. A mixed-methods investigation revealed specific factors of risk and protection that characterized moderate-to-high-risk vs. low-risk families. **Conclusions:** The findings revealed exacerbated levels of adversity experienced by these families during the pandemic. This research contributes to an evolving understanding of the interplay of cumulative risk and protective factors, with clinical and policy implications for early intervention work.

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Introduction

Substance use among pregnant and parenting women is a concern that has garnered significant clinical and research attention in Canada within the last two decades. Although men are more likely to engage in illicit substance use compared to women, women present with more impairing clinical outcomes from substance use that extend across social, psychological, medical, and behavioural levels of functioning (Greenfield et al., 2010; NIDA, 2018). In Canada, 70%-80% of women of childbearing age drink alcohol and approximately 22%-25% report heavy drinking (Statistics Canada, 2021). With the rise in the prevalence of substance use among reproductive age and pregnant women (see Lange et al., 2017, for a systematic review and meta-analysis; Milligan et al., 2020; SAMHSA, 2020), the clinical outcomes of maternal substance use and its effects on children are important considerations for society. Prenatal substance exposure places children at increased risk for a range of medical, cognitive, and socioemotional problems throughout life (e.g., Bandstra et al., 2010; Oei, 2020). Furthermore, maternal substance use within the caregiving context has been associated with a constellation of mental health and environmental risks that disrupt parenting (Carta et al., 2001; Conners et al., 2004; Eiden et al., 2011; Hatzis et al., 2017).

Concurrent with the ongoing opioid crisis in Canada (CIHI, 2021), the Coronavirus Disease-2019 (COVID-19) pandemic in early 2020 created the very conditions in which substance use and addiction thrive, exacerbating the challenges of Canadians affected by substance misuse nationwide. A report released in 2021 by the Canadian Institute for Health Information (CIHI), an organization that collects data from hospitals nation-wide, revealed that in the first seven months of the COVID-19 pandemic (March to September 2020), as many as 81,000 Canadians required hospital care following harmful substance use, which was a 6%

increase compared to the same period in the previous year over (March to September of 2019). In British Columbia alone, the report revealed a 74% increase in overdose deaths in 2020 compared to 2019. CIHI confirmed that lower-income neighbourhoods experienced the greatest spike in hospital visits following substance-related incidents, with hospital visits rising by 14% across Canada in low-income areas (CIHI, 2021). In recent years in the United States, problematic substance use has also been reported to be on the rise, continuing to generate a growing public health concern for pregnant and parenting women (SAMHSA, 2020, 2021). Notably, the effects of COVID-19 and related public health measures implemented to mitigate viral spread (e.g., social distancing and prolonged isolation, lockdowns, reduced access to in-person services) had a disproportionate effect on vulnerable families who were already facing social, economic, and health-related stressors (e.g., Fegert et al., 2020; Nobles et al., 2020).

The stressors that drive and sustain maternal substance use are multifaceted (e.g., Popova et al., 2022; Stewart, 2022) and their impacts on the affected woman, child, and the mother-child relationship can be best understood through a domain-specific conceptualization of risk and protective factors (Bondi et al., 2020; Evans et al., 2013; Hosman et al., 2009). Research has shown that while various domains of risk within the perinatal environment can exacerbate the adverse effects of children's exposure to maternal substance use (e.g., Carta et al., 2001; Conners et al., 2004), positive developmental outcomes can be observed in the presence of accumulated protective factors across domains that attenuate the negative effects of cumulative risk (e.g., Bondi et al., 2020; Crosnoe et al., 2010; Furstenberg et al., 1999; Ostaszewski & Zimmerman, 2006).

While existing social vulnerabilities and associated risk factors in marginalized populations were exacerbated by the COVID-19 pandemic and its health-related restrictions

(Devoto et al., 2022; Nobles et al., 2020; Paremoer et al., 2021), the global crisis also highlighted the relevant role of protective factors on health outcomes (Li & Xu, 2022; Werchan et al., 2022), such as interventions for the mother, child, and their relationship within the context of substance exposure. Integrated interventions that reduce the risks associated with maternal substance use have been shown to effectively address addiction problems while reducing parental stress and increasing parenting capacity (e.g., Espinet et al., 2016; Niccols, Milligan, Sword et al., 2012). Breaking the Cycle (BTC), a Toronto-based intervention program for substance-using pregnant and/or parenting women, has been offering integrative treatment services for this at-risk population for over 25 years. Since its inception, BTC has been both a clinical site for programming for marginalized substance-using women and their children, as well as a research site that has been informing treatment and increasing knowledge mobilization in this area of research. However, there is still limited understanding of how the pandemic affected substance-using women and their children who sought treatment.

The present research comprises an evaluation of the multifaceted impacts of the COVID-19 pandemic and its related health restrictions on the experiences of a sample of families referred for maternal substance use treatment who had varying profiles of risk and protection. To acquire a comprehensive understanding of the experiences of these families, I conducted three studies which are reported within three manuscripts in this dissertation. For the first study, I conducted interviews with front-line BTC clinicians to obtain first-hand qualitative accounts of the adaptations that took place in service delivery at BTC and with partnering community agencies, affecting client access and engagement with services. More specifically, Study 1 laid the groundwork for understanding the experiences of families involved in treatment as changes took place, from before and throughout the pandemic. The interviews focused on experiences at three

levels: 1) BTC programming and service delivery (from in-person to virtual), 2) family functioning and engagement with services within the context of shifts in risk and protection factors, and 3) community service availability and accessibility. For the second study, I reviewed secondary data from the ongoing BTC research and evaluation, as well as data gathered from client files. Study 2 aimed to examine pre-pandemic data to current data (from January 2017 to June 2023) available on families involved with services for substance use at BTC to better understand the families' experiences of pandemic-related restrictions within the context of their treatment journey. Finally, for Study 3, a mixed-model convergence of findings (from Study 1 and Study 2) was carried out to explore risk and protective factors more broadly and inform work with these marginalized families moving forward, outside of the COVID-19 context.

The COVID-19 Pandemic, Public Health Restrictions, and Adaptations to Service Delivery

The COVID-19 pandemic placed additional stress on Canadians on many fronts and in complex ways, ultimately affecting the availability and accessibility of health services (Government of Canada, 2020a). Public health measures were implemented to reduce disease spread; these include physical distancing, school and childcare closures, as well as reduced access to many in-person services (Government of Canada, 2020a). The lockdown or stay-at-home orders observed in response to the global viral spread resulted in the closure of non-essential services in the province of Ontario by the end of March 2020 (Government of Canada, 2020b). The Canadian government published the following broad recommendations on their website with regards to which organizations were deemed essential and should be allowed to operate during lockdowns throughout the COVID-19 pandemic (Government of Canada, 2020b):

> Provincial and territorial announcements have highlighted that only organizations necessary to provide "essential services" are permitted to operate [during the

> lockdown]… These services and functions are considered essential to preserving life, health and basic societal functioning. These include, but are not limited to, the functions performed by first responders, health care workers, critical infrastructure workers (e.g., hydro and natural gas), and workers who are essential to supply critical goods such as food and medicines. Workers who deliver essential services and functions should continue to do their jobs provided they have no symptoms of COVID-19 disease. Employers of these workers should take all possible steps to protect their health and safety by implementing practices and procedures recommended by public health authorities and providing appropriate protective equipment and products. Further, workers who can perform their tasks remotely should do so.

Personal protective equipment was required, and enhanced sanitization procedures were in effect across settings during much of the pandemic (Government of Canada, 2020b). Municipal, provincial, territorial and Indigenous jurisdictions were granted the legislative authority to determine what services and functions were essential and how they would implement and execute response actions within their regions (Government of Canada, 2020b). Mental health workers (e.g., psychologists, psychotherapists, social workers, child and youth workers) and other staff who support children and vulnerable populations were not designated as essential workers (Caldwell et al., 2020). Many organizations used their own discretion in how they would continue to operate within their respective workplaces, while adhering to public safety standards (Caldwell et al., 2020).

Across organizations offering mental health support, adaptations were made to service delivery to continue serving individuals challenged by mental health difficulties. Shortly after in-

person (face-to-face) services were discontinued, a virtual (remote) delivery of services was widely instituted to address the level of need and continually increasing demands for care across communities and various areas of healthcare (WHO, 2020). Often labelled "telehealth", or more specifically "telemental health" within the scope of psychological services, virtual care can be defined as interactive technology that facilitates client-provider interactions within healthcare (SAMHSA, 2021). Teams of healthcare providers and staff across mental health organizations experienced the pressures of developing, implementing, and maintaining telemental health, for clients who had previously received care primarily through exclusively traditional, in-person means (e.g., see Monaghesh & Hajizadeh, 2020, for a systematic review).

The experiences that patients and practitioners had with virtual care across settings has been documented in terms of its benefits and barriers or limitations to effective service delivery with different groups. For example, considerations for the benefits and limitations of telemental health have been studied in a range of services such as: child and youth mental health (e.g., Gotkiewicz & Goldstein, 2021; Hopkins & Pedwell, 2021), eating disorders (see Catenacci & Couturier, 2023, for a qualitative analysis; Cook-Cottone et al., 2024), obstetric and prenatal care for patients (e.g., see Almuslim & AlDossary, 2022, for a scoping review; Kern-Goldberger & Srinivas, 2022), veterans (Ferguson et al., 2021), as well as geriatric populations (e.g., see Chuen et al., 2024, for a thematic analysis). The effectiveness of telemental health has been studied across specialized disciplines and services, such as chronic pain (Birnie et al., 2021; Ruskin et al., 2023), disease management (e.g., see Kendzerska et al., 2021, for a narrative review), and rehabilitation more broadly (e.g., Brigo et al., 2022).

In a systematic review published by Siegel and colleagues (2021), some barriers inherent in virtual care were identified as common in the research, including: difficulties with technology;

concerns around safety, privacy, and confidentiality; the patient-provider relationship; and therapeutic delivery, as well as a perceived disconnection from community when virtual care is provided instead of in-person services. Individuals with special needs, including the elderly, those with hearing loss, perceptual or cognitive difficulties, motor disabilities, or language barriers, may experience additional barriers to accessing care via virtual means (Nieman & Oh, 2020; Stronge et al., 2007). Conversely, the benefits of telemental health include scheduling flexibility for clients and clinicians (time-saving and convenient), as well as geographic flexibility, which has increased accessibility to services, resulting in a reduction in cancellations and increased ease of coordinating caregiver participation when needed during sessions with children (Siegel et al., 2021). While telemental health may enhance the ease of service delivery in many cases (Siegel et al., 2021), clinicians vary in their perceptions of how effective they feel when offering their services virtually vs. in-person, with factors such as level of experience within their respective specialty and level of confidence with technology playing a role (Bierbooms et al., 2020).

Despite variability in clinicians' experiences with virtual care models, research on the effectiveness of telemental health on treatment outcomes appears to present a positive perspective. For example, Kiran et al. (2023) investigated the effectiveness of telemental health relative to face-to-face therapy in a Canadian, nonprofit, counseling practice. They found that virtual and face-to-face mental health services were equivalent in effectiveness, after accounting for differences between patients seeking services before and during the COVID-19 pandemic. Clients requesting services during the pandemic were more likely to be female, not partnered, earning less, and reporting increased levels of anxiety and distress, compared to clients served before the pandemic (Kiran et al., 2023).

There has been some research on virtual service delivery with women who are substance involved, similar to the women who access BTC. Guille and colleagues (2022) evaluated 32 clients' accessibility to and satisfaction with a service that delivers virtual mental health and virtual obstetric care to substance involved women. They found that women reported similarly high levels of satisfaction with a virtual modality to treatment delivery compared to face-to-face modality. Additionally, women reported increased access to care with virtual treatment, specifically as it related to less time and distance to travel, compared to face-to-face treatment (Guille et al., 2022). Patton and colleagues (2021) reviewed prenatal care models and evaluated their own integrated substance use and prenatal care delivery programming during the pandemic at a New England hospital. Patients were seen in-person at critical obstetric milestones, but otherwise virtually, resulting in a hybrid adaptation to care (Patton et al., 2021). In their paper, the researchers highlighted the early stages of this programming and its evaluation, but emphasized positive trends in treatment progress, "despite initial trepidation among providers" (p. 4). The early positive trends included a reduction in no-show rates for patients participating in the COVID-19 hybrid model (10% no-shows) compared to the pre-COVID-19 in-person model (34% no-shows). Individual preferences associated with this reduction in no-shows included: the convenience of not needing childcare or transportation to and from appointments, preference for avoiding a clinical setting or city neighbourhood that they associated with substance use, and the perceived reduction in social isolation from practitioners who otherwise may have been inaccessible during times of crisis.

Patton and colleagues (2021) were also interested in the effectiveness of take-home dosing for methadone treatment as part of their hybrid telemedicine care model (the majority of their 90 patients had a primary opioid use disorder treated with medication). The authors noted a

downward trend of patients seeking titration of their methadone treatment over the course of the COVID-19 pandemic, exposing them to greater risks of increased substance use without proper treatment due to pandemic-related barriers (actual and perceived) to accessing their prescriptions (Patton et al., 2021). In response, researchers recommended more opportunities for virtual prenatal care including the opportunity to expand take-home dosing for women with substance use disorders. Conversely, the authors also recognized barriers of virtual prenatal care for some of their patients, including unstable housing and inconsistent access to technology or the phone. Furthermore, Patton and colleagues (2021) highlighted the limitations of virtual care with patients who have complex needs and require access to a multitude of services in their individual treatment programs, such as support around interpersonal violence, relapse, housing, as well as interactions with child welfare systems. Virtual care also limits collaborations among practitioners on multidisciplinary teams who coordinate the evaluation of patient progress (Patton et al., 2021). The integrated treatment components of programming for substance involved families often require continued collaboration and monitoring, which can be challenged by virtual service delivery. In summary, virtual prenatal care models, or even hybrid prenatal care models, may allow patients with complex and competing demands to gain access to some services during pregnancy and postnatally. These service delivery models also present unique challenges for marginalized populations that may affect their long-term effectiveness.

As telemental health services continue to evolve and improve (Siegel et al., 2021), there has been a range of service delivery options. Staff in many care centres have fully returned to in-person work, some have sustained services through only virtual means, and others have adopted hybrid models of practice (combined in-person and remote services). To date, there is a gap in our understanding of the impact of virtual care on the delivery and effectiveness of integrated

treatment programs for pregnant and/or parenting women involved in substance use. However, as research in this area continues to evolve, organizations will be better equipped to make choices that consider treatment effectiveness and accessibility across components of their programming for this population, to establish the most effective means of moving forward with clients' best interests in mind.

The Pandemic Response, Mental Health, and Family Functioning

Emerging research highlights the challenges and burdens of the pandemic restrictions related to prolonged isolation and associated conflict within the home, which impacted child and adolescent mental health and overall family functioning (Fegert et al., 2020). Groulx and colleagues (2021) investigated associations between prenatal care disruptions during the COVID-19 pandemic and maternal health outcomes and found that cancellation of prenatal appointments and birth plan changes were significantly associated with greater odds of experiencing clinically elevated depression, anxiety and/or pregnancy-related anxiety symptoms. Pierce and colleagues (2020) reported that women with young children experienced the largest increase in mental distress across the UK. Similarly, Racine and colleagues (2021) found an increase in the prevalence of maternal depression and anxiety during the COVID-19 pandemic in their longitudinal research with a large cohort of Canadian women with young children between April 2012 and July 2020.

A review completed in the early stages of the pandemic by Public Health Ontario (2020) revealed that physical and mental health severity increased in families towards the end of 2020, while a substantial decrease was observed in children's overall health service utilization within the first part of the year (Public Health Ontario, 2020). The same report noted that the public health restrictions had negatively impacted parents' perceived stress. The authors suggested that

higher levels of parents' perceived stress due to the COVID-19 pandemic and its related restrictions may have exacerbated children's mental health and behaviour problems (Public Health Ontario, 2020). The required public health lockdown measures led to the closure of schools and child-based centres which exacerbated pressures within the home environment and increased youth emotional dysregulation. Connell and Strambler (2021) found that parental stress (i.e., health concerns, disruptions in work, and childcare-related concerns) combined with distress related to the pandemic were associated with increased risk of parental neglect and harsh discipline with children.

During the COVID-19 pandemic, Canadian parents of school-aged children reported less fulfillment of their children's instrumental and overall needs compared to parents of younger children (Bérubé et al., 2020). The effects of heightened, universal stress levels related to the pandemic have also been studied specifically in adversity-exposed youth versus youth without adverse childhood experiences or ACEs (e.g., Anderson et al., 2022; Raney et al., 2024). Compared with youth without ACEs, youth with a history of four or more ACEs had a prevalence of poor mental health that was three to four times higher and a significantly higher prevalence of past-year suicidal behaviors during the pandemic (Anderson et al., 2022). Furthermore, youth with special needs were particularly vulnerable and found to have experienced poorer quality of life and higher rates of abuse throughout the pandemic (Tso et al., 2022). This research aligns with earlier studies of national disasters, when child maltreatment, an adverse experience, increased during school closures resulting from health emergencies (Cluver et al., 2020; Serrata & Hurtado-Alvarado, 2019). Recent research also shows increases in child neglect and maltreatment during the COVID-19-related lockdowns on (Baron et al., 2020; Lawson et al., 2020; UNICEF Canada, 2020). The findings on the impact of lockdowns during

the COVID-19 pandemic on children, youth, and families (e.g., Caldwell et al., 2020; Clemens et al., 2020; Lee, 2020) and community agencies (e.g., UNICEF Canada, 2020) is consistent with the well-documented relationship between family stress, economic burden, and increases in child maltreatment rates (e.g., Drake & Jonson-Reid, 2014).

Social Inequalities and Marginalized Communities Affected by Substance Use

Rapidly evolving research has been highlighting the exacerbated social inequalities brought on by the pandemic and its differentiated impacts across minority and marginalized communities (Canadian Centre on Substance Use and Addiction, 2020). Restrictions during the pandemic triggered growing concerns about the impact of isolation and lack of access to services on the mental health and substance use of the population (e.g., Clay & Parker, 2020; Galea et al., 2020; Pfefferbaum & North, 2020). In addition to the rise in mental health challenges previously described (e.g., Fancourt et al., 2021), isolation and physical distancing during the pandemic were associated with a rise in substance use in Canada (Canadian Centre on Substance Use and Addiction, 2020). Public health measures, such as physical distancing and quarantining, and limited access to mental health interventions (World Health Organization, 2021), may account, in part, for the rise in addiction rates within a Canadian sample of substance-using adults interviewed in May and June 2020 (Russell et al., 2021). Although the research identified some protective factors for substance-using Canadians during this time (e.g., greater access to take-home ‘carries’ and prescription deliveries as part of opioid agonist treatment), most research participants reported treatment disruptions during the pandemic (Russell et al., 2021). In addition to treatment disruptions, substance-using individuals also faced challenges in obtaining services such as limited or discontinued access to food banks, shelters, and other housing supports (Russell et al., 2021), which further exacerbated adversity within their family contexts. In

summary, international evidence is emerging that the use of alcohol and other substances increased to cope with symptoms of anxiety, depression, and loneliness due to social isolation during this global crisis (Durankus & Aksu, 2020; Mappa et al., 2020; Moyer et al., 2020), as well as to cope with concerns related to health, employment, and financial instability (Brooks et al., 2020; Pfefferbaum & North, 2020).

Substance Use within the Context of Pregnancy and Caregiving to Children

Disruptions in prenatal care are associated with higher anxiety and depression (Durankus & Aksu, 2020; Lebel et al., 2020; Moyer et al., 2020) and generally poor mental health for substance-involved pregnant women (Groulx et al., 2021). These mental health problems have, in turn, been linked with an increased risk of substance use within the maternal context (e.g., Joyce et al., 2022). Researchers continue to document the rise in substance use among pregnant and parenting women that took place over the course of the pandemic (e.g., Barbosa-Leiker et al., 2021; Vignes et al., 2022). Lien and colleagues (2023) examined the effect of the COVID-19 pandemic on mothers who use substances and their neonates admitted to a neonatal intensive care unit. They found that women enrolled in the study had significantly increased their fentanyl and tobacco use during the pandemic compared to pre-pandemic. A significant increase in fentanyl use was even found among mothers enrolled in the hospital's opioid maintenance therapy program. Concurrently, Lien and colleagues found a significant increase in preterm births (by 10%) and lower birth weight (by 140 g) during the pandemic compared to pre-pandemic measures. Furthermore, Kar and colleagues (2021) found that higher levels of depression during the pandemic predicted tobacco use in pregnancy. The authors concluded that financial difficulties specific to COVID-19 within their sample of pregnant women predicted more cannabis and/or tobacco use, as well as poly-substance use (Kar et al., 2021).

Vignes and colleagues (2021) conducted a study of women enrolled in a substance use treatment program during the COVID-19 pandemic (2020-2021). These women were compared to women in the same program who had been enrolled pre-pandemic (2015 - 2019). The only major structural change in programming between these two time periods was the use of virtual care during the pandemic. Although mothers accessing services during the pandemic reported that they were using a lower level of illicit substances, maternal drug screens at time of delivery of their newborns indicated a higher use of illicit opiates and methamphetamines during pregnancy (Vignes et al., 2021). Concurrently, neonatal abstinence syndrome was detected at significantly higher rates among newborns of women in the pandemic group (53.7%) than in the pre-pandemic group (38.0%). The authors concluded that maternal polysubstance use increased during the pandemic due to additional stressors. They reasoned that these stressors could either: 1) not be addressed with traditional approaches as effectively during the pandemic or 2) virtual care had limitations that posed barriers to working with these marginalized women (Vignes et al., 2021).

The findings related to increased substance use among pregnant and parenting women are concerning, given that substance-involvement impacts the caregiving environment and creates contextual adversity in the family associated with lifelong developmental outcomes. Findings from research on pregnant and parenting substance involved women are consistent with many challenges that plagued the general population during the COVID-19 pandemic, including difficulties coping, financial constraints, and rising mental health concerns (e.g., Durankus & Aksu, 2020; Mappa et al., 2020; Moyer et al., 2020, Brooks et al., 2020; Pfefferbaum & North, 2020). Marginalized women involved in substance use commonly face additional challenges, which were exacerbated by the pandemic. In their serial mediation model, He and colleagues

(2022) confirmed previous findings that adverse childhood experiences (ACEs) are associated with an increased risk of substance addiction later in life. They highlighted the link between child abuse and neglect, and family dysfunction and addiction to substances later in life (He et al., 2022). All of these adverse experiences have been associated with the high-risk nature of child rearing environments in substance-involved families (Carta et al., 2001; Conners et al., 2004; Eiden et al., 2011; Hatzis et al., 2017). Taken together, there is evidence to suggest that mothers and children affected by substance use, who required multifaceted, relational programming prior to the pandemic, will have been negatively affected by myriad risk factors exacerbated by the global COVID-19 pandemic.

Beyond Addiction: The Integrated Treatment Model for Substance-Involved Families

Given increased awareness of the impact of problematic substance use on the mother, child, and society, effective treatment programming for maternal substance use has drawn considerable clinical and research interest (Niccols, Milligan, Sword et al., 2012; Espinet et al., 2013; see Morton Ninomiya et al., 2023 for a scoping review of trauma-informed approaches). Traditional single-service addictions treatments typically do not address the complexities experienced by marginalized families involved in substance use. Some of these complexities include: women's trauma histories related to child abuse and exposure to multigenerational substance use, current parenting struggles, domestic violence, and poverty (Eiden et al., 2011; Espinet et al., 2016; Haabrekke et al., 2018; Motz et al., 2019; Niccols, Milligan, Sword et al., 2012; Rutman et al., 2020). In contrast, comprehensive and integrated interventions that reduce risk and promote protective factors can effectively address addiction problems while reducing parental stress and increasing parenting capacity (e.g., Espinet et al., 2016; Niccols, Milligan, Sword et al., 2012). These programs provide support in a comprehensive and wraparound

manner, with “one-stop-shop” services that address not only women’s physical, psychological, and socioeconomic needs, but also the needs of their children, and those of the mother-child dyad (Rutman et al., 2020; Urbanoski et al., 2018).

Comprehensive, integrated, substance use treatment programming may provide various forms of mental health care (e.g., counselling for trauma, parent-child relationships), parenting interventions, prenatal and primary care, childcare, as well as support in bridging connections across various social services (e.g., child protection, income and housing assistance, wellness services) that extend beyond the primary agency providing care (Milligan et al., 2020; Rutman & Hubberstey, 2020; Urbanoski et al., 2018). Further, instrumental supports that relieve families of some financial stressors, including food and clothing donations, food vouchers, and tokens for public transportation, are critical components of integrated interventions that facilitate service engagement by meeting families’ basic needs. Notably, these programs generally work with a trauma-informed approach which does not require women to disclose their trauma or for practitioners to treat trauma directly. With this approach, clinicians acknowledge the long-lasting effects of women’s history of struggle and distress, while creating an environment that supports healing and acknowledges women’s circumstances without retraumatizing them, ultimately supporting reduced substance use in pregnancy and within the caregiving context (Morton Ninomiya et al., 2023).

The model of integrating diverse services under one roof reduces barriers for substance using pregnant and parenting women who want to access treatment. These women may have previously encountered a range of obstacles to accessing services due to stigma, fear of child welfare and/or legal repercussions, lack of gender-specific programming, and difficulties with transportation and/or available childcare (Lefebvre et al., 2010; Motz et al., 2006; Stone, 2015;

Stringer & Baker, 2018). Furthermore, social isolation, depression and low self-esteem, long waitlists, as well as a lack of available supports and detox opportunities have been identified as significant barriers to accessing services for pregnant (Frazer et al., 2019; Stone, 2015) and parenting (Poole & Isaac, 2001) women who use substances.

'Breaking the Cycle' of Substance Use Among Pregnant and Parenting Women

Breaking the Cycle (BTC), a Toronto-based intervention program for substance-using pregnant and/or parenting women, has been offering integrated treatment services for this at-risk population for over 25 years. BTC's services are informed by a relational, attachment, and developmental approach to women's trauma histories (Motz et al., 2006). The programming is threefold in its design to: 1) improve mothers' wellbeing and functioning, 2) nurture optimal child development, and 3) support a strong and secure mother-child relationship (Espinet et al., 2016; Motz et al., 2006; Motz et al., 2011).

The addictions treatment at BTC follows a harm reduction model, enabling pregnant and/or parenting women and their children to take part in services starting in the early stages of recovery (Motz et al., 2006). Through a single access model, BTC operates in formal partnership with nine agencies that provide services related to child protection, addiction treatment, health, corrections and probations, and child mental health and development. The integrated relational nature of BTC's services promotes not only the relationship between mother and child, and mother and service provider, but also highlights relationships among staff, between staff and management, and between community partners as integral to effective service delivery (Andrews et al., 2018). Research on service engagement in this vulnerable population indicates that early involvement with integrated treatment is associated with more service utilization; in turn, more

service utilization is associated with more positive outcomes upon service termination (Andrews et al., 2018).

BTC is accredited by the Public Health Agency of Canada as a Community Action Program for Children (CAPC; Public Health Agency of Canada, 2023). BTC's integrated programming not only supports women prenatally through pregnancy outreach to reduce substance use exposure in utero but also promotes healthy mother-child relationships (e.g., Espinet et al., 2016) and child outcomes (Motz et al., 2006). More specifically, services at BTC are tailored to nurture the mother-child dyad within the first six years of a child's life, which has been established as a critical period for the formation of healthy attachment relationships that facilitate optimal child development throughout the lifespan (Cataldo et al., 2019; Espinet et al., 2016). These services may include parenting support groups and skills development opportunities that address challenges within the caregiving environment and alleviate parental stress to optimize child development (Espinet et al., 2016). Further, BTC offers specialized child health and developmental clinics (i.e., pediatric and developmental assessment services) that facilitate early identification of children's medical and psychosocial needs (Motz et al., 2006). The availability of such developmental supports for children has been described as valuable by women accessing integrated treatment for substance use (Rutman et al., 2020). Furthermore, several studies have found that engagement in integrated services for maternal substance use is associated with improved birth outcomes, cognitive and physical development, as well as emotional and behavioural outcomes of children (Haabrekke et al., 2018; Marshall et al., 2005; Niccols, Milligan, Smith et al., 2012). Research on BTC programming reinforces the pivotal role of a relational approach to interventions for substance involved women and their children that

immerses these vulnerable families in a support network which promotes positive relationships at all levels of care (Andrews et al., 2018).

Present Research

As research continues to emerge on the unique stressors that the COVID-19 pandemic placed on individuals and families (e.g., Prime et al., 2020), there is currently a gap in understanding of how the pandemic has influenced changes in service delivery and engagement, relationships with community agencies, and wellbeing of the highly vulnerable population of women who use substances. The present research aimed to elucidate the experiences of families who took part in treatment programming for substance use at BTC during the COVID-19 pandemic. The project comprised three studies.

1) **Study 1.** Interviews with three BTC staff members were fundamental to the qualitative, thematic, analyses carried out in the first study. The aim of Study 1 was to use qualitative methods to describe the impact of the pandemic on the experiences of BTC families through the observations of clinicians. More specifically, Study 1 evaluated changes that had been observed in the delivery of integrated BTC services for maternal substance use, in client engagement and functioning, as well as their involvement with partnering services and the community at large. There was an exploration of relevant risk and protective factors at play during the changing nature of services.

2) **Study 2.** The aim of this study was to evaluate maternal and child-related characteristics and adjustment measures, report on substance use during pregnancy, and to explore changes in the profiles of families referred to services before the pandemic compared to

during the pandemic. I analyzed archival clinical and research data collected before and during the families' engagement with BTC programming to achieve the goals of this study.

3) **Study 3**. The aim of Study 3 was to evaluate profiles of risk and protection of families involved in BTC services before the pandemic (January 2017 - December 2019) compared to those involved in services during the pandemic (March 2020 - June 2023). This study included a mixed-methods approach that integrated qualitative (Study 1) and quantitative (Study 2) data to gain a broad understanding of the factors that differentiated families with varying levels of relative risk and protection, independent of the context of the COVID-19 pandemic.

Positionality Statement

When conducting qualitative research, it is important to consider one's positionality with respect to the research setting. Throughout my involvement in the qualitative research presented in this dissertation, I have served as both a doctoral researcher from an academic institution and a clinical researcher embedded within the BTC model. This dual relationship meant that my approach had to balance the rigor of scientific methodology with the nuance and sensitivity that are required for effective data collection and interpretation in relational and trauma-informed clinical settings. Bridging these two worlds allowed me to conduct my research in a way that will promote knowledge dissemination within the scientific community while honouring the stories of women and children represented herein. Although being embedded within the relational and trauma-informed approach at BTC allowed me to interpret the clinicians' descriptions through a

shared lens, it remains important to highlight that there is an inherent subjectivity in my interpretation of the data. Therefore, I acknowledge the possibility that, if the themes had been generated by another researcher, they may have been different altogether or there may have been more or fewer of them, based on the same data collected.

STUDY 1: 'BREAKING THE CYCLE' OF MATERNAL SUBSTANCE USE DURING THE COVID-19 PANDEMIC: THEMATIC ANALYSIS OF CLIENT EXPERIENCES FROM CLINICIANS' OBSERVATIONS

Introduction

The COVID-19 pandemic disproportionately affected marginalized families facing social vulnerabilities (Nobles et al., 2020; Paremoer et al., 2021), such as those experienced by women with substance use disorders and their children (e.g., Clay & Parker, 2020; Galea et al., 2020; Pfefferbaum & North, 2020). From the outset of the pandemic, public health measures were implemented to mitigate viral spread (Government of Canada, 2020a). By the end of March 2020, non-essential services in the province of Ontario were closed, including schools and childcare centres, as well as many in-person mental health services offered to marginalized community members (Caldwell et al., 2020). Mental health practitioners and other staff who support children and vulnerable populations were not designated as essential workers (Caldwell et al., 2020), and the Canadian government recommended virtual appointments with doctors and obstetricians whenever possible (Public Health Agency of Canada, 2020). In response to world-wide lockdown or stay-at-home orders (e.g., see Monaghesh & Hajizadeh, 2020, for a systematic review), organizations offering mental health support adapted their service delivery to virtual care models in order to continue serving individuals in need (World Health Organization, 2020).

The experiences that clients and practitioners have had with virtual care across healthcare settings has been the subject of investigation in recent years and documented with regards to its benefits and barriers to effective service delivery. Generally, virtual service delivery has been found to generate positive outcomes for clients, with benefits and barriers reviewed across areas

of healthcare such as youth mental health (e.g., Gotkiewicz & Goldstein, 2021; Hopkins & Pedwell, 2021), obstetric and prenatal care (e.g., see Almuslim & AlDossary, 2022, for a scoping review; Kern-Goldberger & Srinivas, 2022) and geriatric populations (see Chuen et al., 2024, for a thematic analysis). High levels of overall satisfaction with virtual care models have been reported with a prenatal sample of women involved with substance use (Guille et al., 2022); these women also indicated individual preferences around increased scheduling and geographic flexibility, which reportedly increased accessibility to services (Guille et al., 2022).

Marginalized communities, such as women with substance use disorders and their children, face adversities that require access to a multitude of services, including treatment for trauma, intervention related to interpersonal violence, relapse prevention, interactions with child welfare systems, support around housing and acquiring basic needs, as well as other social inequalities that were exacerbated by the pandemic (CIHI, 2021). Research has revealed barriers inherent to virtual care that are relevant considerations for organizations serving families affected by substance use. Some of these considerations include: difficulties with accessing technology; concerns around safety, privacy, and confidentiality; the integrity of the client-provider relationship within therapeutic delivery; and potential disconnection from community supports when in-person services are replaced with both virtual and hybrid care (Patton et al., 2021; see Siegel et al., 2021, for a systematic review). The nation-wide detrimental effects of pandemic-related restrictions on mental health (e.g., Fegert et al., 2020; Racine et al., 2021), family functioning (e.g., Prime et al., 2020), and their disproportionate effects on marginalized families facing social vulnerabilities (Nobles et al., 2020; Paremoer et al., 2021) notably exacerbated the mental health challenges of communities affected by substance use (e.g., Clay & Parker, 2020; Galea et al., 2020; Pfefferbaum & North, 2020; Russell et al., 2021).

Emerging research highlights the challenges and burdens of the pandemic restrictions related to prolonged isolation and associated conflict within the home on family functioning and mental health (Fegert et al., 2020; Prime et al., 2020). In Canada, the prevalence of maternal depression and anxiety increased during the COVID-19 pandemic (Racine et al., 2021). Associations have been shown between maternal health outcomes (i.e., clinically elevated depression, anxiety and/or pregnancy-related anxiety symptoms) and prenatal care disruptions, including cancellation of prenatal appointments and birth plan changes (Groulx et al., 2021). In addition to the rise in mental health challenges (Fancourt et al., 2021; Groulx et al., 2021; Racine et al., 2021), isolation and physical distancing during the pandemic have been associated with a rise in substance use in Canada (Canadian Centre on Substance Use and Addiction, 2020a; 2020b), with particular challenges noted among mothers with children (Joyce et al., 2022). An increase in preterm births (and lower birth weight more generally) has also been documented in neonates with prenatal substance exposure (Lien et al., 2023). Taken together, there is reason for concern around the repercussions of the disruptions that took place over the COVID-19 pandemic on comprehensive service delivery for pregnant and/or parenting women who use substances.

Integrated interventions for maternal substance reduce the risks associated with substance exposure by effectively addressing addiction problems while reducing parental stress and increasing parenting capacity (e.g., Espinet et al., 2016; Niccols, Milligan, Sword et al., 2012). Breaking the Cycle (BTC), a Toronto-based intervention program for substance-using pregnant and/or parenting women, has been offering integrative treatment services for this at-risk population for over 25 years, with a complementary research program to increase knowledge mobilization and inform treatment. BTC is one of Canada's first early-identification and

prevention programs for pregnant and parenting substance-involved women and their children under six years of age, launched with the goal of addressing challenges related to poor coordination and fragmentation of services for this population (Leslie et al., 2007). In response to identified barriers to consistent and effective care, BTC developed an integrated treatment approach offering a 'one-stop-shop' service model with wraparound services that bridge connections across various sources of support for women and children seeking care (Milligan et al., 2010; Rutman & Hubberstey, 2020; Urbanoski et al., 2018). BTC's in-person services include pregnancy outreach, addictions treatment and trauma counselling, child-focused programming (e.g., developmental assessments and childcare), parenting support and skill development (through centre-based programming and home visits) that nurture mother-child relationships, as well as basic needs support (e.g., clothing and food). The programming is theoretically grounded with a relationship, trauma-informed, and developmentally sensitive stance, and has been linked to improved maternal and relational outcomes (e.g., Espinet et al., 2016; Motz et al., 2006; Motz et al., 2011). Through engagement with a range of services at BTC, clients familiarize themselves with the BTC model and form close relationships with BTC staff, who in turn gain a deep understanding of their needs and strengths and the evolution of their life and treatment-specific trajectories. Within the context of maternal substance use, which can be seen as a "progression of disconnection leading to isolation and alienation from self and others" (Leslie et al., 2007, p. 100), the strengthening of these growth-promoting relationships (Spencer, 2000) can be transformative (Leslie et al., 2007). In-person, centre-based, services have, therefore, been instrumental in laying the foundation for engagement with substance-involved families who have often had difficulty trusting and connecting with available systems of care.

The COVID-19 pandemic created an unprecedented crisis that forced BTC to adjust in-person service availability and client engagement during the public health restrictions, as did other centres across Canada. All in-person services at BTC were paused from March 2020 to December 2021, with the exception of some periods of outdoor in-person services between lockdowns in 2020 and 2021 (Andrews et al., 2024). Data collection for research purposes was also paused for 10 months (March 2020 through December 2020) until virtual means of data acquisition were developed and implemented starting January 2021. It has been widely accepted that the pandemic added stressors to the lives of Canadians, and especially marginalized community members; however, there is still limited understanding of the experience of families involved in substance use and how pandemic-related restrictions affected service delivery and their engagement with available, and often adapted, programming. Given the disruptions in data collection and adaptations to service delivery that took place at BTC, qualitative work within this context can be used as a tool to deepen understanding of the experiences of BTC staff and clients who delivered and received services, respectively. As such, the aim of the present research was to highlight stories from the human experiences that offer insights into what took place and how it affected women and children seeking services at BTC over the course of the pandemic, in a way that quantitative data alone cannot always capture. Speaking to the women themselves was not possible at the time, and therefore, interviews were conducted with BTC staff.

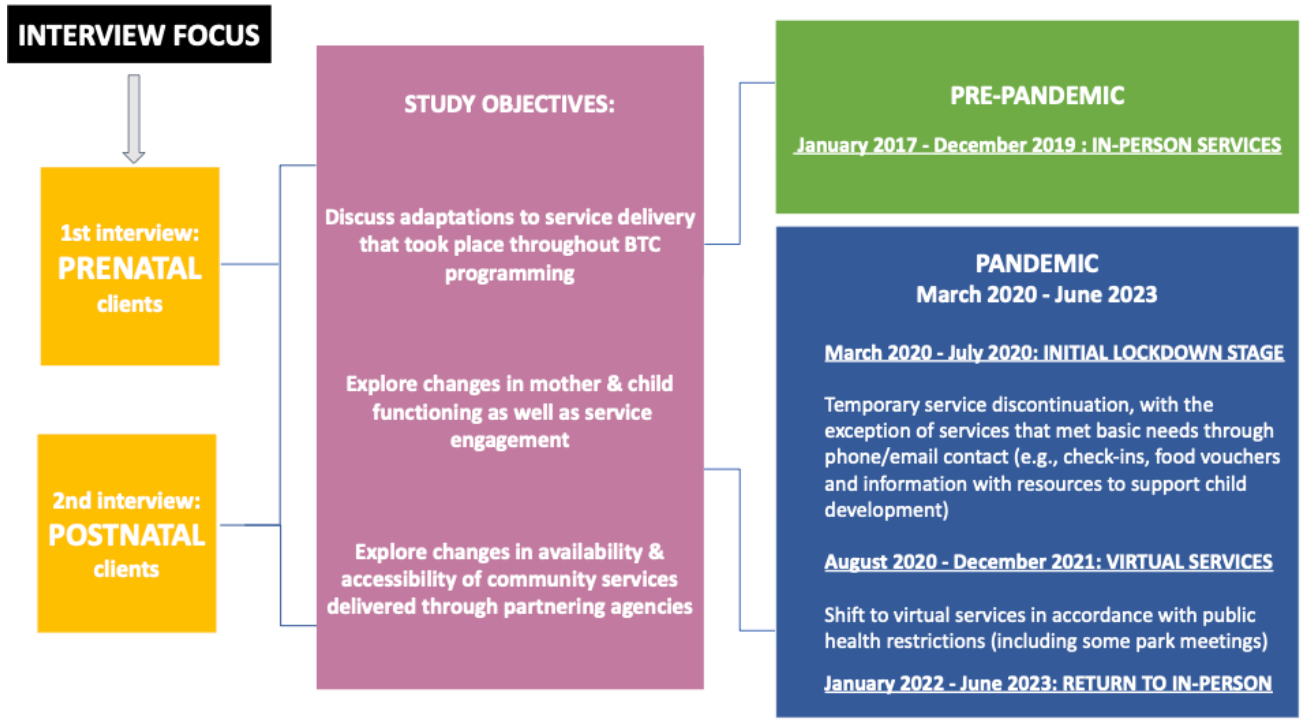
Present Study

The primary goal of the present study was to elucidate the stories of BTC clients as recalled by BTC staff. The COVID-19 pandemic created a crisis that required the BTC program, clients, and other community service providers to adjust in response to public health restrictions. Although the pivot in service delivery was required at the time, it was not possible to predict the

effects on service engagement and client outcomes. For the present study, I interviewed BTC staff members with extensive experience working with the client population at BTC, followed by a qualitative analysis. An exploratory design was employed, with the use of inductive, semantic, thematic analysis to reveal overarching themes emerging from the staff members' interviews that would deepen general understanding of the experiences of substance involved mothers and their children during the COVID-19 pandemic. Figure 1 presents the structure of the present study.

Figure 1

The Focus and Objectives of Study 1 within the Timeframe of 2017 (Pre-pandemic) - 2023 (Pandemic)



There were three major objectives for this study. Each objective was explored within the context of changes that took place from the in-person, pre-pandemic, phase (prior to March 2020), throughout the pandemic, until reopening of BTC's in-person services (January 2022). Additionally, each of the two interviews conducted for the purpose of this study either focused on the experiences of prenatal or postnatal women and their children (where applicable), based on the observations of the BTC staff interviewed.

Objective 1: To investigate the adaptations to BTC programming and service delivery that took place as the centre transitioned from its traditional in-person, centre-based, services, to virtual service delivery, and finally back to in-person services as the centre reopened its doors to clients.

Objective 2: To investigate the changes observed by BTC staff in client functioning (mother and child, where applicable) and engagement with services across the phases of the pandemic.

Objective 3: To investigate the changes in availability and accessibility of other community services that BTC families have historically relied on for support, including interactions with the medical system and other partnering agencies such as child welfare, housing supports, and the legal system.

Method

Study Design and Terminology

For this study, I interviewed three long-time BTC staff members. A semi-structured interview format was used to generate meaningful insight and discussion. The questions focused on the participants' perspectives on observable differences in service engagement and effectiveness of service delivery across the 2017 – 2023 timeline described in Figure 1. The terms 'pre-pandemic' and 'pandemic' were chosen to highlight the distinct time frames in the described timeline, as BTC services transitioned from in-person, to predominantly virtual, and then back to in-person, when public health restrictions were eased. Before the pandemic, in-person services constituted the standard form of service delivery at BTC. The pandemic phase in the present study was from March 2020 through June 2023 and was characterized by three stages. The first stage included the initial lockdown (March 2020 – July 2020) when in-person services were discontinued. Contact was maintained with clients by phone and mail (e.g., small packages with basic needs were sent to clients). The second stage was characterized by a shift to virtual services (August 2020 – December 2021) as well as park meetings in accordance with public health restrictions. The third stage, the reopening phase (January 2022 – June 2023), was characterized by a slow and progressive reinstatement of in-person services at the centre, in compliance with public health regulations.

Participants

All three interviewees were women with long-term and extensive experience at BTC supporting clients seeking integrated treatment for substance use. All BTC staff members who work at the centre are women. The interviewees also had a broad understanding of the impact of

the pandemic and its restrictions on marginalized communities more generally which had affected the functioning of prenatal and postnatal clients referred to BTC.

The three senior BTC staff who participated were 1) a registered psychotherapist and manager at BTC who has worked directly with women (and children, where applicable) referred to the pregnancy outreach program and the postnatal program, 2) a registered social service and early childhood professional who has worked directly with women referred to the pregnancy outreach program exclusively, before they are referred to postnatal services at BTC or discharged from the organization, and 3) an experienced clinician and administrator who has worked at various levels of programming, including on-site involvement in case formulation and planning as well as knowledge mobilization and communication with various ministries regarding the impact of the pandemic on BTC programming, its clients, and community partners. All BTC staff had over 15 years of experience working at BTC prior to the pandemic.

Measures

The semi-structured interview questions that guided the discussions with BTC staff are included in Appendix B. The interview questions were designed with the research goals in mind and interview participants had access to them before we met. I inquired about observed barriers to service engagement and accessibility (which overlapped and also varied between prenatal and postnatal clients) and how these barriers may have set the stage for patterns in health behaviours and related outcomes. The questions focused on the circumstances surrounding changes to operations during the time of COVID-19 public health restrictions and their impact on service delivery at BTC, client engagement including risk and protection profiles, and community service involvement. The interviews addressed challenges related to the functioning and care of

the marginalized families during a time of global and local crisis and the experiences that offered meaningful insight to effective service provision during recovery from this global crisis.

Procedure

I conducted semi-structured interviews with three senior staff at BTC who were involved in the care of pregnant and/or parenting women referred for services to BTC over the course of the timeframe relevant to this study (January 2017 – June 2023). The study's goals were described prior to the interviews both in the informed consent form and verbally prior to the interviews. Consent for participation was obtained from each participant prior to the scheduled interview (see Appendix A). The two staff members with extensive experience with clients referred to pregnancy outreach programming at BTC were interviewed together. This first joint interview lasted 120 minutes. One of these staff members also works with postnatal clients and volunteered time to be interviewed for a second time alongside the third BTC staff member. This joint interview allowed for a discussion on topics relevant to the experiences of postnatal clients at BTC while providing insights on the broader perspective regarding policies and relevant regulatory considerations that changed over time as the pandemic evolved. The second joint interview lasted 90 minutes. All interviews were conducted over Zoom, a videoconferencing platform. The interviews were recorded for the purpose of transcription for qualitative analysis.

Recordings of the interviews conducted were reviewed extensively and analyzed using thematic analysis (Braun & Clarke, 2006) using Excel Version 16.79.2.

Qualitative Analyses: Thematic Analysis

Thematic analysis constitutes one form of qualitative analysis that has been widely applied across healthcare settings. An established six-step thematic analysis approach was undertaken to examine the interview data (Braun & Clarke, 2006; Braun & Clarke, 2012; Braun

et al., 2015). This approach is theoretically flexible and can be applied to datasets (including interview transcripts) of varied length. The six steps are as follows: 1) become familiar with the data, 2) generate initial codes, 3) search for themes, 4) review themes, 5) define themes, and 6) write-up. The final process in the present study generated primary themes, secondary themes, and tertiary themes.

Broadly, thematic analyses require an analyst to code the data available (e.g., transcripts of interviews) by assigning labels to pieces of data, reviewing the codes, and finally organizing them into groups according to similarities to aid in the development of themes (Braun & Clarke, 2006). Ultimately, themes allow for larger datasets to be reduced into more digestible chunks (Braun & Clarke, 2006). These more digestible chunks, or themes, generated on the basis of codes, bring out the meaning from the data and address research objectives. Braun and Clarke (2006) differentiate between two levels of themes: semantic and latent (Braun & Clarke, 2006). Semantic themes are derived from "… the explicit or surface meanings of the data and the analyst is not looking for anything beyond what a participant has said or what has been written" (p. 84). The semantic approach was applied in the present study.

Braun and Clarke (2006) also differentiate between a top-down, deductive, or theoretical thematic analysis that is driven by the research questions specified by analysts versus a bottom-up, inductive approach that is driven by the data itself. As Braun and Clarke (2006) describe in their work, deductive coding is based on a set of pre-established codes (a priori) which are then applied to the dataset (e.g., interview transcripts) to generate themes; with this form of analysis there is a likelihood of missing potentially valuable information from the data as the analyst looks at the data through a tightly focused perspective. Conversely, the inductive coding method does not utilize predetermined codes and instead provides a blank canvas for the data analysis,

making it the preferred approach within the context of analyzing open-ended interview questions. Further, inductive coding allows for adding codes as one progresses with the analysis and is well suited for thematic analyses in areas of work that investigate novel ideas or concepts, as is the case with the present study. Therefore, the present study employed an inductive approach to thematic analysis.

In order to confirm for accuracy and validity in my qualitative analysis, I engaged in member-checking. In the early stage of analysis, I presented preliminary codes and themes to BTC staff members who were interviewed. The intention of this step was to ensure that my interpretation of the data was aligned with BTC staff members' understanding of the women with whom they work and the changes they observed in women's experiences from pre-pandemic to during the pandemic. Subsequently, I shared my codes and themes with a colleague trained in qualitative analysis who had no prior experience with BTC or with the work pertaining to maternal substance use treatment more broadly. The intention of this step was to confirm that the themes captured the codes in a way that an objective researcher (outsider) would also deem appropriate. Lastly, the final report was read by BTC staff members to ascertain that the descriptions in the final report remained consistent with their initial statements and were presented in a manner that would support a reader's understanding of BTC's treatment model and the observations shared by clinicians during the interviews.

The final product resulting from a thematic analysis is the production of a report that includes a selection of excerpts from participants' statements (Fereday & Muir-Cochrane, 2006). As Xu and Zammit (2020) highlight, "The writing of the final analysis is about telling stories, which is the product of prolonged data immersion, deep thinking, and reflection" (p. 3). With this intention, the present study focused on clinicians' recounting of the stories of BTC women

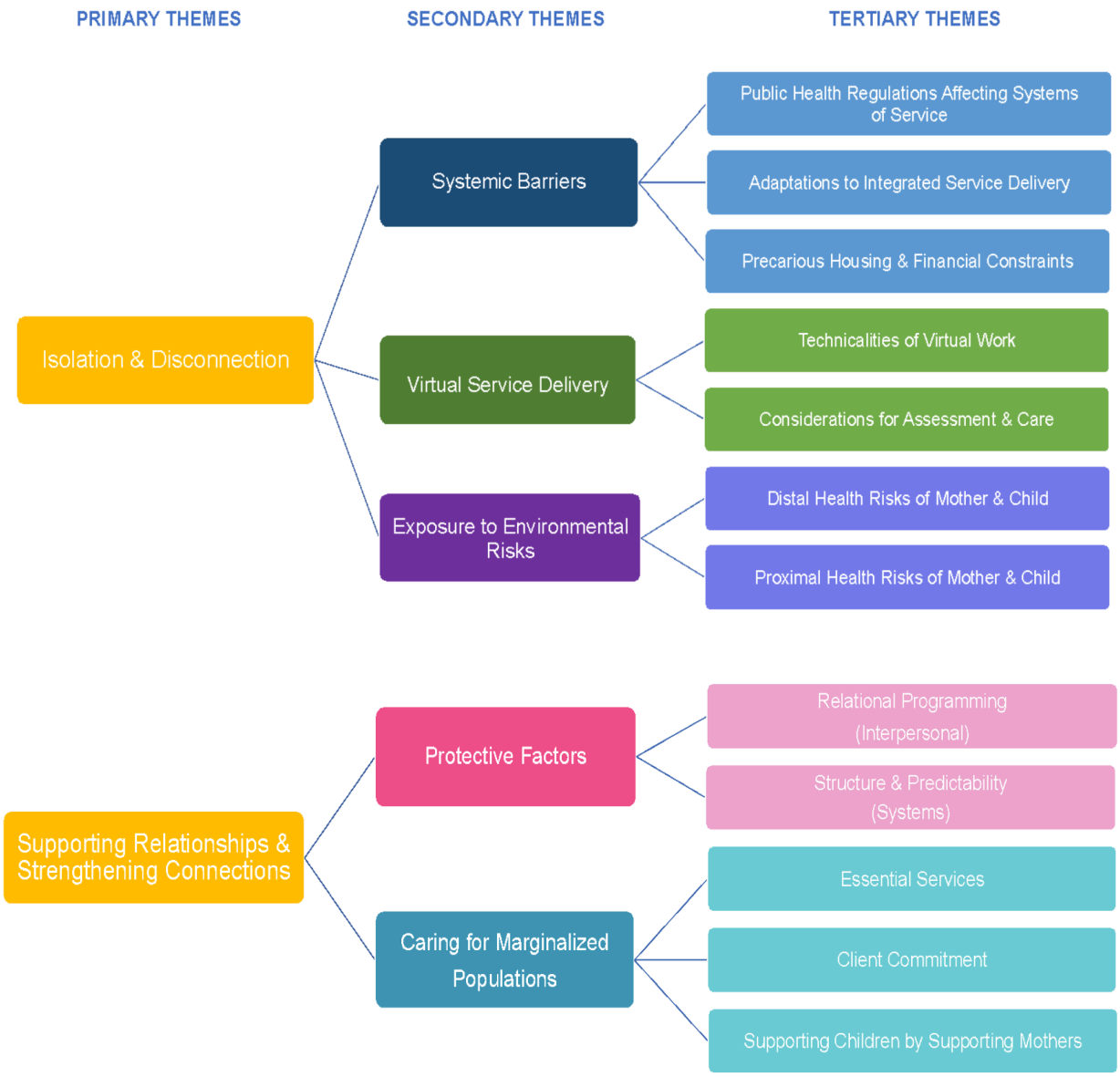
and children impacted by the pandemic, highlighting their adjustment and engagement in treatment for substance involvement. More specifically, the main objectives guiding this research (see Figure 1) were to explore changes that took place over the COVID-19 pandemic that affected BTC's programming, client engagement and functioning, and availability and accessibility of services with partnering agencies. The pre-pandemic time frame (2017 – 2019) was used as a baseline to discuss changes that took place during the initial lockdown phase of the pandemic, following by the virtual phase, and finally the re-opening pandemic phase, across two types of client programs (prenatal and postnatal). An inductive coding approach was applied to present the clinicians' observations of BTC families' experiences from the time of the COVID-19 pandemic.

Results

The thematic analysis resulted in the emergence of two primary themes, five secondary themes, and twelve tertiary themes that are discussed below. To highlight both the aversive role of isolation and the supportive effect of relationships and connection on clients' lives throughout the pandemic, two primary themes were identified, namely 1) *Isolation and Disconnection* and 2) *Supporting Relationships and Strengthening Connections*. *Isolation and Disconnection* encapsulated three secondary themes, whereas *Supporting Relationships and Strengthening Connections* captured two secondary themes. Each secondary theme encompassed two to three tertiary themes, resulting in twelve tertiary themes altogether, presented in Figure 2.

Figure 2

Themes that Emerged During Thematic Analysis



Isolation and Disconnection

The first primary theme of *Isolation and Disconnection* arose many times in the interviews. This primary theme reflected the breakdown of relationships and the disconnection

that individuals universally experienced from their communities and healthcare providers, which was particularly difficult for marginalized populations in need of specific services.

Three secondary themes emerged under the primary theme of *Isolation and Disconnection*: *Systemic Barriers*, *Virtual Service Delivery*, and *Exposure to Environmental Risks*. These are discussed in turn below.

Systemic Barriers

BTC staff referred to the concept of *Systemic Barriers* to describe the (often) unintentional consequences of policies, procedures, or practices within societal structures that obstructed or even prevented access to care and resources that were integral to the BTC families' overall wellbeing. Three tertiary themes were captured by this theme, namely: *Public Health Regulations Affecting Systems of Service*, *Adaptations to Integrated Service Delivery*, and *Precarious Housing and Financial Constraints*. These tertiary themes are discussed next.

Public Health Regulations Affecting Systems of Service. BTC staff shared stories of challenges that BTC clients (prenatal and postnatal) faced as health regulations restricted in-person services during the COVID-19 pandemic. Amendments were made periodically to public safety measures as understanding evolved around best practices to mitigate viral spread. Clients' lack of reliable and consistent access to information presented a systemic barrier to receiving timely and accurate health and safety recommendations from authoritative sources. Factors contributing to this barrier included homelessness, poor accessibility to Wi-fi or phone data plans to connect via the internet, as well as inconsistent access to news delivered via television and radio. One staff member commented, "The way that people get information is really important to consider. For our clients, who don't listen to popular news channels, it can feel like broken

telephone." BTC staff engaged in the dissemination of accurate, important, and updated information to prenatal and postnatal clients as promptly as possible.

The interviews with BTC staff revealed that the nation-wide systemic pressures placed on the healthcare system during the pandemic resulted in adaptations to services that shifted from 'case management' to 'crisis management' procedures. To manage the pandemic situation with greater efficacy, Ontario expanded the provincial COVID-19 testing strategy several times during the early phase of the pandemic. By May 24, 2020, testing was "available province-wide for all symptomatic people (with at least one symptom of COVID-19, even mild symptoms), and asymptomatic, risk-based testing is available for people who are concerned that they have been exposed to COVID-19…" (Ontario Health, 2021). The Provincial Antigen Screening Program was launched in November 2020 to create "rapid antigen point-of-care tests" in order to quickly identify and help stop the spread of COVID-19 (Government of Ontario, 2021). Notably, these assessment sites operated "in coordination with local health system partners, including public health units and regional steering committees," (Ontario Health, 2021). This program meant that some staff members across BTC's partnering agencies were redeployed (from case management to crisis management) to disseminate information to clients and to screen and test for COVID-19 symptoms, as well as to direct them to treatment when necessary. This redeployment impacted the availability of partner agency staff for managing cases and making referrals to services like BTC. Staff redeployment to street outreach and pandemic-related management work meant that more practitioners were serving the community at large to prevent or mitigate crises. With a strained public health system, prenatal care was disrupted more widely (e.g., Groulx et al., 2021), and pregnancies among marginalized women may not have been identified for follow-up

prenatal care, creating challenges for ongoing health care for pregnant women. One BTC staff member commented:

> Workers [across BTC's partnering agencies] were serving food, making sure clients had a place to live, that they were not overdosing and that they had kits to prevent overdose. They were doing the really critical work and not necessarily engaging in pregnancy referrals to prenatal supports. The workers were in crisis mode but also the clients were in crisis mode. Breaking the Cycle's POP [pregnancy outreach program] clients were coping with the chaos and crisis in many ways like a lot of other people, but they coped with drugs and alcohol. Their issues contextually were just that much bigger.

Another BTC staff member also noted the impact of isolation on the postnatal populations during this time, stating, "The public health regulations at the time affected identification of families with children, not just for us [BTC], but for all kinds of services that families were physically isolated from in-person services."

Ultimately, the lack of in-person services and the shift to crisis management with staff redeployment in partner services resulted in a notable reduction in referrals to BTC programming, and, in turn, a reduction in BTC referrals to partnering agencies. One staff member confirmed that she was seeing 12-15 pregnant clients at any given time prior to the pandemic (prior to April 2020), but her client load had dropped to five clients by July 2020. Prior to the pandemic, the number of Homeless, At-Risk and Pregnant (HARP) Public Health Nurses collaborating with BTC to support pregnant and/or parenting women involved in substance use was generally between four and six. It dropped to between one and two nurses during the pandemic. Further, some street-level programs for basic needs closed during the pandemic, suspending standard client drop-in services due to redeployment. In reference to such adaptions

to programming that took place at commonly accessed locations by BTC clients, one staff member commented:

> [Before the pandemic] BTC clients who were the most vulnerable would go to one of our partnering agencies for something to eat, to see a nurse or a doctor, and to get some of their basic health needs met. It would allow people to notice them. Our numbers did go down as we moved into July [2020], and then a little bit later our numbers went down even more. What we learned was that the primary referral sources [partnering agencies] were no longer seeing people in the capacity that they were before; sometimes they weren't seeing them at all because they were redeployed or their program building was closed and they were limited to handing out sandwiches to people [in one example of a strong community partner], but not engaging in conversation, so they weren't noticing people's conditions or offering those kinds of referrals.

Across partnering agencies, staff were doing their best to adapt to the health and safety restrictions implemented while remaining engaged with those in need. One BTC staff member clarified, "For BTC clients, medical services were still available for pre- and postnatal care. However, ancillary services that BTC clients might access like street-based services, foot care, homeless drop-in centres, food kitchens, were not delivered in-person."

Reportedly, before the onset of the pandemic, pregnant women referred for services to BTC's pregnancy outreach programming were typically in their first or early second trimester of pregnancy. However, BTC staff noted a marked shift to late-term pregnancy referrals during the pandemic, as most clients being referred to pregnancy outreach programming were in their third trimester of pregnancy. As reported by BTC staff, ultimately, the isolation from in-person services that BTC clients experienced increased the likelihood of high-risk pregnancies and

deliveries. A senior staff member stated, “We weren’t actually getting referrals for clients until they were in sometimes the eighth or ninth month of their pregnancy, homeless with little prenatal care, and potentially still using.” The BTC staff recalled stories of high-risk deliveries that were unique to the pandemic.

One staff member shared the following story of a prospective pregnancy outreach client who was undergoing the referral process during the pandemic, but delivered her baby before engaging in services:

> I had a client who was referred to me; she was late in her pregnancy. I had been corresponding with one of her service providers about completing the referral so I could see her; in that same time period she ended up delivering her baby in her boyfriend’s basement apartment on the toilet, and she was overdosing at the time… the boyfriend’s mother lived upstairs. Apparently, he was high and not conscious, and his mother heard the baby crying and ran downstairs and called 911.

Another staff member summarized the experiences of BTC clients within the context of the pandemic, more generally:

> With two decades of work in pregnancy outreach, that situation that she [other staff member] is describing now is unique to the pandemic. There are other examples of people who had their babies in a tent. So, the pandemic also brought new circumstances to the population that we work with, and this woman in the example is a pregnancy outreach client, so she’s not unique or different from a profile perspective outside of the pandemic, than anybody else that we’ve worked with before. But it [the pandemic] placed people in these isolated conditions where it just further isolated them. And it made

the pregnancy less healthy, and it made the labour and delivery less safe for both the baby and the mom.

Adaptations to Integrated Service Delivery. Breaking the Cycle is funded by the Public Health Agency of Canada as a Community Action Program for Children (CAPC; Public Health Agency of Canada, 2023) and was committed to comply with all Public Health regulations from the outset of the pandemic. One staff member spoke to the agency-wide efforts dedicated to reinstating services virtually and through other means in the initial weeks of the pandemic: "There was an enormous amount of work for practitioners, not just at Breaking the Cycle, but everywhere, to conceive of what was possible and safe to deliver virtually, as well as to implement a very different way of working in that relationship". Meeting the instrumental needs of children and their families while following health guidelines was of utmost importance. The staff member clarified, "The majority of CAPC programs took it upon themselves to make sure that people received the instrumental supports that they would typically receive as part of in-person programming, as we [BTC] did, and prioritized instrumental support at that time." She also highlighted that many CAPC programs were beneficiaries of some of the federal government's food programs, which supported the distribution of essential needs at a time when families were struggling with food access and food security.

During the spring of 2020, services at BTC that could be delivered were provided primarily by phone, email, and postal services. Resources were shared with families over email whenever possible and food vouchers were sent by mail to individual homes. Each client received the same resources because assessment of individual needs during the early weeks of the pandemic was not possible. For example, food vouchers were being delivered by mail regardless of place of residence from the first week of the lockdown. Further, prenatal and

postnatal clients were contacted by phone by BTC staff working remotely from their own homes, and emails were sent with resources and other materials relevant to client circumstances (i.e., women with or without children) in lieu of in-person information sharing.

According to BTC staff, pregnancy outreach and postnatal clients shared numerous challenges but also differed from one another in important ways. For prenatal clients, outreach work in the initial stage of the pandemic (March 2020 to July 2020) entailed communicating by phone with shelter workers regarding clients or connecting with clients directly whenever possible. Weekly emails were prepared and sent to clients containing materials about prenatal relapse prevention, and online resources were shared that were suitable to clients' needs during pregnancy. Outreach work faced inherent challenges with this form of communication due to clients' means and housing circumstances, as one staff member described, "It was really hard to connect with them through a telephone platform or emails, because they didn't always have Wi-fi access or data plans," and further, "Even when we were trying to communicate with the shelter workers that we knew really well, they were often redeployed or overwhelmed, and couldn't do case management work." Reportedly, high rates of staff turnover in response to pandemic pressures further strained the networks and relationships in place that facilitated communication between partnering agencies and their mutual clients.

According to BTC staff, postnatal BTC services that could continue at the outset of the pandemic were delivered by telephone while alternative forms of service delivery were being reconceptualized for safe engagement. Postnatal clients and their children were all housed prior to the pandemic, either in their private residences or in shelters. To facilitate children's engagement in interventions from home, families were sent practical, developmentally appropriate, activities for their children that they could complete together, with parenting

suggestions according to a Monday – Friday schedule. In place of their standard food program run in collaboration with Second Harvest Food Bank, which included serving hot breakfast and lunch in-person at BTC prior to the pandemic, BTC staff mailed food vouchers to BTC clients starting from the first lockdown in March 2020.

In the fall of 2020, during the second phase of the pandemic, identified by BTC staff as the shift to virtual services (August 2020 – December 2021), restrictions eased and BTC staff were able to meet clients outdoors. Food vouchers were delivered by staff directly to each family's home as a means of connecting with them face-to-face at a distance, in accordance with ongoing health regulations. For extended meetings, lawn chairs were setup outdoors to engage with clients. Reflecting on this experience with clients, one staff member stated, "I think it was extremely meaningful to the families that we did see again." As more BTC programs became available through an online platform, clients engaged in services as they were able to. Although addictions groups and the Connections family violence group were not delivered due to concerns with delivering sensitive material over a virtual platform, BTC staff delivered parenting groups, one of which was a parenting workshop, as well as individual addiction counseling. Due to public health regulations, childcare and developmental assessments were suspended until in-person services resumed in January 2022 (BTC opened for in-person services in November 2021 for one month but had to abruptly shut down again due to the Omicron variant of the virus, before re-opening in January 2022). In the meantime, meetings in parks continued for prenatal and postnatal clients.

As services were adapted and virtual service delivery was normalized over the fall of 2020 and throughout 2021, BTC staff reported that this form of service delivery – although necessary at the time – was suboptimal for the marginalized families receiving care at BTC. As

stated by one staff member, “The very necessary public health regulations that needed to be implemented resulted in service adaptations that some families found difficult or were unable to use.” She explained some of the essential adaptations that presented barriers to integrated service delivery model at BTC:

> The way we deliver services at Breaking the Cycle is through a community partnership, where partners come here [to BTC] to deliver service. So, during the pandemic, it’s not only that families became isolated from community supports, we also were delivering virtually, so we couldn’t deliver the range of services in an integrated way – the way we did before the pandemic – and that meant that families didn’t get an integrated program for addictions, early intervention developmental services, interpersonal violence services [Connections; Motz et al., 2019]… they were not only getting them in a very fragmented way, because they weren’t all happening at BTC, but they were also getting them delivered in a different way. Everything was very, very different for us.

As the pandemic relief efforts continued, plans for reopening the centre evolved with the changing circumstances. A BTC staff member explained, “We had a plan for in-person service that started in November [2021], and then Omicron happened, which then changed things a little bit.” As a result, reopening of the centre was delayed to January 2022, when in-person services were re-instated and programming slowly transitioned from virtual to hybrid (virtual and in-person) models of service delivery in accordance with Public Health guidelines. As the return to in-person services slowly took place, the staff explained that BTC implemented a vaccination policy which required BTC clients to have received the COVID-19 vaccine in order to engage in indoor services at the centre; clients who had not received the vaccine were offered virtual or outdoor appointments. One staff member indicated that procedures were in place to allow

families to return in cohorts, in order to better track and manage viral exposures. The staff member added: “So not all staff had contact with all families…” which from a public health perspective meant that, “…if somebody tested positive [for COVID-19], not every staff member was exposed; this scheduling, related to exposure, also affected the transition for a period of time.” She continued:

> There were regulations, and we didn’t want to have to shut the program down. At that time, if you were exposed, even had exposure to someone who tested positive, you were designated a close contact and you had to isolate. If we didn’t figure out how we could have a core staff group that was protected from it, the program would have kept closing. There was also a transition time where we offered hybrid services to guarantee that every client had an opportunity to come into the center, because we couldn’t have all families coming in at the same time. So that went on for quite a bit of time, until public health measures shifted again and we could blend two families in the room at the same time.

Requests for virtual services at BTC have fully stopped since January 2023, as one BTC staff member explained, “I’ll say, anecdotally, that with new referrals coming in [January – May 2023], no one is asking for virtual services anymore.” She reflected on the readiness of the community: “I think that the transition time for the community has potentially happened, at least for the population that we’re serving. A lot of hybrid situations still don’t work for people like our clients.”

With regards to partnering agencies, one BTC staff member explained, “External partners adapted and adjusted from typical service delivery which resulted in changes and sometimes isolation between agencies. We collaborated using different methods.” These methods included meeting over the phone and then virtually over Zoom, a videoconferencing platform. However,

the BTC team recognized the need for in-person services for their marginalized population early in the pandemic and was not meeting virtually with staff from partnering agencies since all mandated public health restrictions were discontinued. The staff member explained:

> Our partners, who are Breaking the Cycle service providers, have also now transitioned back to Breaking the Cycle in-person. So, even those partners who do their meetings on Zoom at their home agencies or maybe have a meeting with a family on Zoom, they're back in person when meeting with us [BTC staff]. They're coming in, and we feel like there is an advantage of that for relationships, for us and for families, to meet this way. We're holding case conferences, just like you would have seen in 2019.

Another BTC staff member clarified that while the in-person service model appears to work best for BTC clients, many partnering agencies have adopted hybrid models of service provision as their new norm, even after all public health restrictions were dropped:

> BTC clients are showing up at hospitals and community programming. Things are open, but when we're trying to refer clients to certain services, they're still remote. So that also is a huge gap for the pregnancy outreach clients, and for the postnatal clients. All of them need mental health support in some way or another, or some kind of trauma support. A lot of that is still remote [this interview was conducted May 2023].

Precarious Housing and Financial Constraints. BTC staff members reported during our interview that prior to the onset of the first pandemic lockdown in Ontario in March 2020, the majority of pregnancy outreach clients were either under housed (homeless or couch surfing with friends) or living in street outreach shelters. One staff member explained, "Clients who were housed were really precariously housed. It wasn't a form of housing that was going to survive the pandemic." She then added, "Primarily it was because of affordability. Availability

and affordability," which set the stage for a comprehensive overview of how the circumstances around housing affordability and availability – that previously created precarious housing circumstances for BTC clients – worsened during the pandemic and continue to place systemic barriers to healthier outcomes for marginalized communities today. One BTC staff member stated:

> The housing crisis was a crisis because of the pandemic. It was a crisis because people couldn't be in shelters, the way it was before, due to the public health mandates and requirements of shelters and housing providers as well. It took them a while to figure out how to adapt, and that involved taking over hotels and accommodating people differently from a health and safety perspective.

The BTC staff described that over the summer of 2020, shortly after the start of the pandemic, the city of Toronto funded accommodations in hotels for marginalized individuals who had been previously living in shelters, as part of crisis management planning. Reportedly, the city had paid hotel owners for rooms that would become shelter spaces. Such accommodations allowed for individuals to be off the streets and living further apart from one another, as required by public health regulations. However, hotel shelters were reportedly marked as "harm reduction shelters" and quickly turned into places where drugs were readily available. One staff member explained, "Many of the women we work with lived in those kinds of shelters where drug dealers were all over the hotels, and there were people using all over the hotel."

BTC staff explained that as the crisis of affordable housing continued and outreach shelter and hotel shelter spaces filled up quickly, more and more marginalized individuals found themselves living in encampments around the city of Toronto. Encampments that were created

around the city predisposed marginalized, pregnant women to myriad risks, including abuse and exposure to substances while isolated from community supports, similar to those experienced inside hotel shelters. Unique to living in encampments is the experience of inclement weather; however, the fear of being in close quarters with others contributed, in part, to the circumstances that pushed people away from shelters and into encampments. As described by one BTC staff member:

> There were 10 tent cities in different parts of the city. If there was a person who had a partner or someone else they spent all of their time with, they'd be in a tent together. There would be 10 or more tents [in one area]. People felt better doing that than being in the shelter system, sleeping in bunk beds or side by side with other folks.

All three BTC staff members were consistent in highlighting that the rise in costs of living had a significant impact on their BTC clients and on marginalized communities at large. One staff member emphasized some of the financial burdens:

> I think that the raised rates for rent, the heightened food costs, as well as other costs were very difficult for our clients. I know it took a toll on them financially but also on how it made them feel about their parenting; it's difficult when you're not able to give your children the basic things that they need, mainly because food prices, housing prices and hydro prices have gone up.

Another staff member referred to the financial relief systems in place under more usual circumstances for families with young children, which were not always available during the pandemic:

> Sometimes those financial burdens [described above] get a little bit offset when children are in childcare or when they're in school, and they are part of food programs, and they

> get breakfast or lunch and snacks at childcare; in some schools they get supplemental nutrition. That didn't exist during lockdowns and beyond; sometimes people lost childcare spaces that increased their financial burden. Sometimes, everybody was at home to be fed, and nobody was cared for through other systems.

Further, with regards to housing, one staff member referred to periods of time, historically, when housing appeared to be affordable with reduced rent rates, but still exemplified the continued concern:

> Ten years ago, rent still wasn't affordable for our clients. Affordable for the general population is very different from what is affordable for our [BTC] population. For example, a one-bedroom apartment might have rented for $1000 to $1500. Now, if you want a room, it's $1000, per room! Our clients don't have that money from Ontario Works or ODSP [social assistance], and if they did, it's the whole cheque.

With the arrival of Spring and Summer 2021, an uptick of referrals to BTC was observed. More funding had been made available for housing and a number of BTC clients were granted housing through the province, under the Ontario Housing Benefit. Reportedly, this allowed for more stabilization and movement away from crisis management. However, as more services opened up and families were more inclined to travel, BTC staff also noted concerns related to travel costs, which may have become barriers for many BTC families. Although BTC supplements transportation through its programming, families interested in travelling outside of BTC services had to consider the added costs of travel amongst rising costs of food and other essential needs for them and their children.

Virtual Service Delivery

Virtual Service Delivery was the third, and last, secondary theme that emerged under the primary theme *Isolation and Disconnection*. Within the context of this study, the theme *Virtual Service Delivery* refers to the benefits and challenges associated with remote (virtual) means of service delivery that are relevant to the general population at large and were particularly impactful on marginalized BTC clients. Two tertiary themes were captured by *Virtual Service Delivery*, namely: *Technicalities of Virtual Work* and *Considerations for Assessment and Care*. The two tertiary themes are discussed below.

Technicalities of Virtual Care. The COVID-19 pandemic took place at a time when the technology was available to connect people through online platforms using the internet (Wi-fi, data). The virtual connection made it possible for a variety of services to continue being offered during the pandemic in modified ways through telehealth. In addition to client care, online videoconferencing platforms like Zoom also allowed for teams within and across agencies to meet virtually and maintain collaborations while caring for mutual clients. Further, professional development opportunities, including workshops, informational webinars, and clinical training were offered using virtual platforms to maximize learning for healthcare staff and the general public (see Soklaridis et al., 2022, for a narrative scoping review of adaptations and innovations that allowed for continued professional development during the pandemic).

Despite the benefits of online platforms, there are important considerations for telehealth such as privacy and reliability, which the staff discussed during the interviews as they related to BTC assessment and engagement in care. As previously indicated, some services were suspended due to virtual service delivery, such as developmental assessments and the food program available for clients at BTC. While the reliability issues regarding Wi-fi or data

connections were cumbersome for many people, they played a notable role in the lives of BTC clients who were dependent on services throughout the pandemic. The BTC staff members explained that along with rising costs of living, the need for clients to rely on Wi-fi and data plans on cellphones often created a barrier to service engagement as video calls take up considerable pre-paid data. Some clients could not afford extended data plans and many could not connect to indoor Wi-fi, creating a disproportionate disadvantage.

Considerations for Assessment and Care. BTC staff members explained that even if clients could connect and engage in telehealth, the virtual platform – by telephone or via online platforms – generated a variety of other considerable challenges. One staff stated:

> There are huge factors to consider even with telephone contact with our clients. We always had to be mindful of who else was in the space when making a phone call and asking a woman questions about vulnerabilities. Most BTC clients had partners who were also using substances. There were clients experiencing IPV [interpersonal violence] and so it made phone calls not safe. So, virtual delivery of services was not so safe even if they had the means like the data and the Wi-fi; it made them more vulnerable as pregnant women.

Another staff member added, "In addition to partners, other family members including children, roommates and anyone else frequenting the home can pose a barrier to proper assessment."

Compounded by precarious housing, rising costs of living, and a lack of privacy, finding the opportunity to connect with healthcare practitioners and receive adequate virtual counselling services became an insurmountable challenge for many women and families accessing services at BTC. The concerns around safety and privacy during therapy sessions also applied to meetings that took place outdoors when face-to-face interactions were preferred.

Furthermore, one BTC staff member expressed a reduced sense of effectiveness when delivering services virtually. She commented:

> There are lots of times, even in person, when clients present really well, but everything feels like a mess inside. It was just so hard to do my job in a way that I felt was effective, which in turn made me feel very ineffective. From my perspective as a worker, sometimes I really felt like I was failing clients.

Moreover, the conditions set upon clients and BTC staff posed a barrier to comprehensive assessment and engagement in care, even when the connection was possible. Individual counselling services were continued over the phone or over online platforms whenever possible, but as one staff member highlighted, they experienced barriers to proper assessment of clients using remote methods (e.g., telephone):

> There were many times when I was talking to new POP [pregnancy outreach] clients on the phone and I felt like they might be high, but I couldn't see their face. So, I'm listening... they may be slurring. What if they have a speech impediment? I couldn't assess their body language… all I was assessing was what I was hearing. It's really hard to assess folks when you're not face-to-face with them.

The interviews also highlighted the added challenges of engaging and assessing young children in services from their homes, as that can affect both the mother's ability to participate in her own care as well as the care of the child. The inherent challenges of virtual services created barriers to service engagement and appropriate care, which meant that a number of families struggled to meet their children's developmental needs due to difficulties participating in speech and language therapy or occupational therapy. As one BTC staff member pointed out:

> The intervention model wasn't always effective for our families, because the kids were little. Our moms were working on taking care of themselves and meeting their children's needs. And they just weren't able to regulate into that virtual experience. Having to sit with your phone, keeping your child still. Remember that all of our kids are little – 1 year, 3 years old – and being able to manage a virtual intervention was really hard for our families. Many of the families couldn't follow through with it despite trying.
>
> The lack of childcare, which is typically provided to mothers in-person at BTC, exacerbated their dysregulation, and "difficulty understanding or managing a child in the virtual session often led to a mother feeling frustration and unsupported," explained the BTC staff member. In summary, "It was all really tricky, but also helpful in the engagement, because it helped decrease the isolation for that short period of time. It [virtual care] was helpful in some ways, but it wasn't necessarily super effective from a therapeutic perspective long term."

While many families struggled with virtual programming, there were also women and children for whom virtual service delivery provided adequate support. More specifically, BTC staff noted that mothers who were experiencing limited stressors and exposed to limited risk factors during the pandemic demonstrated a greater capacity to monitor, observe, and describe their children's development to staff. Despite the difficult circumstances experienced by BTC families, 100% of the families referred remained engaged with BTC throughout the pandemic and received services that were made available. As clients continued to share their vulnerabilities and the increasing risks they were experiencing, BTC staff responded accordingly and often acted as a point of connection between the family and other agencies to provide support as

necessary. In this way, BTC mitigated the impacts of stress and trauma on the families in their care even during service disruptions and the uncertainties of the time.

Exposure to Environmental Risks

Exposure to Environmental Risks was the last of the three secondary themes that emerged under the primary theme of *Isolation and Disconnection*. The theme of *Exposure to Environmental Risks* encompasses tertiary themes related to the distal and proximal health risks of mothers and children that were highlighted during the interviews. Through the continuously growing literature on social determinants of health, researchers often use the terminology 'proximal' (Latin noun *proximus* meaning 'nearest') and its antonym 'distal' (derived from 'distant') to highlight the direct or indirect nature of causality between various factors and their consequences on human health (Krieger, 2007). More broadly, researchers refer to proximal and distal factors as 'downstream' exposures and 'upstream' societal influences, respectively, that affect population health (Dahlgren & Whitehead, 2021).

Distal (Physical and Mental Health) Risks of Mother and Child. Environmental risks emerged over the course of the pandemic that increased women and children's vulnerabilities in unintentional, unexpected, and sometimes uncontrollable ways. One of the greatest healthcare challenges facing vulnerable populations was the increased availability of drugs like Fentanyl, a strong and addictive opiate. The isolation of marginalized people from community supports and case management was significantly exacerbated by the health regulations and safety measures imposed during the pandemic. A BTC staff member described the scene in downtown Toronto as a "public health crisis", stating:

> In the last six months or so, when I've gone downtown to one of the hospitals or public health drop-ins, the substance use has been more overt. The Eaton Centre [large mall

> downtown Toronto] has a public health drop-in on the main floor that is a safe injection site and a place where people can get safe supply. I see people outside injecting needles, and that, to me, is really different for Toronto. In the past I would occasionally see people smoking crack pipes… but injecting? And the desperation around the injecting…

Another staff member also spoke to the sense of desperation associated with addictions:

> The part there that is important to consider is the desperation of addiction. It's not so much that they are looking to do those harms, but it is where the addiction takes them; to engage in riskier and riskier behaviours out of desperation.

Unlike housing and cost of living, the BTC staff asserted that street drugs had become more available and more affordable, and the concoctions of drugs that were available could make them more harmful to the user: "It's cheaper. They've made it cheaper and far more available. And, also, when people are thinking that they're buying cocaine, it may actually be tainted with some form of an opiate, which can spiral into other things." Further, precarious housing contributed to the instability and increased likelihood of remaining within the "desperation of addiction", as one staff member had previously stated. This made substance use recovery unsustainable and often exposed women to adverse circumstances including abuse, especially within the context of unsupported substance use and isolation from practitioners for periods of time during the pandemic lockdowns.

Reportedly, interactions between law enforcement officers and members of marginalized communities exacerbated existing tensions. Encampments were created on public properties but later dismantled by police upon direction from the City, approved by the mayor, with the reported intention of creating safer housing for the homeless. The staff member spoke to the potential trauma experienced by individuals living in encampments when their tent shelters were

taken down, but also alluded to the overall risks that emerge when living under such circumstances:

> I saw cops come into Trinity Bellwoods and move people out of there, take their tents down, move their stuff… being pregnant and worrying about child welfare taking your child under those circumstances, which is harder than your circumstances before, and then the triggers around other kinds of trauma… being a vulnerable woman, out in a world where you're living in an open space… there are all kinds of men using substances, vulnerabilities around. Physical, sexual assaults, not having food… there are so many pieces that would worsen mental health for sure… I think some people were just living constantly under threat, all day long, for months and months…

The pandemic and public health restrictions imposed to mitigate the spread of COVID-19 placed additional pressures on an already challenged healthcare system and created life circumstances that incited the emergence of additional risk factors for marginalized individuals across communities in Toronto, and nation-wide.

Proximal (Physical and Mental Health) Risks of Mother and Child. In addition to distal risks, BTC staff shared their observations and concerns regarding a variety of proximal, mental and physical health risks experienced by mothers and children, which were exacerbated by the circumstances of the pandemic. BTC staff indicated that elevated levels of isolation, fear, and anxiety stood out as prominent factors that played a role in the functioning of women and families. One staff member spoke about "environmental anxiety" that was consistent throughout the pandemic:

> I feel that there was a consistent environmental anxiety, in general. I don't think people were more relaxed as we moved from 2020 to 2021, it was just different in terms of

things to worry about; there was the initial upset around COVID and contracting it and what that looked like. But then it was about the vaccines, and clients' worries about 'are they safe, are they not?'

Another BTC staff member described that the extended periods of isolation from community and other supports appeared to play a key role in worsening anxiety levels and exacerbating pre-existing mental health challenges amongst clients (individual women and families) who were dependent on ongoing care for a range of needs:

> Most of our moms already have diagnoses of anxiety and depression and other mental health issues. So that isolation from professional support and community, and being disconnected from the community, likely worsened some of their mental health symptoms. Also, the opportunities that families need especially with a newborn baby or children… the idea of community and being out in the community… and I think that that's the other important piece.

When asked about the role of family (parents, grandparents) during heightened periods of stress on women's anxiety and mood or perceived emotional support, one staff member commented, "The majority of POP [pregnancy outreach] clients didn't necessarily have family support, and if they did, it appeared to be well intentioned initially, and then eventually it broke down." She spoke about the pervasiveness of intergenerational trauma and the breakdown of family systems, even when the best intentions are at play:

> There are a couple of clients I'm specifically thinking of where the parent [parent of the client] offered to take them [newborn child], so that child welfare wouldn't take their baby, and then the relationship just broke down, because there's so much family history.

Similarly, while relationships with partners can be helpful and supportive, this was not often the case for BTC clients. The staff member clarified, "Anytime that we meet clients who constantly have partners, even outside of the pandemic, it's because they're either afraid and feel they need to be with somebody or they feel they need protection and care, even if that's not happening in the relationship." Reportedly, regardless of the nature of the relationship – abusive, substance use enabling, or supportive – the BTC service provider may not have known about it, "unless the shelter [or street staff member] called and said that was happening, but the shelter staff were overworked…". This potentially placed BTC pregnancy outreach clients, as well as postnatal clients and their children, at risk of interpersonal violence and maltreatment with limited ways of coping while they were isolated from community supports. The BTC staff member also reported an unprecedented rise in cases of syphilis among her clients within the past couple of years:

> In the last six months, I have met more women with syphilis[1]. They have syphilis even though some of them identify only one consistent partner; that says a lot… in a relationship where there's so much trauma, so much chaos, so much poverty, and the boundaries are not there. And then we have to tell them that there are implications for their pregnancy.

Furthermore, the staff member confirmed that over the course of the pandemic she was

[1] Syphilis is a sexually transmitted infection (STI) caused by the bacterium Treponema pallidum. If left untreated, it can cause serious health problems and can be transmitted through the placenta to a developing fetus or during childbirth. Cases of syphilis are on the rise in Canada. Reference: Government of Canada (2023). *Syphilis*. Retrieved on July 25, 2023, from: https://www.canada.ca/en/public-health/services/diseases/syphilis.html]

aware of two late-term pregnancy outreach clients who were in relationships with registered sex offenders (for child pornography). In one case, the registered sex offender was on parole and was not allowed to be near anyone under 16 years of age. Due to the circumstances around this case (i.e., his partner and pregnant BTC client was due to deliver her baby within a short time frame), the staff member had to involve a child welfare worker, who then, by law, forbade the man from seeing his son after his birth. She recalled:

> The guy lost his mind, but that was the right thing to do. The client tried to argue as well. But at some point, the child is going to have kids over to the home to play or dad will do a school drop off or pick-up; there are so many pieces that she couldn't see, which was unfortunate and spoke a lot about her state of mind. The welfare worker just said, 'Nope, that's what it is and you get to see him personally after 16. You can see him virtually, but you're not seeing [your son] in-person'.

The implications of cumulative stressors, including maternal isolation, anxiety, depression, and aversive environmental influences on fetal (e.g., Kinsella & Monk, 2009; O'Donnell & Meaney, 2017) and postnatal (e.g., Evans & Whipple, 2013; Hser et al., 2015) child development have been well documented in the literature and were highlighted during the interviews. Observations were made and concerns were raised by BTC staff regarding the insufficient or inconsistent prenatal care, the impact of high stress levels on fetal development, infant births outside of hospitals, and infant deaths, among high-risk pregnancy outreach clients who were precariously housed. One staff member spoke to the complexity of the situation:

> People continue to cope the way that they always did with drugs. They were living in an encampment, the encampment becomes your family, and then it's like 'let's figure out what to do here' [when there is a pregnancy]. Because seeing pregnant clients at the end

> of the pregnancy… in most cases there had been very little to no prenatal care. And then, whatever the substance use was, the medical staff have to be worried about what's happening with COVID in the hospital and having a sick infant. There were so many pieces.

One staff member reported attending community committee meetings where it was being discussed that babies were being born in the encampments. There was a sense that "everybody had to scramble" to "just get the babies born in the hospital" under safer conditions for the mother and infant. Women experienced various illnesses (e.g., COVID-19) and fears around the implications of their illnesses on them and their (unborn) child, their reduced supports for everyday living, and changes in the services they depended on. The detrimental effects of chronic maternal stress on fetal development have been well documented (see Wu et al., 2004, for a review) and were reflected in the staff member's concerns regarding "babies bathed in cortisol".

In addition to their exposure to pandemic-related stressors and adverse environmental influences, children in BTC families were destabilized due to school and childcare centre closures. They also experienced interruptions to therapeutic care (due to challenges with the virtual platform) for special needs (e.g., speech and language or occupational therapy), previously mentioned. BTC staff spoke about the inconsistent care for children with special needs, adversity in their child rearing environments (e.g., exacerbated maternal mental health challenges, separations for extended periods of time within the foster care system, exposure to substance use and interpersonal violence, etc.), and the potential rise in unsupported challenges within the mother-child relationship over the course of the pandemic. One staff member

specifically addressed the rising mental health concerns and exposure to adversity among children during the pandemic:

> In the general population they're talking about kids having PTSD because of the pandemic. That's the general population... what about the layers of issues and other concerns for our [BTC clients'] kids? They're living in homes where people were using, there was IPV, or there was inconsistent food … there are layers of issues for our kids.

Another staff member stated, "Generally speaking, when people are precariously housed and using substances, they are often not treating their mental health," further challenging their parenting capacity. Extended separations affect attachment and healthy parent-child bonds, and there were important considerations for the circumstances that took place during the pandemic. One staff member explained, "The kids in foster care, whose parents were only able to initially see them virtually, and then under only very restricted conditions… what did that mean for the parent-child relationship and to the child themselves? So, there are those kinds of risks as well."

As pandemic restrictions eased and families started traveling, the BTC staff noted that they were faced with new concerns. Families considered the wellbeing of their very young children with unpredictable exposure to illness and other vulnerabilities. "It wasn't a transition time for people to just get comfortable, not just about coming to in-person programming, but also moving around in public spaces and on public transit with their kids. It's different with their kids and being masked," reflected the staff member. "So, our families were thinking not just about themselves, but that their children are that much more vulnerable in the public parts," she stated.

Supporting Relationships and Sustaining Connections

Supporting Relationships and Sustaining Connections was the second primary theme that emerged. The theme *Supporting Relationships and Sustaining Connections* represents the

guiding principles of BTC's service model that are embedded in practice even during a service interruption, informing current and future practice. This primary theme captured two secondary themes, namely *Protective Factors* and *Caring for Marginalized Populations*.

Protective Factors

The secondary theme *Protective Factors* captures two tertiary themes, namely *Relational Programming (Interpersonal)* and *Structure and Predictability (Systems)*, described next.

Relational Programming (Interpersonal). The interviews revealed that despite the challenges and adaptations that evidently affected BTC's typical procedures and practices over the course of the pandemic, BTC staff remained committed to supporting their clients in keeping with the relational and integrated model of treatment. As one staff member pointed out, "It's one thing to understand relational theory, and it's another thing to put it into practice. And we're very good at doing that here [at BTC]. The team is very good at that." The relational working model is also reflected in the collegiality at BTC. Even with new staff joining BTC at the outset of the pandemic, the staff reported that there was an intentional drive to build a strong team, work as a team, and to prepare staff for the ongoing modifications to service delivery that would continue to support families. Notably, BTC's relational working model and staff's recognition of its significance for clients, were key drivers behind the progressive return to in-person work once public health regulations allowed for reopening. The in-person component to programming at BTC is critical for clients and staff. One BTC staff member spoke about the transition for staff to a slow return to their offices starting in November 2021 (return to in-person services for clients was January 2022):

> BTC staff were [back] out of their homes and in an office setting, and I think just that, in itself, was meaningful. Doing your outreach work from the office, doing outreach, then

> going back to the office… Even though we weren't in groups together, it decreased the isolation for the workers, who were doing really difficult work inside their own homes during the pandemic. The majority of staff didn't live in three-level homes. They often lived in one level apartment or condo situations, and some staff were living in shared accommodations where they were doing their work in their bedroom. So, when we think about staff and doing that very critical work, they were also doing it in their home, which is supposed to be, in my mind, their safe space.

The BTC staff affirmed that, during a time of crisis, BTC stayed true to its standard of practice and commitment to maintaining partnerships in adapted ways to offer the best support possible for the mothers and children in their care. One staff member reported:

> As a community of professionals, often we reached out to other agencies. Somebody may have reached out to our parent-infant program that may have referred that family to speech and language [therapy] and then as that agency was sorting themselves out the parent-infant program was able to help people. Other agencies reconnected with families that maybe had lost touch for a week or two, maybe even three weeks, as we were all figuring out how to adjust to this change that COVID had brought us. So, we work together that way.

Despite the aforementioned barriers to establishing and maintaining contact during a time of crisis, BTC workers managed to strengthen relationships with other agencies such as Birthmark, to create new opportunities for engaging their marginalized clients. One staff member explained:

> One doula service that is not for profit and has a sliding scale, was free for our clients. They also offer virtual programming for things like CPR training, prenatal yoga, prenatal

> mindfulness. And they were really open to having our clients participate in those opportunities. They have very generous donors and a lot of baby supplies… strollers and car seats and swings. They worked very well with our clients; that helped them [BTC clients] get where they wanted to go in terms of their parenting goals.

Another staff member added:

> We had a relationship with Birthmark before, but it became even more important during the pandemic, because what we were looking for were people who, or services that, were not just offering virtual but actually some form of in-person, even if it wasn't extensive, something that was in-person and relationally based. This was definitely one of them.

Finally, over the course of the pandemic, many opportunities for professional development became available and could be conveniently accessed virtually, from home. This allowed for knowledge mobilization across teams and organizations, over online platforms, that would have otherwise been unlikely. According to one BTC staff member, "There was more professional development. This happened during the pandemic. People had a bit more time, and there was a ton of it available for free, and so this was another way that people connected".

Structure and Predictability (Systems). Prior to the pandemic, BTC clients had regularly scheduled sessions to address addictions, parenting, meals, life skills, to attend developmental programming and care, as well as a variety of other services offered in the centre. As one staff member highlighted, "That predictability in that relational piece was very important to them [BTC clients]." As the initial lockdown started and adaptations were made to services to meet public health regulations, BTC committed to transitioning to a virtual model that would resemble, as closely as possible, their standard program offerings and schedules. One BTC staff member explained:

> We tried to keep to the schedule that we've had since we started [25 years ago]. We were delivering Mother Goose [children's singalong group] on a certain day, and we called it a parenting workshop, and we delivered a New Moms group. We thought about conceptually how we were going to do that; importantly we kept to the schedule to keep the routine and predictability in people's lives – for staff as well as our clients.

Furthermore, In November 2022, as the reopening of the centre had already been evolving (since January 2022), the whole centre moved to a new location. In December 2022, BTC staff hosted their annual holiday party to welcome clients to the new location, despite the work they were doing themselves to adapt to their new space. This was a celebration for staff and clients and a demonstration of the staff's dedication to rituals and celebrations that clients thoroughly enjoyed every year. The holiday gathering was an intentional attempt to re-engage clients who may have been reluctant to return to in-person services after virtual service delivery or who had not previously interacted with BTC staff or attended programming at all. As one staff member described:

> We did a big holiday party; that was really pivotal for client re-engagement. We came together for everyone to see the space for the first time in a welcoming, warm, happy, nurturing way. It felt like that launched us well into the new year. By January 2023, things felt different around in-person engagement.

The role of structure and predictability were important considerations for BTC as it worked towards reinforcing connection with and among staff, amidst uncertainty and the need for quick adaptation. BTC staff explained that many of the meetings they had held previously, prior to the pandemic, stayed the same during the pandemic, including regular administrative

meetings, clinical seminars, and clinical meetings, also ensuring that each team had a chance to meet, plan, and debrief.

Caring for Marginalized Populations in Times of Crisis

Caring for Marginalized Populations in Times of Crisis was the other secondary theme that emerged under the primary theme of *Supporting Relationships and Strengthening Connections*. *Caring for Marginalized Populations in Times of Crisis* captures three tertiary themes, namely *Essential Services*, *Client Commitment*, and *Supporting Children by Supporting Mothers*, which are all discussed below.

Essential Services. What is an essential service? Who is an essential worker? How important is human connection within the context of healing trauma, working with addictions, treating children with special needs, etc.? These were some of the critical questions that emerged when BTC staff reflected on the circumstances of marginalized communities over the course of the pandemic, who experienced disruptions in their essential services of care. During the pandemic, services designated as 'essential' remained open for in-person care and access to goods (e.g., hospitals and grocery stores), while a range of treatment centres, drop-in programming, and other services typically serving marginalized people were closed to in-person meetings or adapted (e.g., food and naloxone kits distributed strictly outside with minimal face-to-face interaction with healthcare workers and minimal or no case management). One BTC staff member commented:

> In general, with pregnancy, it's important for the person to be able to receive essential medical services as well as community understanding and community supports so that they then know who's there and available for them as a person, but also who's going to

be available for them and their baby once the baby's here. The piece around building relationships and community is essential.

Furthermore, the staff member commented on the mode of service delivery and how it can be detrimental or helpful in assisting different populations with special needs: "We also have to look at 'for whom is virtual the best way' and 'for whom is virtual not the best way'? And I think we need to look at research on that in terms of for whom a different service delivery model may work best and why."

Client Commitment. BTC staff also emphasized important take-aways about the populations they serve, based on their observations of clients' engagement and commitment to accessing services for themselves and their children. One staff member stated:

> I think that their [clients'] commitment to the relationship with their child, and to the clinical work that we do, is important. It's important to be able to say that out loud. When I think about Breaking the Cycle families, that was always very impressive to me… I think about how in that time [during the pandemic] we always worried about our parents' [clients'] financial stabilities because they're on a fixed income and having to pay market rent. But they were committed.

In line with this staff member's comments regarding the challenges that BTC's population faced with adapting to the service modifications, another BTC staff member clarified her conceptualization of the circumstances:

> Something that I think people need to hear is that our population wasn't looking to isolate themselves from support. They 'were' isolated from support. And so, when we think about the increased substance use during pregnancy throughout the pandemic or not accessing services until much later, I think that from a formulation perspective, it isn't

> because they wanted to hide from people or hide their pregnancy or keep using… it's that the services and supports and community building weren't available to them.

Despite these barriers, the BTC staff' shared observations and stories that depicted the families' consideration for, and cooperation with, the restrictions as we moved through the various stages of the pandemic (lockdown, virtual, in-person):

> Our families did their best, just like we were doing our best, to follow the restrictions that were asked of us. I can't think of any families that were noncompliant around any of the restrictions that they were asked to do, out in parks, in grocery stores; people really just wanted to do the best to follow the rules and regulations, despite some of the effects that it may have had on them.

Furthermore, she recognized the clients' adaptation to the changing circumstances around their care:

> For the clients who were part of the postnatal services, they attended appointments as we could offer those to them, whether they were by telephone, virtual, and later in-person, and programming for their children. I think it's important to be clear and say that they made themselves available for the clinical services that we were offering in those different ways.

Supporting Children by Supporting Mothers. Whether the discussion was around women in the prenatal or postnatal stage, the consensus was clear that we can support children by supporting their mothers. One staff member questioned, "Who worries about the babies? We still live in a culture where it's about punishing the pregnant individual. Usually it's about the woman, and not thinking about how supporting her helps the pregnancy and then the baby." Although marginalized individuals can appear difficult to reach due to myriad reasons, further

isolating them from supports and connection means that they are further from healing and discovering their true capacity. One staff member stated:

> I think that people forget that the women we work with, they do have capacity! But you have to care about them to see that. It's because they don't necessarily care about themselves. That becomes a huge part of the conversation. I always say, 'I'm here for you and we're here to do this together'… and I see that people appreciate that. To some extent we [BTC staff members] are like an external brain; the people who just help them figure things out, who encourage them. The co-regulators.

Co-regulation takes place within a safe, relational, environment. BTC's relational working model is strongly influenced by attachment theory and the understanding that a child's lifelong outcomes are largely influenced by their early life experiences, mainly within the context of the primary caregiver (BTC client) relationship. Therefore, creating relational contexts for healing that encourage engagement in self-care and healthy behaviours more broadly also supports mothers' capacity to create healthy, relational caregiving environments for their children. One BTC staff member highlighted the learning that takes place that leads to more effective caregiving:

> Eventually, if the moms are stable and come to programming here [BTC], and they hear about relational and attachment theory, and they hear about co-regulating, they start to think 'Oh, I get it now'; it just took the time to be clean and stable to figure that out. It's a really nice thing to watch evolve.

A final statement by a BTC staff member encapsulated an important take-away message:

> What I wish that people would know about our families during the pandemic is that what happened for our families during the pandemic – whether it was good or whether it made

> things harder for them – mostly didn't have to do with them. Even though perhaps they had vulnerabilities, they had other challenges, their children had special needs or extra support needs before the pandemic, they were accessing the services that they needed to address those needs. I wish people knew that. It's not just who the families were that explains the outcomes for them during the pandemic. Even much more significantly, it's about what happened in the system of services… I wish people would also focus on the fact that services changed dramatically, and the way that people could access the supports that they needed didn't exist during the pandemic. Certainly, for more vulnerable people, I think that didn't work as well.

Discussion

The COVID-19 pandemic generated a global response to mitigate viral spread that resulted in adaptations to service delivery across a wide range of services. In the present qualitative study, I considered the service delivery experiences of one marginalized group, substance-involved women and their young children engaged at Breaking the Cycle (BTC), an integrated treatment program in Toronto. To understand these women's experiences during the pandemic, I conducted interviews with senior BTC staff. The interviews were analyzed using thematic analysis (Braun & Clarke, 2006). There were three general lines of exploration: 1) the complexities of delivering services during the time of COVID-19 with evolving public health restrictions affecting BTC's service delivery, 2) client engagement and their adjustment to changes in BTC programming, and 3) partnering agencies' involvement in client care. The interviews offered insights into changes in service delivery that took place, relative to pre-COVID, across three key phases: 1) from the initial lockdown (March 2020) to July 2020 when there was a temporary discontinuation of services, 2) throughout virtual service delivery with

occasional in-person outdoor meetings between August 2020 and December 2021, and 3) during the reopening of in-person services from January 2022 until the time of the present-study interviews in May 2023.

The present study highlighted observations of BTC staff who reported on the challenging circumstances exacerbated by the COVID-19 pandemic affecting substance-using women and their young children. Despite the challenges faced by families and staff involved in BTC's programming during the COVID-19 pandemic, the staff fully believed in and followed the public health directions and restrictions issued. BTC staff continually monitored evolving public health directives. The staff members stayed true to their relational model while complying with public health measures and preparing for a progressive return to in-person service delivery as efficiently as possible.

Isolation and Disconnection

Thematic analysis of the interviews yielded two primary themes that encapsulated major considerations for BTC families, namely *Isolation and Disconnection* as well as *Supporting Relationships and Strengthening Connections.* The theme *Isolation and Disconnection* comprised three secondary themes: *Systemic Barriers*, *Virtual Service Delivery*, and *Exposure to Environmental Risks*. Each secondary theme encompassed two to three tertiary themes. The findings highlighted the implications of public health policies on BTC clients' experiences and engagement with services throughout the pandemic.

Under the secondary theme, *Systemic Barriers*, the following tertiary themes were discussed throughout the interviews with BTC staff: *Public Health Regulations Affecting Systems of Services, Adaptations to Integrated Service Delivery* and the *Precarious Housing and Financial Constraints* that were pre-existing concerns for BTC clients, exacerbated by the

COVID-19 pandemic. In line with the government's regulations over the daily operations of mental health centres like BTC during the pandemic, some BTC programming was adapted to virtual delivery and some services were fully paused until in-person programming returned in January 2022 (e.g., group addictions work, developmental assessments, and home visiting). Emerging research indicates that disruptions to prenatal care and birth plan changes experienced by pregnant women during the pandemic were associated with greater odds of experiencing clinically elevated depression, anxiety and/or pregnancy-related anxiety symptoms (Groulx et al., 2021). Further, Pierce and colleagues (2020) reported that women with young children experienced the largest increase in mental distress during COVID-19. The observations reported by researchers in the literature on the experiences of prenatal and postnatal populations were echoed by BTC staff members as they reflected on their own clients' experiences from March 2020. In addition to treatment disruptions, substance-involved individuals and whole families who relied on community-based services were met with school and daycare centre closures (Caldwell et al., 2020; Clemens et al., 2020), and limited or discontinued access to food banks, shelters, and other housing supports (Russell et al., 2021), which further exacerbated the level of adversity and resource scarcity in their lives.

Furthermore, the use of virtual platforms that replaced in-person mental health services for BTC clients during the pandemic was discussed at length during the interviews, as they posed many challenges for marginalized families. The interviews highlighted the *Technicalities of Virtual Work* and related *Considerations for Assessment and Care* of marginalized populations (especially with children) that BTC staff observed during the pandemic. Despite the benefits and barriers of virtual services identified in emerging research across mental healthcare (e.g., Siegel et al., 2021) as well as prenatal and obstetric care (e.g., Almuslim & AlDossary, 2022), there are

special considerations for virtual care with BTC's population that have not been commonly discussed. More typically, the research has highlighted a general lack of access to high-speed internet and hardware as well as privacy and confidentiality concerns (Almuslin & AlDossary, 2022). These challenges certainly apply to BTC families. However, BTC clinicians also reported on other important considerations for their specific population that further complicate virtual care delivery, such as the added risk of harm to clients when disclosure is not private (i.e., in the presence of other substance users and abusers). The potential for increased risk associated with disclosure in non-private settings has clinical implications, as it can intensify the pre-existing barriers to treatment for substance-involved women and their children (e.g., Poole & Isaac, 2001; Stone, 2015). Unsafe disclosure can exacerbate the level of adversity that women (and their children) experience within their homes and communities, while withholding information is likely to further isolate them from necessary intervention and prolong exposure to ongoing harm (see Study 1 findings for BTC staff members' comments). Finally, BTC staff spoke to clinician-related difficulties with detecting and assessing potential signs of impairment or abuse in their clients over virtual platforms. In addition to the dampening of child maltreatment reporting due to school and daycare closures during the pandemic (Baron et al., 2020), the detection of abuse and maltreatment over virtual platforms in clinical settings was also challenged, further increasing the barriers to care during a time when domestic violence increased and the options for support were reduced (e.g., Usher et al., 2020).

Despite the multitude of ways through which the COVID-19 pandemic placed additional stressors on the population (e.g., Government of Canada, 2020a), isolation and environmental factors were not experienced uniformly by all. The extended periods of isolation from community supports intensified the *Distal* and *Proximal Health Risks of Women and Children* in

marginalized communities during the pandemic, contributing to the overall rise in substance use (e.g., Barbosa-Leiker et al., 2021; Joyce et al., 2022; Vignes et al., 2022). The histories of women seeking treatment for substance use commonly show evidence of physical and/or sexual abuse, domestic violence, and ongoing relationship problems more broadly (e.g., Espinet et al., 2013; Motz et al., 2019; Niccols, Milligan et al., 2010). The complex circumstances related to the pandemic exacerbated marginalized women's exposure to these environmental factors, worsening their pre-existing mental and physical health conditions, and placing their pregnancies at higher risk (e.g., Barbosa-Leiker et al., 2021; Joyce et al., 2022; Vignes et al., 2022). The increased environmental adversity and decreased in-person community supports for clients generated desperation across partnering agencies to identify marginalized pregnant women and guide them to hospitals for safer deliveries; especially as the number of BTC's late-term, substance-involved, pregnancy referrals rose during the first year of the pandemic (see Study 1 observations of BTC staff). Recent research on the outcomes of infants born to substance-involved women during the pandemic indicate higher rates of neonatal abstinence syndrome (Vignes et al., 2021; Lien et al., 2023), as well as increased rates of preterm births and lower birth rates (Lien et al., 2023), compared to pre-pandemic levels. BTC staff also expressed concerns about the potential, unreported, exposure of children to domestic violence and substance use during the pandemic within households of their marginalized clients. Children of mothers who use substances are at risk of trauma, including exposure to domestic violence and maltreatment or abuse within destabilized family environments (e.g., Carta et al., 2001; Cohodes et al., 2019). With the additional cumulative stressors experienced universally by families throughout the pandemic, these exposures increased in prevalence (Baron et al., 2020; Connell & Strambler, 2021; Lawson et al., 2020; UNICEF Canada, 2020). The emerging research and BTC

staff members' observations highlight the exacerbated social inequalities brought on by the pandemic as observed in the increased levels of adversity that differentially impacted minority and marginalized communities (CIHI, 2021).

Supporting Relationships and Strengthening Connections

The guiding principles and values upheld by BTC staff were captured by the second primary theme that emerged from this study's thematic analyses: *Supporting Relationships and Strengthening Connections.* This primary theme encapsulated two secondary themes, *Protective Factors* and *Caring for Marginalized Populations*, encompassing two and three tertiary themes, respectively. The tertiary themes in this study highlight the supportive nature of relational and trauma-informed approaches integral to integrated addiction recovery (Espinet et al., 2016).

Protective Factors that persisted throughout the pandemic were highlighted by two key tertiary themes: the integrated, trauma-informed, *Relational Programming* that is foundational to BTC programming (Motz et al., 2006; Andrews et al., 2024), and the *Structure and Predictability* of BTC operations that provide containment for its programming. Integrated interventions, including BTC, that reduce the risks associated with maternal substance use have been shown to effectively address addiction problems while reducing parental stress and increasing parenting capacity (e.g., Espinet et al., 2016; see Niccols, Milligan, Sword et al., 2012, for a systematic review). BTC staff embodied the values of the integrated, trauma-informed model at BTC and were able to maximize client engagement during the pandemic by mindfully adapting service delivery to their clients' needs while closely monitoring the evolving pandemic-related restrictions. Given the relational difficulties commonly experienced by women struggling with substance involvement (e.g., Kuo et al., 2013; Latuskie et al., 2019; Niccols,

Milligan, Sword et al., 2012), role-modelling of healthy and predictable relationships through consistent staff-client interactions creates safety for clients and supports the treatment model. Moreover, to support the implementation of its relational model predictably, BTC staff committed to maintaining a similar schedule during the pandemic as they had followed prior to the pandemic, for both client programming and staff meetings. Such stability of routines, which is foundational to BTC practices, has been associated in previous research with a dampening of the impact of adversity and chronic stress on mental wellbeing (Hou et al., 2020). To continue bringing structured activities into their clients' homes during the initial lockdown stage of the pandemic (in March 2020), BTC staff shared developmentally appropriate activities with BTC mothers to help them engage their children on a daily basis. While the lack of predictability in one's childhood has been associated with depression and anxiety (Kolak et al., 2018), building predictability into the home environment during the COVID-19 pandemic was found to protect child mental health (Glynn et al., 2021). BTC staff did their best to support parents in continuing to deliver structured activities and mother-child interactions.

Finally, during the interviews, BTC staff highlighted more general aspects of *Caring for Marginalized Populations,* aligned with their BTC model, that were reflected in the three tertiary themes that emerged during analyses: *Essential Services*, *Client Commitment*, and *Supporting Children by Supporting Mothers*. BTC staff emphasized clients' commitment to services despite families' adverse experiences and the inconveniences they experienced within the context of the pandemic. As services became more accessible through in-person engagement, the efforts of BTC families were commendable, and clients more readily re-engaged with programming at BTC and with partnering agencies. The return to in-person services was noted as instrumental to effective, integrated, service delivery at BTC and was reportedly warmly welcomed by families

who returned to centre-based programming. Despite the positive transition back to in-person services in the end, pandemic-related lockdowns, stay-at-home orders, and other physical distancing measures during the pandemic had resulted in the closure of BTC services due to them being deemed non-essential in nature (Government of Canada, 2020b). Consequently, the restrictions in place limited the availability and accessibility of in-person BTC programming that had been shown to improve the health of substance-involved women, their children, and their relationship (e.g., Espinet et al., 2016). Given the level of risk that the context of maternal substance use creates within the caregiving context (e.g., Carta et al., 2001; Cohodes et al., 2019), BTC staff members encouraged discussion on the nature of an essential service, and how the conceptualization of an essential service may shift the view and policies around what remains operational for marginalized families during times of crisis.

Various authors have discussed the issue of categorizing some social services as non-essential, especially as it relates to society's response to adverse child experiences and the role of protective services (e.g., Campbell, 2020; Caldwell et al., 2020), a pivotal aspect of work with substance-involved families (Hubberstey & Rutman, 2020; Niccols, Dobbins et al., 2010). For example, Caldwell and colleagues (2020) recommended that child protection workers be deemed essential workers, which was not the case during the recent COVID-19 pandemic in Canada. More generally, Gold and colleagues (2022) carried out an extensive scoping review on the adaptations to obstetric and neonatal care that were made during the pandemic and offered recommendations to facilitate future healthcare provision during a pandemic. Gold and colleagues (2022) noted that during the pandemic the one-size-fits-all guidelines limited healthcare centres from developing their own policies with regards to care for pregnant women and their neonates, despite widespread agreement that obstetric and neonatal services are a

societal priority. These authors recommended that policy makers perform risk-benefit analyses at each stage of a pandemic to determine whether policies need to be adjusted, especially in the case of specific populations with priority needs (Gold et al., 2022). For example, Gold and colleagues (2022) recommended that regulators consider the balance between the risk of COVID-19 exposure and the benefits of infant-parent bonding after birth. As Caldwell and colleagues (2020) assert, it will serve societies as a whole to consider the long-term wellbeing of the family system and children's development when assessing strategies for immediate health risk mitigation.

Strengths and Limitations

A major strength of this study is the focus on BTC staff's perceptions of the experiences of families involved in substance use during a unique period of crisis in modern history. Prior to the pandemic in March 2020, many mental health centres were offering predominantly traditional, in-person, services, despite having access to the technology that eventually enabled adapted care through virtual means. The transition to virtual care, therefore, presented challenges across settings. The opportunity that was granted to me, to capture the experiences of staff and clients from the initial disruption to services until reopening of BTC's centre-based services, was a privilege. Together with the quantitative data available for review in Study 2 and Study 3 of this dissertation, the present study offers an overview of the adverse circumstances and protective factors that shaped the lives of these marginalized families.

One major limitation of the current study was the absence of BTC clients' voices in the qualitative evaluation of their experiences throughout the COVID-19 pandemic. As a result of the observational nature of the perspectives provided by BTC staff in this study, the information

may not be a direct reflection of the experiences of the families and, further, may not be generalizable to marginalized women and children who are not BTC clients. The decision to only interview BTC staff was guided by the trauma-informed approach of the BTC program and associated research and concerns about potentially re-traumatizing families who would be interviewed. The second limitation of this work lies with the small sample size on which the observations were based. Especially during the pandemic, BTC experienced a reduction in referrals from pre-pandemic levels, and therefore BTC staff members' observations were based on fewer family experiences. For a direct evaluation of the reported experience of families during the pandemic, please see the quantitative analyses in Study 2 and Study 3 of this dissertation.

Lastly, experimenter bias in the interpretative nature of thematic analysis, is a valid concern and limitation in this work. With limited guidelines for generating themes, the identification and analysis of themes relied, in large part, on the experimenter's perspective (Braun & Clarke, 2006). The inductive coding method in this study (no predetermined codes were applied) was the preferred approach for analyzing open-ended interview questions, but the inherent subjectivity may challenge future replication, as variations in a researcher's approach to analysis can have meaningful impacts on the patterns observed, language used to highlight them, and the final themes that emerge.

Implications and Conclusions

The findings from the present study contribute to a body of research that seeks to understand the experiences of women and children affected by substance use and referred for treatment during the COVID-19 pandemic. During this unprecedented period in recent history,

people around the globe were affected by a request to disrupt daily operations immediately and respond with care and consideration to manage a quickly spreading virus. This response, however, came at a cost, as service disruptions across healthcare sectors disproportionately affected marginalized populations who were already facing social, economic, and health-related stressors (e.g., Fegert et al., 2020; Nobles et al., 2020). The results in this study were generated following a deep and insightful interaction with the data that embodied the relational and trauma-informed approach applied in research and clinical practice at BTC. The findings depict the wide range of needs that BTC clients, pregnant and parenting women, have always had and that were exacerbated by the pandemic and its related health restrictions. As such, they are aligned with what we may have expected to reveal, given the population evaluated.

The present findings have the potential of impacting policy, research, and clinical practice more broadly, ultimately affecting how these marginalized families are understood and cared for across communities. Fostering a deep appreciation for the vulnerabilities faced by women and children affected by substance use is necessary but insufficient. Making direct changes in our responsiveness to their needs (i.e., with more wide-spread availability of timely, consistent, and uninterrupted relational and trauma-informed programming) is a key component of nurturing healthy families and societies at large. Mental health professionals can serve marginalized communities effectively by continuing their efforts to better understand their clients' wide-ranging concerns and challenges and applying evidence-based practices to address their complex needs. A relational and trauma-informed conceptualization from the initial contact can facilitate treatment planning and support families' service engagement. The present research also highlights the importance of specific collaborations among family-serving community agencies, who can play a key role in eliminating known barriers to effective treatment through

integrated programming, even during times of crisis. These broad concepts inform one another and were encapsulated by the primary themes generated in this study.

Given the pre-existing concerns around substance use among marginalized reproductive age and pregnant women (see Lange et al., 2017, for a systematic review and meta-analysis; Milligan et al., 2010; SAMHSA, 2020), and the multifaceted stressors that exacerbate substance use in this population (e.g., Popova et al., 2022; Stewart, 2022), there is reason to believe that the effects of the pandemic were burdensome and that recovery will take time and additional support, given the interrupted service engagement. Together, increased substance use nation-wide (Canadian Centre on Substance Use and Addiction, 2020a, 2020b), heightened parental stress levels and adversity within the family context (Public Health Ontario, 2021; Russell et al., 2021), and the challenges reported by BTC staff on the barriers to virtual care with marginalized populations, created the impetus for investigating what happened to BTC families during the pandemic. Future intervention work will benefit from carrying out a trauma-informed approach to serve these marginalized populations in need during a national time of crisis. Whichever angle we take in evaluating what took place during the COVID-19 pandemic, let us not forget the significance of strengthening relationships and community connection, for mothers and children affected by substance use.

STUDY 2: FAMILIES IN CRISIS: PSYCHOSOCIAL OUTCOMES ASSOCIATED WITH INTERRUPTED INTEGRATED PROGRAMMING FOR MATERNAL SUBSTANCE USE DURING THE COVID-19 PANDEMIC

Introduction

The recent Coronavirus Disease-2019 (COVID-19) pandemic generated growing public health concerns regarding the rising rates of substance use among pregnant and parenting women (e.g., Barbosa-Leiker et al., 2021; Kar et al., 2021; Vignes et al., 2022). The effects of COVID-19 and associated public health measures implemented globally to mitigate viral spread in 2020 (e.g., social distancing and prolonged isolation, lockdowns, reduced access to in-person services) had a disproportionate effect on vulnerable families who were already facing social, economic, and health-related stressors (e.g., Fegert et al., 2020; Nobles et al., 2020). Given the pre-existing concerns around substance use among women (e.g., Milligan et al., 2010; SAMHSA, 2020), and the added stressors imposed on vulnerable populations during the pandemic (e.g., Popova et al., 2022; Stewart, 2022), there is reason to believe that the pandemic had detrimental effects on the functioning of substance-involved women and their children. The present study aimed to examine and compare data on families involved with services for substance use at BTC collected pre-pandemic and during the pandemic to better understand the families' experiences of pandemic-related restrictions within the context of their treatment journey.

More broadly, the pandemic increased levels of adversity within the family context and generated conditions of isolation and desperation under which substance use and addiction thrive (Russell et al., 2021). International evidence indicate that the use of alcohol and other substances increased during the pandemic as a means of coping with symptoms of anxiety, depression, and loneliness due to social isolation (Durankus & Aksu, 2020; Mappa et al., 2020; Moyer et al.,

2020), as well as to cope with concerns related to health, employment, and financial instability (Brooks et al., 2020; Pfefferbaum & North, 2020).

Research on pregnant and parenting substance-involved women highlights overlapping challenges with those found within the general population (e.g., Durankus & Aksu, 2020; Mappa et al., 2020; Moyer et al., 2020, Brooks et al., 2020; Pfefferbaum & North, 2020), with additional barriers to care and contextual risks within the substance-using context. For example, disruptions in prenatal care have been associated with higher anxiety and depression (Durankus & Aksu, 2020; Lebel et al., 2020; Moyer et al., 2020) and generally poorer mental health for substance-involved pregnant women (Groulx et al., 2021). Lien and colleagues (2023) found that substance-involved women with neonates in an intensive care unit had significantly increased their fentanyl and tobacco use during the pandemic compared to their pre-pandemic counterparts, and the increase in fentanyl use was even found among mothers enrolled in a hospital-run opioid maintenance therapy program. Furthermore, Vignes and colleagues (2021) conducted a study of women specifically enrolled in a substance use treatment programming during the COVID-19 pandemic (2020-2021) and found that, despite lower self-reported levels of illicit substance use during pregnancy, maternal drug screens at time of delivery of their newborn revealed higher use of illicit opiates and methamphetamines compared to pre-pandemic levels in participants. The same authors found a corresponding increase in neonatal abstinence syndrome among infants born to women referred to the program during the pandemic compared to pre-pandemic (Vignes et al., 2021). The discrepancies found between measurable biological data on substance use vs. reported substance use suggest a potential barrier to disclosure and care when intervention is needed, and present opportunities for further research on the experiences of marginalized populations, especially during times of crisis.

While the stressors that drive and sustain maternal substance use are multifaceted (e.g., Popova et al., 2022; Stewart, 2022), integrated treatment programs reduce associated risks by simultaneously addressing addiction problems, the parent-child relationship, and a host of complexities experienced by marginalized women (e.g., Espinet et al., 2016; Niccols, Milligan, Sword et al., 2012). Integrated programming offers a 'one-stop-shop' treatment model by embedding wraparound services that bridge connections across various social services (Milligan et al., 2020; Rutman & Hubberstey, 2020; Urbanoski et al., 2018). The incorporation of myriad services into treatment planning at one site can break down barriers to care due to stigma, fear of child welfare and/or legal repercussions, lack of gender-specific programming, and affordability or access to transport and childcare (Lefebvre et al., 2010; Marcellus, 2017; Motz et al., 2006; Stone, 2015; Stringer & Baker, 2018). One such integrated program, Breaking the Cycle (BTC), has been serving pregnant and/or parenting substance-involved women and their children in Toronto, Canada, for over 25 years. BTC follows a harm reduction model that enables families to engage in services from early stages of recovery, and early stages of children's lives, in partnership with nine agencies involved in addiction treatment, health, child protection, corrections and probations, as well as child mental health and development (Motz et al., 2006).

With the recent COVID-19 pandemic placing additional burdens on populations world-wide, evolving research has highlighted the exacerbated social inequalities brought on by the pandemic and its differentiated impact across minority and marginalized communities (Canadian Centre on Substance Use and Addiction, 2020b; CIHI, 2021). In Canada, by the end of March 2020, public health measures were implemented across sectors, including physical distancing, school and childcare closures, as well as reduced access to many in-person services (Government of Canada, 2020a, 2020b). Many mental health organizations serving children and marginalized

populations transitioned to virtual care operations in response to public safety measures (e.g., Caldwell et al., 2020). Teams of healthcare providers and staff throughout organizations experienced the pressures of imminently developing, implementing, and maintaining service delivery through virtual means in place of traditional, in-person, approaches to keep serving populations in need (e.g., see Monaghesh & Hajizadeh, 2020, for a systematic review). As public health measures continued to be monitored and adjusted throughout the pandemic, the restrictions limited access to in-person mental health interventions (WHO, 2020), exacerbating the circumstances for individuals experiencing problematic substance use (Barbosa-Leiker et al., 2021; Clay & Parker, 2020; Galea et al., 2020; Kar et al., 2021; Pfefferbaum & North, 2020; Russell et al., 2021; Vignes et al., 2022).

From the outset of the COVID-19 pandemic, BTC adapted their services to align with public health regulations as quickly and efficiently as possible, to continue serving the vulnerable women and children in their care (see Study 1 in this dissertation for a qualitative analysis depicting the experience of families and staff over the course of the pandemic). While some contact was maintained with clients over the phone, through video conferencing, or meetings in parks (as restrictions evolved), the integrated treatment model integral to programming at BTC was adapted to virtual service delivery for the first 22 months (March 2020 - December 2021) of the pandemic. Some programming was temporarily discontinued due to limitations of virtual contact and the high-risk nature of clients (e.g., group work, home visiting, developmental assessments).

Currently, there is limited research evaluating the influence of the pandemic and its related restrictions on changes in the level of functioning and overall wellbeing of families who attended adapted programming for maternal substance use, compared to pre-pandemic services.

The aim of the present study was to investigate the wellbeing of mothers and children using a range of maternal and child-related measures collected at BTC during the pandemic as compared to those families who attended BTC prior to the pandemic. Following the findings from Study 1, I expected to find overall trends showing lower psychological and socioemotional functioning and lower rates of service engagement in clients referred during the pandemic compared to clients referred to BTC services pre-pandemic, using a range of maternal and child measures.

Method

Study Design and Terminology

BTC is a clinical-research site that has been gathering client data to inform practice and support research progress in the field of maternal substance use and early intervention for almost thirty years. Every client accessing services at BTC completes intake forms and questionnaires. As part of the intake process, clients are approached about the option to participate in research. They are informed that participation is voluntary, they may withdraw consent at any time, and their choice to participate (or not) in research has no influence on their access to services. Available data for each family varied slightly, as clients differed in the frequency and length of their service engagement at BTC and within the community. Clients had the option to continue engaging in services until their youngest child was 6 years old, with data collection occurring at different time points throughout their involvement with the centre.

Consistent with Study 1, the terms ‘pre-pandemic’ and ‘pandemic’ in the present study were chosen to highlight distinct time frames in BTC services that were characterized by notable adaptations, as services transitioned from in-person, to predominantly virtual, and then back to in-person service delivery when the public health restrictions were eased. Specifically, in-person services constituted the standard form of service delivery at BTC pre-pandemic, until March

2020. For the present study, the pandemic phase, from March 2020 through June 2023, was characterized by three stages. The first stage included the initial lockdown (March 2020 – July 2020) when in-person services were first discontinued and virtual services were not yet available to clients; contact was maintained with clients by phone and mail (e.g., small packages with basic needs were sent to clients). The second stage evaluated client functioning as BTC programming transitioned to virtual services (August 2020 – December 2021), including park meetings, in accordance with public health restrictions. The third stage, the reopening phase (January 2022 – June 2023), was characterized by a slow and progressive reinstatement of in-person services at the centre, with ongoing caution around public health recommendations.

Participants

For this study, I conducted a retrospective chart analysis of BTC families who attended postnatal services before the pandemic, between January 2017 and December 2019, and compared them to families who attended postnatal services over the course of the pandemic (virtual and re-opening phases) between March 2020 and June 2023. Charts reviewed for the purpose of this study pertained solely to postnatal clients who consented to participate in research. The pregnancy outreach program at BTC is a complementary service that offers early intervention programming to pregnant women who use substances regardless of whether they wish to move onto postnatal BTC services after the birth of their child. The postnatal clients in this study had a history of engaging in services at different stages of pregnancy and parenting and may have had one or two time points of data collection available for analysis. For this study, I only considered data from the first time point that fell within the January 2017 – June 2023 timeframe of client engagement with services. For example, if a client accessed services in 2017, was discharged, and then completed another intake upon re-engagement with BTC services in

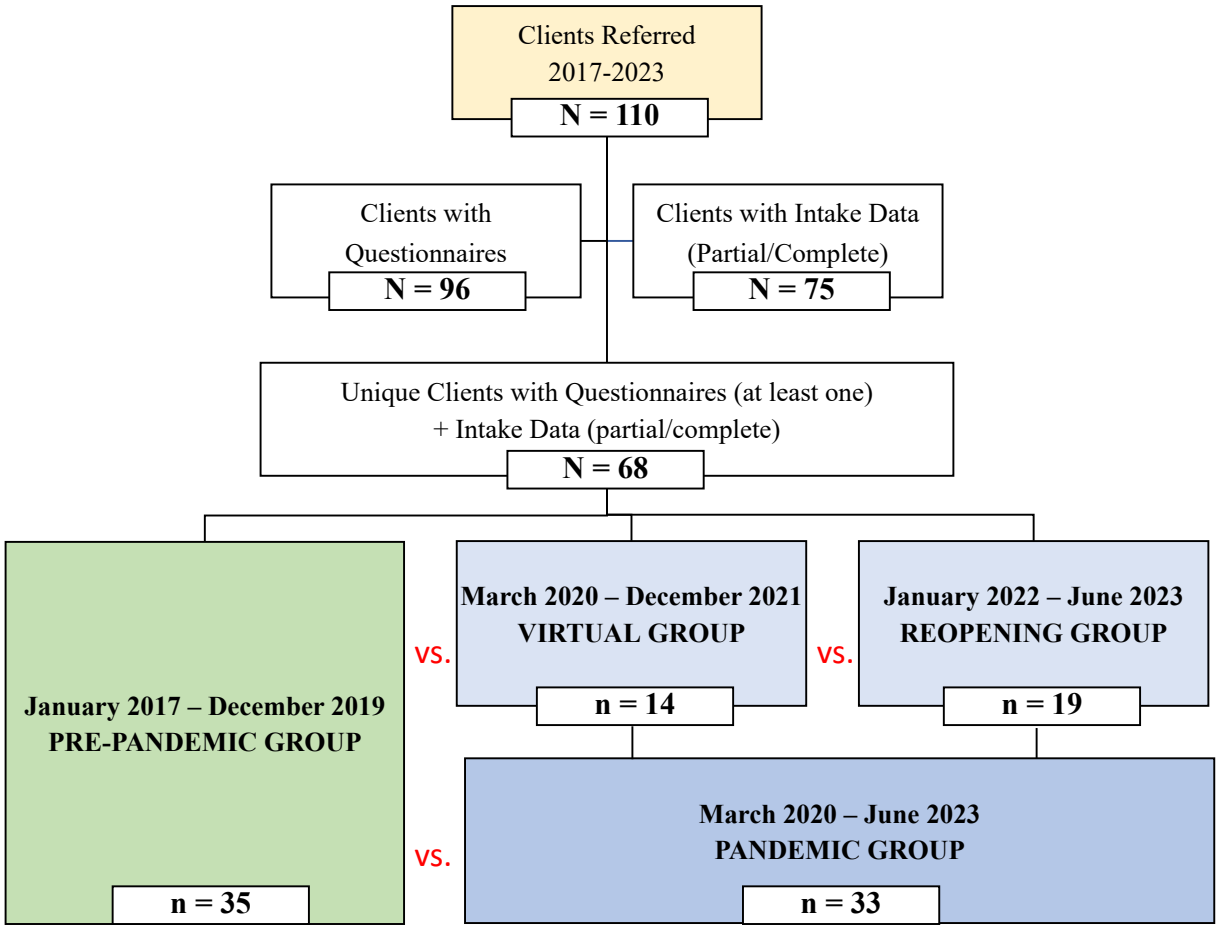
2019, the data pertaining to 2017 were included in the study. If a client accessed services in 2014, was discharged, and then completed another intake upon re-engagement with services in 2019, the data pertaining to 2019 were included in analyses because this time point fell within the designated timeframe of the study.

Data collection with families at BTC stopped almost entirely during the first 10 months of the pandemic (March 2020 – December 2020). Virtual data collection commenced in January 2021 and these data then became available for evaluation. Client data were retained if the client had provided at least partial intake data and had completed at least one maternal questionnaire. From the group of clients who were engaged in postnatal services between January 2017 and June 2023, there was a total of 68 unique (no repeated measures) client files available for analysis that met study criteria (see Figure 3). These clients fell into two groups based on the timing of their engagement: pre-pandemic and pandemic groups. The pre-pandemic group comprised 35 clients (51.5%) who had been referred between January 2017 and December 2019, with at least partial intake data and at least one measure of mental health or parental functioning/stress available for analysis. From the 35 families referred to postnatal BTC services prior to the pandemic, 10 families (28.6%) began services after completing prenatal care (pregnancy outreach programming) at BTC. The pandemic group comprised the remaining 33 clients (48.5%) who had been referred between March 2020 through June 2023, with at least partial intake data and one mental health or parent functioning/stress measure available for analysis. From the 33 families referred to postnatal BTC services during the pandemic, 13 families (39.4%) began services after completing prenatal care at BTC. Furthermore, from the 33 clients in the pandemic group, 14 clients had been referred for services during the virtual period from March 2020 – December 2021, and 19 clients had been referred for services during the

reopening period from January 2022 – June 2023, at which point data collection for this study had stopped. Figure 3 depicts a breakdown of the sample evaluated for the purpose of this study, with groups that became the focus for comparison.

Figure 3

Breakdown of Study Sample into Groups for Comparison



Pregnancy data associated with the BTC clients described above were acquired from child intake packages available for analysis. Substance use data during pregnancy were of particular interest. Given that not all 33 women referred to BTC during the pandemic had been pregnant solely during the pandemic (conceived after March 2020), evaluation of substance use, type, and frequency across the three trimesters of pregnancy during the pandemic was based on a subgroup of women who had conceived after March 2020 (pandemic group). For example, if a client was referred in May 2020 and their child was born in June 2020, they would have spent more than half of their pregnancy in the pre-pandemic phase, and therefore, were excluded from the pandemic pregnancy group. The final pandemic group comprised 15 women. Women who became pregnant during the pandemic were compared to women whose children were born prior to March 2020 (pre-pandemic group). The pre-pandemic group comprised 23 women.

From the pre-pandemic group of 35 clients, 30 families had child intake data available for analysis. From the pandemic group of 33 clients, 24 families had child intake data available for analysis. These intake data were used to evaluate prenatal substance exposure, birth outcomes including gestational age, weight at birth, overall health and developmental factors, as well as the involvement of child welfare and the biological father, amongst others.

Measures

Intake questionnaires

Mother. The intake questionnaire at BTC is completed with all women participating in the intake process after they have been referred to postnatal services. It is completed with an intake counsellor. This questionnaire provides information about general demographics as well as information about life stressors, drug use, and mental health history including experiences of abuse and interpersonal violence.

Child and Prenatal Substance Exposure. The children's intake questionnaire at BTC is completed with women referred to postnatal services and programming with their child(ren). It is completed with an intake counsellor and contains information specific to the child's prenatal substance exposure, birth outcomes, family environment, as well as their involvement in child and parent-child programming both at BTC and externally with agencies.

Maternal Substance Use and Mental Health

Drug-Taking Confidence. Women's self-efficacy related to avoiding substance-use was assessed using the Drug-Taking Confidence Questionnaire (DTCQ-8; Sklar & Turner, 1999). This 8-item questionnaire is a global measure of coping self-efficacy with regards to substance use (i.e., confidence to resist using alcohol or another specified drug) in eight different specific situations (three personal situations and five situations involving others). Ratings are on a scale from 0% ("not at all confident") to 100% ("very confident"). Mean scores of 80% or above indicate high confidence in one's ability to avoid substance use. The DTCQ-8 has demonstrated strong reliability ($\alpha = .89$), and good construct and convergent validity (Sklar & Turner, 1999).

Anxiety. The Beck Anxiety Index (BAI; Beck & Steer, 1993) is a 21-item questionnaire in which participants rate the degree to which a symptom of anxiety has bothered them in the past week. Response values range from 0 (not at all) to 3 (severely). Final scores range from 0 to 63 with higher scores indicating higher levels of anxiety. The BAI has a clinical cut-off of 16 and total scores falling above these thresholds indicate significant psychological distress that requires further assessment.

Depression. The Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) is a 20-item questionnaire, in which participants rate the frequency of depressive symptoms experienced in the last week on a four-point Likert scale. Responses are assigned a

value ranging from 0 (rarely or none of the time, i.e., less than one day in the week) to 3 (most or all of the time, i.e., five to seven times in a week). Total scores range from 0 to 60 with higher scores indicating higher levels of depressive symptoms (Radloff, 1977). Scores of 16 or higher are considered to be in the clinical range.

Mother's Relationship with Others and Parenting Stress

Adult Attachment. The Revised Adult Attachment Scale (R-AAS; Collins, 1996) was used to assess mothers' own attachment style. The R-AAS is a 21-item scale with six items for each of the three adult attachment styles: Close (the extent to which the mother feels comfortable with closeness and intimacy), Depend (extent to which the mother feels that she can depend on others to be available when needed), and Anxiety (extent to which the mother feels fearful about being rejected or unloved in relationships). Each subscale score is obtained by calculating the mean of the responses for the six items in each subscale. Mothers rate the extent to which each statement describes their feelings. Internal consistency for the subscales ranges from .69 to .75 and the two-month test-retest reliability correlations range from .52 to .71 (Collins & Read, 1990).

Parental Self-esteem. The Being a Parent scale is an adaptation of the Parenting Sense of Competence Scale (Gibaud-Wallston & Wandersman, 1978), which assesses parenting self-esteem. The 12 items assess Parenting Satisfaction, an affective dimension reflecting parenting frustration, anxiety, and motivation, and Parenting Efficacy, an instrumental dimension reflecting competence, problem-solving ability, and capability in the parenting role (Johnston & Mash, 1989).

Parenting Stress. The Parent Stress Index-Short Form (PSI; Abidin, 2012) is a 36-item scale with three main subscales: Parental Distress (mother's stress with respect to her parenting

role), Parent-Child Dysfunctional Interaction (mother's perceptions of the quality of and satisfaction with her interactions with her child); and Difficult Child (behavioural characteristics of the child that may lead parents to perceive them as difficult to manage). Internal consistency ranges from .85 to .91 and test-retest reliability ranges from .68 to .85 for the subscales and Total Stress scale.

Parenting Attitudes. The Adult-Adolescent Parenting Inventory-2 (AAPI-2; Bavolek & Keene, 2010) assesses parenting and child rearing attitudes of adult and adolescent prenatal and parenting populations. Pre-test (Form A) and post-test (Form B) versions are available. The 40-item inventory measures parental behaviors and is commonly used to assess the risk of child abuse and neglect. The AAPI-2 instrument generates five subscales: Expectations of Children, Parental Empathy towards Children's Needs, Use of Corporal Punishment, Parent-Child Family Roles, and Children's Power and Independence. The alpha reliability coefficient is .85 and ranges from .50 to .79 for the individual subscales (Conners et al., 2006).

Perceived Social Support. The Perceived Social Support - Family Scale and Perceived Social Support – Friends Scale (PSS-Fa and PSS-Fr; Procidano & Heller, 1983) were used to measure the extent to which mothers perceive they receive social support from friends and family. Each scale is a 20-item self-report questionnaire, with higher overall scores suggesting greater social support. The PSS has been used with a variety of clinical adolescent and adult populations and both scales have high levels of construct validity and test-retest reliability (Cronbach's α =.90 for PSS-Fa, and .88 for PSS-Fr). Previous research using this measure with substance using mothers suggests that raw scores below 11.9 and 8.0 are in the clinical range for the PSS-Fa and PSS-Fr scales, respectively (Suchman et al., 2005).

Procedure

Archived BTC data were accessed for the purpose of retrospective, quantitative analyses for Study 2. Reviews of client files were completed to gather as much missing information as possible from referral and intake packages and to gain a better understanding of the experiences and stories of families represented in this study. Data from postnatal BTC clients were reviewed and analysed with the goal of comparing family background, functioning, and service engagement during three time periods: pre-pandemic (January 2017 – December 2019), pandemic virtual phase (March 2020 – December 2021), and the pandemic reopening phase (January 2022 – June 2023). The samples of clients referred for services during the virtual and reopening stages of the pandemic were combined (n = 33) across the majority of analyses and compared to the sample of clients referred pre-pandemic (n = 35).

Data collection at BTC stopped almost entirely at the beginning of the COVID-19 pandemic and data were infrequently collected throughout the first 10 months of the pandemic (March 2020 – December 2020). Data collection resumed virtually in the second year of the pandemic. As such, families referred to postnatal services during the second year of the pandemic (after January 2021) had comprehensive data available for review that included measures related to maternal mental health, parental functioning, and perceived social support, with many having data pertaining to child health and service engagement (BTC and external services).

Quantitative Analyses

Data analyses were conducted using IBM SPSS Statistics Version 29. As noted in previous research with the BTC population (e.g., Espinet et al., 2016), the high-risk and transient nature of the sample of families at BTC is a relevant consideration for missing data. The

challenges in conducting clinical research within a context where clinical work takes precedence, is fluid and voluntary, and participants may be reluctant to share information for fear of child welfare involvement (Espinet et al., 2016; Oni et al., 2022). These challenges contributed to substantial and inconsistent missing data points across measures (0-50% for each participant) within the final dataset (N = 68), especially within the intake data. After consulting with statisticians, we concluded that data were missing at random and that the use of statistical tools for data imputation would be disingenuous to the unique experiences of these marginalized families. Additionally, this is the first analysis being carried out with these specific BTC samples within the context of a pandemic of such proportions, which interrupted the lives of the population at large and the programming for marginalized families. Therefore, it was decided that analyzing the data in their true form, as they were collected, would provide the most genuine representation of the circumstances experienced by these families, untouched by statistical manipulation. Sample sizes have been specified throughout because they varied by analysis due to the transiency, high-risk, and unique nature of this sample within the historical context of BTC programming.

Maternal, Prenatal, Child, and Parent-Child Characteristics

Descriptive statistics were used to present and explore the mothers and children's information at the time of intake. A wide range of background measures was included to comprehensively explore similarities and differences between samples. Initial exploration of data from postnatal BTC clients revealed variable sample sizes among the study groups depending on time of referral (phase) to BTC services: 1) clients referred during the pre-pandemic phase (2017 – 2019; n = 35), 2) clients referred during the virtual service delivery phase of the pandemic (March 2020 – December 2021; n = 14), and 3) clients referred during the reopening phase of the

pandemic (January 2022 – June 2023; n = 19). All groups had a range of missing data points across measures in the intake questionnaires for both mothers and children. Participants were retained in the sample if they had partial intake data available for review. The samples representing the virtual and reopening phases of the pandemic were collapsed and called the 'pandemic' group. The pre-pandemic and pandemic groups were explored in the preliminary analyses of intake data.

Clients were also stratified by the timing of their child's birth, namely pre-pandemic (2017 – February 2020) or during the COVID-19 pandemic (March 2020 – June 2023), with the purpose of comparing substance use exposure (type and presence of exposure at each of the three trimesters) during pregnancy across the two groups, as it may have been influenced by the pandemic.

Z-tests of proportions were used to evaluate group differences for categorical variables across maternal and child-related background measures. Independent samples *t*-tests were used to identify meaningful group differences across continuous maternal background measures such as age and income, as well as continuous child-related background measures (e.g., age at intake and outcome measures including gestational age at birth and birth weight). *T*-tests were accompanied by an examination of effect size *d* (0.20 = small, 0.50 = medium, and 0.80 = large effect; Cohen, 1988).

One-way analyses of variance (ANOVA) were used to compare continuous measures of length of service engagement as well as maternal mental health, parent functioning, stress, and social support among the three phases of interest: pre-pandemic, virtual pandemic, and reopening pandemic. The variables selected for analysis using one-way ANOVAs (for differences between the three phases) were limited to the continuous maternal measures as determined by sufficient

sample sizes and equal variances for these measures. The remainder of analyses explored differences between the two general phases only (pre-pandemic vs. pandemic).

Results

Descriptive Statistics and Preliminary Group Comparisons

Maternal Characteristics

Background information on mothers and children was explored to evaluate differences between pre-pandemic and pandemic groups. A comparison of maternal background characteristics can be found in Table 1. Sample size for each variable is indicated in brackets. There was no significant difference in clients' age at intake between the pre-pandemic (M = 31.00, SD = 6.12) and pandemic (M = 33.30, SD = 5.10) groups, p = .11. Women referred to BTC postnatal services were more likely to have had two or more pregnancies in the last 12 months. A trend suggested an increased likelihood (by 11%) for BTC pandemic clients to have attended pregnancy outreach services prior to postnatal services, compared to BTC clients referred pre-pandemic (p = .05). Further, significantly more women in the pre-pandemic group reported child welfare involvement than in the pandemic group. There was also no significant difference in the number of women in each group who identified with any of the ethnic backgrounds listed. There were no group differences on clients' country of birth, language spoken at home, education completed, employment status, or involvement with the legal system.

Table 1

A Comparison of Maternal Characteristics Between the Pre-pandemic and Pandemic Groups

Maternal Characteristics	Pre-Pandemic (2017-2019) *valid % (n)*	Pandemic (2020-2023) *valid % (n)*	*z*	*p*
Referred from pregnancy outreach	28.6 (35)	39.7 (33)	- 1.95	.05
Pregnancies in last year	(13)	(13)		
One or none	84.6	38.5	**2.42***	.02
Two or more	15.4	61.5	**- 2.42***	.02
Current child welfare involvement	100.0 (25)	76.2 (21)	**2.58***	.010
Own child welfare involvement	30.8 (13)	58.9 (17)	- 1.53	.13
Country of birth: Canada	84.0 (25)	83.3 (24)	- .063	.95
English only spoken at home	81.8 (22)	62.5 (16)	- 1.68	.09
Ethnic background†	(24)	(21)	-	-
African	8.3	9.5	-	-
Caribbean	8.3	9.5	-	-
European	41.7	19.0	-	-
Native / Aboriginal	4.2	0.0	-	-
North American	33.3	42.9	-	-
South American	0	9.5	-	-
South Asian	0	4.8	-	-

South-East Asian	4.2	4.8	-	-
Education				
Completed secondary education	72.0 (25)	72.7 (22)	- 0.10	.92
Completed post-sec education	50.0 (24)	68.2 (23)	- 0.40	.69
Currently employed	28.0 (25)	21.7 (23)	-1.51	.13
Mandatory treatment	7.4 (27)	0.0 (0)	1.30	.19
Legal problems	36.4 (22)	31.8 (22)	0.32	.75
On probation or parole	10.0 (21)	9.5 (21)	0.00	1.00

*$p < .025$. For this preliminary study we chose a more conservative value given the number of *z*-tests conducted.

†*z*-tests and *p*-values were removed due to the low number of participants for these contrasts.

Table 2 presents a comparison of maternal measures related to relationship status, housing, and living arrangements, across the pre-pandemic and pandemic groups. The data in Table 2 should be interpreted cautiously because of the repeated testing. Women in the pandemic group reported being in supportive relationships at a higher rate than women in the pre-pandemic group (no significant differences in the reported rates of domestic violence or being in an abusive relationship). A greater proportion of women in the pandemic group reported living in an apartment, whereas a greater proportion of women in the pre-pandemic group reported living in shelters and other forms of shared accommodations prior to the start of the pandemic. No other significant differences were found between groups in reported living arrangements (i.e., living with or without children and/or a partner); however, women referred to BTC during the pandemic tended to report higher rates of living with their child(ren) and their partner relative to

women referred pre-pandemic, $p = .08$. Finally, women referred during the pandemic tended to report higher rates of unstable housing relative to women referred pre-pandemic, $p = .06$.

Table 2

A Comparison of Maternal Relationship and Housing Measures Between the Pre-pandemic and Pandemic Groups

	Pre-Pandemic (2017-2019)	Pandemic (2020-2023)		
Maternal Characteristics	*valid % (n)*	*valid % (n)*	*z*	*p*
Domestic violence during pregnancy	36.7 (30)	38.1 (21)	- 0.10	.92
In a relationship	60.0 (25)	72.7 (22)	- 1.13	.26
Partner uses substances	54.2 (24)	65.1 (16)	- 0.73	.47
Partner in recovery	27.9 (18)	22.3 (24)	0.31	.76
Partner is supportive	14.3 (21)	56.4 (16)	**- 2.70***	.01
Partner is abusive	20.0 (20)	25.0 (16)	0.60	.55
Stable housing	66.7 (15)	36.4 (22)	1.81	.06
Current accommodations	(22)	(21)		
Apartment	50.0	81.0	**- 2.13***	.02
House	22.7	19.0	0.30	.76
Shelter/other	27.3	0.0	**2.57***	.01
Living arrangement	(23)	(22)		

Lives alone	8.8	18.2	- 1.48	.14
Lives with child(ren)	21.8	22.8	0.08	.94
Live with partner (no child/ren)	8.72	0.0	1.48	.14
Lives with partner and child(ren)	17.4	40.9	- 1.94	.08
Lives with family (and child/ren)	17.4	18.2	- 0.07	.94
Lives in group/shared home	26.1	0.0	**2.57***	.01

*$p < .025$. For this preliminary study we chose a more conservative value given the number of z-tests conducted.

Table 3 presents a comparison of maternal mental health and substance use history between the two groups. Similarly to the data presented in Table 2, the data in Table 3 should be interpreted cautiously because of the repeated testing. A higher proportion of women in the pandemic group compared to the pre-pandemic group reported abuse of prescription methadone and a tendency for abuse of heroin ($p = .05$). In terms of treatment history, a higher proportion of women in the pandemic group reported using pharmacological treatment. There were no differences in the proportion of women who reported suffering from mental health issues, attempting suicide or engaging in self-harm, or experiencing other physical health concerns.

Table 3

A Comparison of Maternal Mental Health and Treatment History between the Pre-pandemic and Pandemic Groups

	Pre-Pandemic (2017-2019)	Pandemic (2020-2023)		
Maternal Characteristics	*valid % (n)*	*valid % (n)*	*z*	*p*
Mental health problems	80.6 (25)	72.7 (33)	0.75	.45
Abuse of substance				
Alcohol	84.4 (32)	87.5 (24)	- 0.33	.74
Crack/cocaine	66.8 (24)	77.3 (22)	- 1.45	.15
Cannabis	76.0 (25)	91.7 (24)	- 1.17	.24
Nicotine	83.4 (24)	72.8 (22)	0.88	.38
Heroin	16.8 (24)	43.6 (23)	- 2.01	.05
Methadone (prescription)	8.3 (24)	37.5 (24)	**- 2.18***	.03
Other opiates	50.0 (24)	66.7 (21)	- 1.13	.26
Trauma History				
Emotional abuse	88.9 (18)	100.0 (17)	- 1.42	.16
Physical abuse	72.2 (18)	93.9 (16)	- 1.64	.10
Sexual abuse	63.2 (19)	47.5 (19)	0.98	.33
Suicide attempts (yes)	27.2 (13)	21.4 (14)	0.12	.90
Self-harm behaviours (yes)	66.8 (18)	41.2 (17)	1.51	.13

Health concerns (yes)	57.2 (21)	47.6 (21)	0.62	.53
History of treatment	57.1 (21)	57.1 (21)	0.00	1.00
Detoxification centre	42.3 (26)	57.7 (27)	- 1.26	.21
Residential treatment	38.6 (26)	47.6 (20)	- 0.63	.53
Self-help	40.0 (25)	59.1 (22)	-1.31	.19
Day program	39.1 (23)	52.2 (23)	- 0.85	.40
Individual counselling	58.3 (24)	57.1 (21)	0.08	.94
Pharmacological	16.7 (24)	60.1 (13)	**- 2.98***	.003

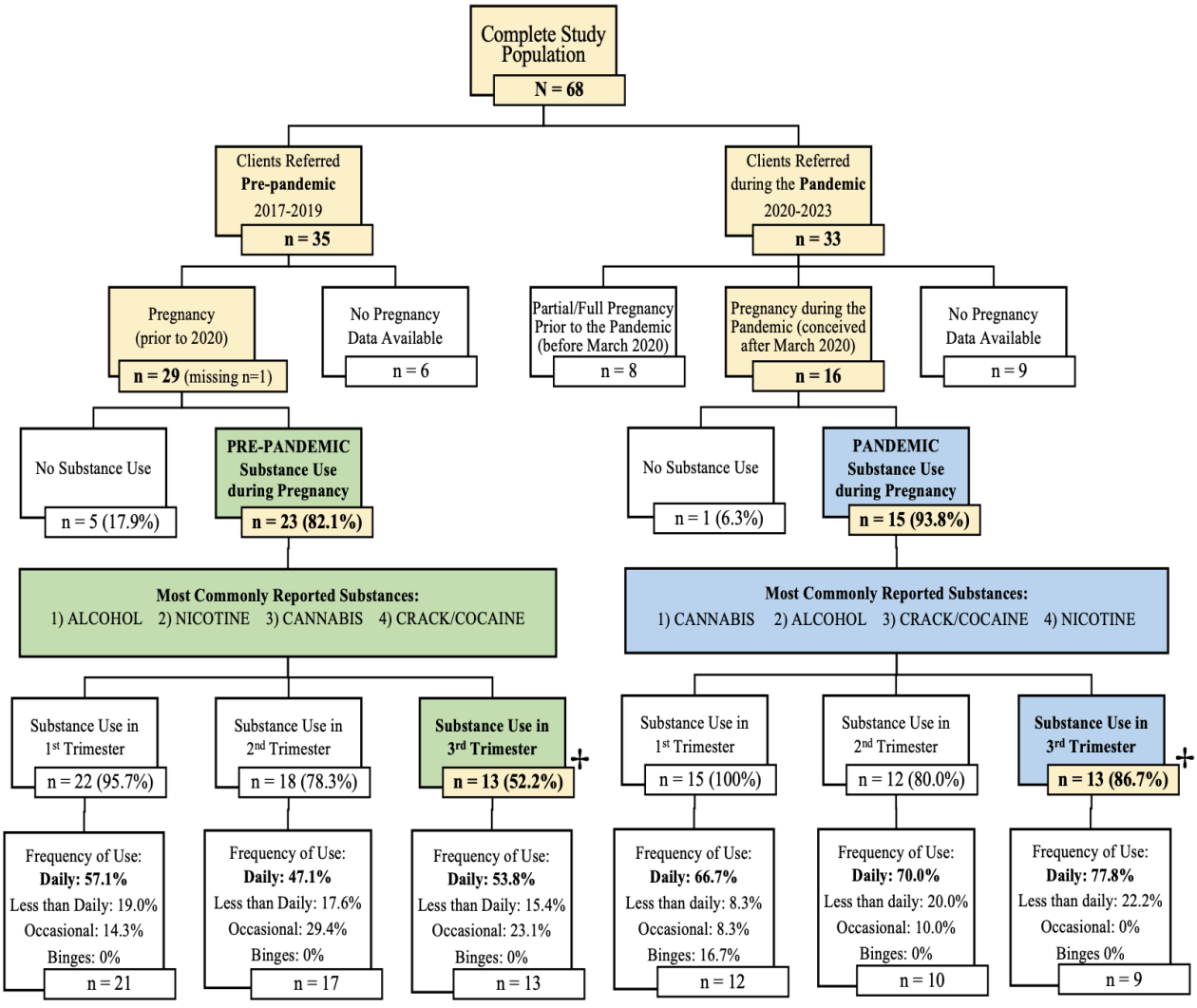
*$p < .025$. For this preliminary study we chose a more conservative value given the number of z-tests conducted.

Prenatal Substance Exposure

Substance use during pregnancy was compared between the pre-pandemic and pandemic groups and the results are depicted in Figure 4. Despite various clinically relevant differences in proportions between groups represented in Figure 4, the only trend for a statistically significant difference in proportions was found in higher reports of substance use in the third trimester of pregnancy by women in the pandemic group compared to the pre-pandemic group, $z = 1.954$, $p = .051$.

Figure 4

Breakdown of Substance Use Reporting during Pregnancy by Group (Pre-pandemic vs. Pandemic)



✢ $p = .051$. Using a conservative p value ($p = .025$), the difference in the proportion of clients who reported using substances in their third trimester between the pre-pandemic and pandemic groups represents a trend in this exploratory analysis. No statistically significant group differences emerged.

Child and Parent-Child Characteristics

A comparison of child and parent-child background measures between the pre-pandemic and pandemic groups can be found in Table 4. Analyses of child data revealed that children born during the pandemic required medication after birth at a higher rate than those in the pre-pandemic group, despite similar rates of birth complications for the infants. Children born during the pandemic also had a relationship with their father at a higher rate than those born before the pandemic (data on the nature of the relationship were not available and therefore not evaluated in this study). In terms of programming accessed at BTC, a lower proportion of women referred during the pandemic tended to report access to parent-child counselling compared to pre-pandemic reporting ($p = .05$).

Table 4

A Comparison of Child and Parent-Child Background Measures between the Pre-pandemic and Pandemic Groups

	Pre-Pandemic (2017-2019)	Pandemic (2020-2023)		
Child and Parent-Child Measures	*M; SD (n)*	*M; SD (n)*	*t (df)*	*p*
Age at intake (in months)	11.92; 13.08 (29)	8.75; 10.84 (24)	0.95 (51)	.34
Gestational age (weeks)	39.28; 1.78 (27)	38.26; 3.73 (29)	1.29 (54)	.10
Birth weight (grams)	3114; 564 (22)	3067; 686 (28)	0.26 (48)	.80

	valid % (n)	*valid % (n)*	*z*	*p*
Sex (female)	52.0 (25)	57.1 (21)	- 0.35	.73
Born full-term	80.0 (30)	78.3 (23)	0.02	.99
Tested + for substances at birth	15.4 (13)	40.0 (10)	- 1.33	.18
Birth complications	28.6 (28)	27.3 (22)	0.10	.92
Postnatal incubation	25.0 (28)	33.3 (12)	- 0.54	.59
Medication required	0.0 (28)	16.7 (12)	**- 2.22***	.03
Current health concerns	34.5 (29)	26.1 (23)	0.65	.52
Developmental concerns	42.9 (28)	34.8 (23)	0.59	.55
Separation from mother	38.5 (26)	26.1 (23)	0.48	.63
Child has relationship with father	85.7 (27)	100.0 (21)	**- 2.94***	.003
Parent-child relationship issues	73.3 (15)	82.8 (22)	-0.62	.53
Programming accessed				
Parent-child counselling	73.3 (15)	40.9 (22)	1.94	.05
Developmental screening	53.3 (15)	63.6 (22)	- 0.63	.53

* $p < .05$

** $p < .001$

One-Way ANOVAs: Comparisons Across Three Groups

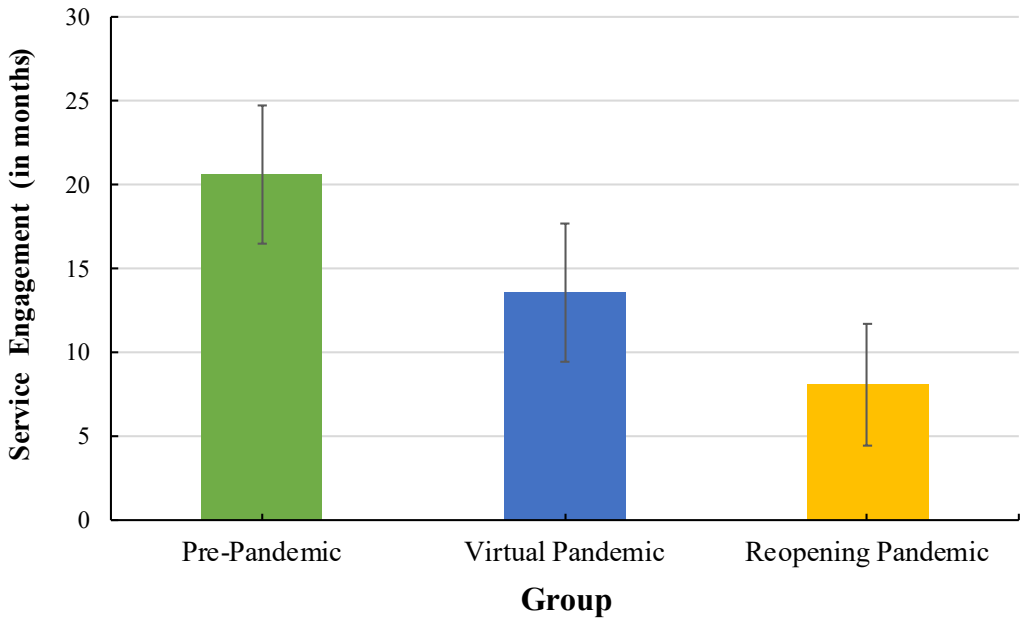
Length of Service Engagement

A one-way analysis of variance (ANOVA) revealed a significant effect of group (pre-pandemic, virtual pandemic, reopening pandemic phase) for length of service engagement, $F(2,36) = 6.01$, $p = .01$. This measure did not pass Levene's Test of Homogeneity of Variances (p

< .05); therefore, interpretation of findings was carried out with caution. Tukey's honestly significant difference (HSD) test for post hoc analyses was conducted to assess the presence of statistically significant differences between groups. Post hoc analyses indicated that the average number of months clients spent engaging in services at BTC (across prenatal and postnatal programming) was significantly higher in the pre-pandemic group, $M = 20.60$, $SD = 12.81$; 95% CI [13.51, 27.69], than in the reopening phase of the pandemic, $M = 8.07$, $SD = 7.00$; 95% CI [4.03, 12.11]. The virtual pandemic group, $M = 13.56$, $SD = 7.09$; 95% CI [8.11, 19.01], did not differ significantly from the pre-pandemic and the virtual pandemic groups on length of time spent in services. A visual representation of these differences can be seen in Figure 5.

Figure 5

Length of Service Engagement by Group

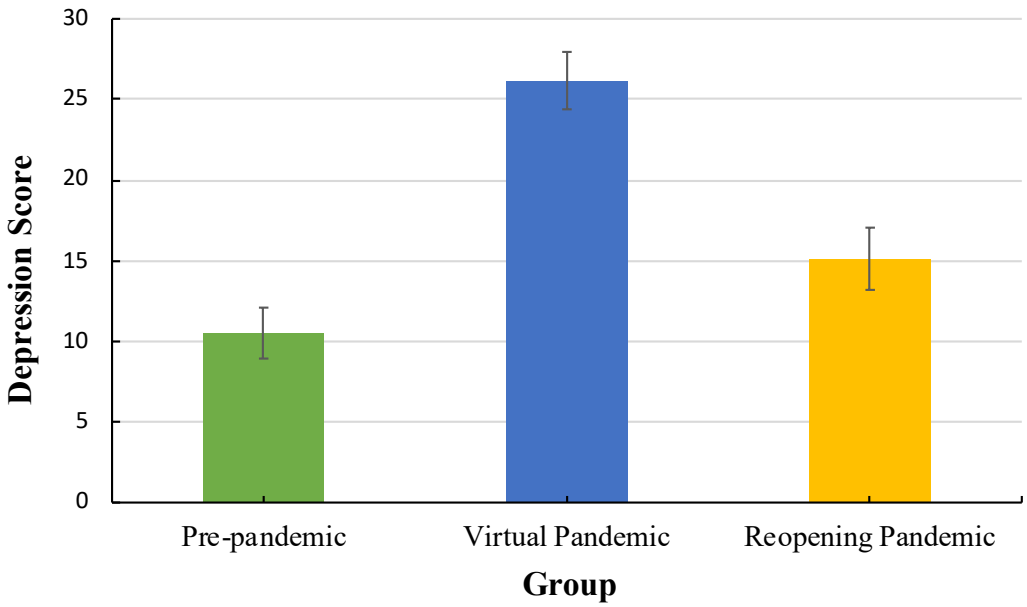


Maternal Measures of Mental Health, Functioning, Stress, and Social Support

As represented in the figures below, scores on measures pertaining to maternal mental health and functioning were significantly different among the groups. The level of depression (in the last 6 months) reported by clients differed significantly by group, F (2,53) = 38.84, $p < .001$ (see Figure 6). Specifically, the pre-pandemic group, M = 10.51, SD = 3.94; 95% CI [8.96, 12.08], reported significantly lower levels of depression than the virtual pandemic group, M = 26.17, SD = 6.06; 95% CI [22.32, 30.02], and the reopening pandemic phase, M = 15.12, SD = 6.03; 95% CI [12.02, 18.22]. Women in the virtual and reopening phases of the pandemic also differed significantly from one another on reports of depression, $p < .001$.

Figure 6

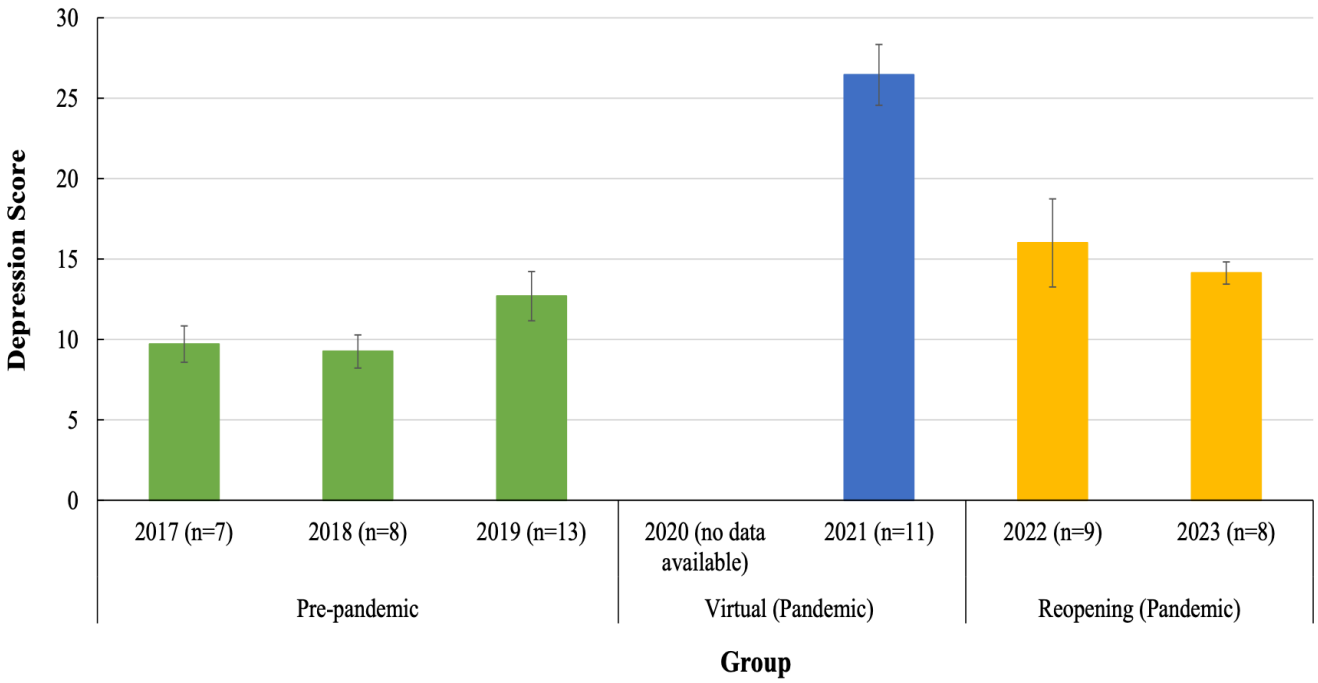
Depression Score by Group



When plotted by year (see Figure 7), depression scores revealed minimal variability from 2017 to 2019 whereas a significant increase was observed in 2021, followed by a steady decline in 2022 and 2023. Data collection was discontinued in March 2020 and questionnaire data were missing for clients referred during the first 10 months of the pandemic (March 2020 through December 2020).

Figure 7

Depression Score by Year and Group: Pre-pandemic (2017-2019), Virtual Pandemic (2020-2021), and Reopening Pandemic (2022-2023)

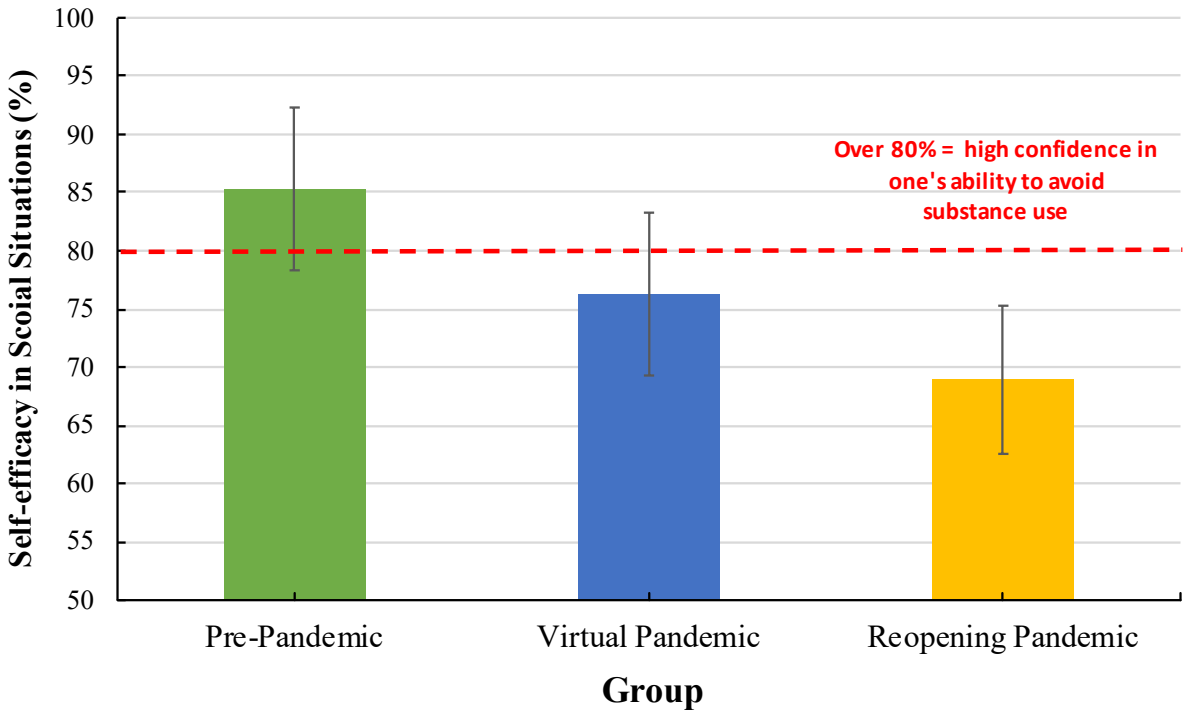


One scale on the attachment style measure, closeness, also indicated an overall difference among the groups, F (2,56) = 3.15, p = .050; however, specific differences between groups were not found to be statistically significant after computing post hoc tests.

Finally, Figure 8 offers a visual representation of group differences for scores on clients' confidence in abstaining from substance use within social situations.

Figure 8

Self-Efficacy in Abstaining from Substance Use in Social Situations by Group



The effect of group was significant for clients' confidence within social situations, $F(2,51) = 3.41$, $p = .04$, but not based on personal states alone, $p = .08$. Post hoc comparisons revealed that the mean score for the pre-pandemic group, $M = 85.31$, $SD = 15.57$; 95% CI [79.02, 91.59], was significantly higher than the score for the reopening stage clients, $M = 68.92$, $SD = 22.02$; 95% CI [57.18, 60.65], but was not significantly different from the levels detected for clients referred during the virtual phase; there were no significant differences in confidence scores between the two pandemic groups. All descriptive statistics and results from the one-way ANOVAs (significant and non-significant) can be found in Table 5.

Table 5

Means, Standard Deviations, and One-Way Analysis of Variance for Baseline Measures of Maternal Functioning by Group (Pre-pandemic vs. Virtual Pandemic vs. Reopening Pandemic)

Measures of Maternal Functioning	Pre-Pandemic (2017-2019)	Virtual - Pandemic (2021)	Reopening - Pandemic (2022-2023)	*F*	*df*	η^2
	M; SD (n)	*M; SD (n)*	*M; SD (n)*			
Length of Service Engagement (in months)†	20.60; 12.81 (15)	13.56; 7.09 (10)	8.07; 7.00 (14)	**6.01***	2, 35	0.26
Anxiety	16.74; 12.55 (27)	13.00; 9.06 (12)	19.15; 12.02 (20)	1.03	2, 56	0.04
Depression (last 6 months)	10.51; 3.94 (27)	26.17; 6.06 (12)	15.12; 6.03 (17)	**38.84****	2, 53	0.59
Adult Attachment Style	(31)	(10)	(18)			
Close	3.24; 0.85	3.58; 0.69	2.80; 0.76	**3.15***	2, 56	0.10
Dependent	2.63; 0.97	3.38; 0.71	2.63; 0.65	2.69	2, 56	0.09
Anxious	3.15; 1.21	2.48; 0.94	3.40; 1.05	1.92	2, 56	0.06
Mean Total Drug Taking Confidence	85.69; 14.89 (26)	79.81; 18.74 (12)	73.38; 16.39 (16)	2.88	2, 51	0.10
Personal States (%)	85.93; 14.80 (26)	81.93; 15.07 (12)	76.05; 13.88 (16)	2.27	2, 51	0.08
Social Situations (%)	85.31; 15.57 (26)	76.28; 23.44 (12)	68.92; 22.02 (16)	**3.41***	2, 51	0.12

Total 'Being a Parent'	23.31; 4.82 (26)	21.40; 2.84 (11)	23.38; 5.21 (20)	0.69	2, 54	0.03
Parental Efficacy	10.23; 3.40	9.00; 2.26	10.05; 3.02	0.59	2, 54	0.02
Parental Satisfaction	13.08; 2.23	12.40; 1.35	13.33; 2.73	0.55	2, 54	0.03
Total Parenting Stress	74.62; 18.02 (24)	69.82; 10.73 (11)	80.05; 20.13 (22)	1.30	2, 54	0.05
Parental Distress	28.50; 7.66	27.55; 5.26	32.23; 8.13	2.03	2, 54	0.07
Parent-Child Dys Inter	19.30; 5.33	20.45; 5.47	22.36; 6.65	1.57	2, 54	0.06
Difficult Child	26.83; 9.02	21.82; 4.58	25.45; 8.81	1.38	2, 54	0.05
Risk of Parenting	(27)	(12)	(20)			
High Expectations	6.44; 1.77	6.55; 1.92	6.76; 1.61	0.20	2, 56	0.01
Low Empathy	5.85; 2.13	5.82; 1.99	5.71; 1.95	0.03	2, 56	0.00
Corporal Punishment	6.48; 1.42	6.36; 1.21	6.38; 1.40	0.04	2, 56	0.00
Family Role Reversal	6.63; 2.26	6.73; 2.15	6.52; 1.20	0.04	2, 56	0.00
Restricting Power Independence	6.37; 2.02	7.18; 1.83	6.38; 2.27	0.67	2, 56	0.02
Perceived Social Support						
From Friends	13.37; 5.17 (30)	13.25; 5.82 (10)	13.17; 5.29 (18)	0.01	2, 53	0.00
From Family	10.45; 5.92 (31)	13.33; 5.10 (10)	10.32; 6.32 (19)	0.93	2, 53	0.03

†The measure of 'Length of Service Engagement (months)' includes total time spent (in months) in postnatal *and* prenatal services (pregnancy outreach programming), wherever applicable.

* $p < 0.05$

** $p < 0.00$

Discussion

This study investigated the wellbeing of substance-involved women and their children referred to BTC services prior to, and during, the public health restrictions implemented in response to the COVID-19 pandemic. The onset of the pandemic brought about abrupt changes to mental health programming across the nation, as these services were not deemed essential by the government. BTC staff remained committed to the relational, trauma-informed, and developmentally sensitive approach they had adopted for over 20 years of in-person services prior to the pandemic, and carried out treatment plans as circumstances would allow over the course of the global crisis (see Study 1 in this dissertation for findings from interviews with BTC staff members that explored the challenges and supports experienced by families in their care from March 2020 to June 2023). The present research compared a range of mother and child characteristics as well as maternal measures of psychological and socioemotional wellbeing that had been collected at BTC prior to the pandemic and during the pandemic. The pre-pandemic stage was represented by one group of families and the pandemic stage was represented by families split into two groups based on the timing of their referral to BTC services. Families referred during the early stage of the pandemic (virtual services) made up the first pandemic group, while families referred during the return to in-person services (reopening) made up the second pandemic group. Across the majority of analyses in this study, the virtual and reopening groups were combined due to their small sample sizes and together formed the pandemic group.

Functioning of Marginalized Families during the Pandemic

Notably, there were no differences between the pre-pandemic and pandemic (combined virtual and reopening) groups on key background measures including clients' age at intake, country of birth, language spoken at home, education level, employment status or involvement

with the legal system, their own welfare involvement as children, or on measures of historical trauma and mental health difficulties. The similarities between groups on background measures suggest that overall the groups were comparable outside of the experience of the 2020 COVID-19 pandemic and its related restrictions.

Some differences were found between the pre-pandemic and pandemic groups in their reported living arrangements and partnerships, reflective of the circumstances surrounding the pandemic. It is clinically relevant to note that more women reported being in a relationship during the pandemic compared to pre-pandemic, although the difference was not statistically significant. This finding reflects observations captured in the Study 1 interviews with clinicians that highlighted their clients' tendency to find partnerships out of fear of being alone and isolated from social support, regardless of the quality of these relationships (see Study 1 for more details). Although women involved at BTC during the pandemic were more likely to report that their partners were supportive compared to those involved before the pandemic, the pandemic clients reported a higher proportion of substance-using partners compared to pre-pandemic clients. Further, a higher proportion of women involved with BTC during the pandemic reported living in an apartment and together with a partner and child(ren) compared to those involved before the pandemic, and there was a tendency for women to report higher rates of unstable housing during the pandemic. There was no difference in women's reported rates of domestic violence or in their partner's substance use recovery between pre-pandemic and pandemic groups. It is possible that the fear of viral infection combined with the closure of shelters due to public health mandates at the time forced many women and their children into shared accommodations with partners who were potential substance users, enablers, and/or abusers.

Women at BTC during the pandemic reported that their children had a relationship with their biological father at a higher rate compared to those at BTC before the pandemic. Although I did not have access to data that evaluated the quality of these child-father relationships, findings from other research suggest increased rates of child maltreatment at home during the COVID-19 pandemic (Baron et al., 2020; Lawson et al., 2020; UNICEF Canada, 2020). Further, maternal reports indicated ongoing substance use and mental health challenges among their partners (and possible fathers of their children), along with increased rates of co-habitation with these partners. Together, these findings raise health and safety concerns regarding the home environment for women and their children during the pandemic. These concerns align with the context of the compounding stressors of the pandemic as well as rising food and housing costs in Toronto, which had disproportionate effects on marginalized populations during the COVID-19 pandemic (Canadian Centre on Substance Use and Addiction, 2020b; CIHI, 2021).

The present study also revealed meaningful mental health and substance use differences between pandemic and pre-pandemic clients. The pandemic group reported higher rates of methadone use, substance use into the third trimester of pregnancy, and to have had two or more pregnancies in the last year compared to those involved with BTC prior to the pandemic. Notably, families referred during the pandemic were also less likely to be involved with child welfare at referral compared to families referred pre-pandemic. These findings highlight the increase in marginalization of families who sought BTC services during the pandemic. There was an increase in their level of risk as marked by increased substance use concurrently with their disconnection from integrated, in-person, programming. These families also faced an increased risk of shared living arrangements with substance-using partners and clinically relevant risk of housing instability.

In line with recent pandemic-related findings from other research in this field (Pierce et al., 2020; Racine et al., 2021), mothers referred to BTC services during the pandemic reported significantly higher levels of depression and lower levels of self-efficacy in social situations with regards to their substance use, relative to pre-pandemic mothers. Further analyses compared the pre-pandemic, virtual (pandemic), and reopening (pandemic) groups on depression scores. The highest levels of depression were reported during the virtual phase of BTC service delivery (2021), followed by a return to baseline, pre-pandemic, levels during the reopening of centre-based services in January 2022. With the reopening of in-person services at BTC in 2022, it is likely that BTC clients started to feel less socially isolated again and, in turn, more connected to community networks and specific services that they had relied on prior to the pandemic, compared to their experience during the virtual pandemic phase. Given the high rates of BTC women's cohabitation with substance-using and mentally unwell intimate partners, it is likely that the return to in-person, trauma-informed, relational, programming at BTC may have alleviated their distress and increased women's hope as they could safely re-engage with clinicians and receive the support they needed. Despite the promising findings in the present study, clinicians' observations from Study 1 suggest that BTC clients continued to struggle with relatively higher levels of depression into the first year of the reopening phase (into May 2023) compared to pre-pandemic levels. Integrated treatment programs like BTC will benefit from engaging in more frequent assessment of their clients' psychosocial and emotional functioning in the coming years, as service delivery and engagement for maternal substance use restabilize.

With regards to anxiety, previous research depicts evidence of heightened anxiety across the general population (Racine et al., 2021) and among substance-involved women (Groulx et al., 2021) over the course of the pandemic. However, this patterns was not replicated in the

present research. It is possible that the reporting of depressive symptoms 'in the last six months' captured more of the experience of these clients than the anxiety scale which requested reporting based on 'the past week'. Further research will benefit from monitoring mood- and anxiety-related difficulties in this marginalized population, as mental health problems have been associated with an increased risk of substance use within the maternal context (e.g., Joyce et al., 2022).

Finally, the present study indicated increased rates of substance use in the third trimester of pregnancy among women accessing services during the pandemic compared to women accessing services pre-pandemic. This finding falls in line with previous research highlighting the concerning association between disruptions in prenatal care and higher rates of mental health challenges (e.g., Durankus & Aksu, 2020; Lebel et al., 2020; Moyer et al., 2020), and the rise in substance use among pregnant women over the course of the pandemic (e.g., Kar et al., 2021; Vignes et al., 2022). Despite the lack of differences found between neonatal outcomes from pre-pandemic to during the pandemic (e.g., weight at birth, infant birth or health complications, etc.), the data showed that infants born during the pandemic were at an increased risk of being prescribed medication, which may have included treatment for withdrawal following prenatal substance exposure (e.g., neonatal abstinence syndrome). Furthermore, the significant increase, from pre-pandemic to pandemic, in the proportion of clients with two or more pregnancies in the last year, suggests a heightened level of environmental risk experienced by BTC women within the context of the COVID-19 pandemic.

Client Service Engagement during a Time of Crisis

Engagement in BTC services was compared across the three groups (pre-pandemic, virtual, reopening). Two meaningful differences were found between the groups on measures of

service engagement. First, the findings point to a steady decline to half the length of time engaged in BTC services from pre-pandemic levels (in-person services), throughout the virtual pandemic phase, and into the reopening phase of the pandemic (return to in-person services). The low rate of services during the pandemic is concerning given previous findings on the positive relationship between duration of service engagement and treatment outcomes (Andrews et al., 2018). Interestingly, the return to pre-pandemic levels of service engagement did not rebound to the same extent as the reported levels of depression discussed above. The reopening of centre-based services and re-engagement with the relational and trauma-informed clinicians at BTC may have allowed clients to feel relief from their circumstances, even temporarily, while their financial, psychological, and circumstantial realities continued to present barriers to long-term treatment engagement. Whether service engagement will rebound to previously recorded levels, or when that may happen, will be determined over time as we continue to monitor post-pandemic recovery and client progress in future research.

Secondly, compared to pre-pandemic levels, there was a clinically meaningful trend towards a higher proportion of women engaging in BTC's pregnancy outreach programming (prior to postnatal services) during the pandemic. Concurrently, referrals to BTC services declined across prenatal and postnatal programming during the pandemic as partnering agencies did their best to adjust to the public health requirements (see Study 1 for more on this and its effects on availability of services and client engagement). Furthermore, BTC clients referred during the pandemic reported significantly higher rates of having 'two or more pregnancies during the last year', compared to pre-pandemic clients. Together, these findings suggest a disproportionate increase of referrals into prenatal programming due to an increase in the number of at-risk pregnancies that took place over the pandemic, compared to before the pandemic. It

appears that the adversity during the pandemic increased the risk of becoming pregnant for marginalized women, thereby placing them at higher risk of health complications during a time of reduced access to consistent prenatal care. Once identified prenatally, however, these clients have been found to be more likely to continue with services long-term and to have better outcomes as a result of their early prenatal service engagement (Andrews et al., 2018).

Strengths and Limitations

The overarching strength of this study is the focus on the experience of substance-involved women and their children as they faced unprecedented challenges during the recent global pandemic. The present research addressed a gap in understanding how these marginalized families coped over the course of this crisis by highlighting the constraints on their living conditions and home environment, mental health, substance use, and service engagement during the pandemic compared to previous years. Evaluating a wide range of background characteristics in tandem with maternal and child measures depicting psychological and socioemotional functioning, provided insights into the experiences of these families and the approaches that were used to address their needs clinically. This research highlights the extensive needs and challenges experienced by substance using women and their young children and the context of disproportionate adversity within which these women live and raise their children.

Despite these strengths, this study is limited by its relatively small sample sizes per group (pre-pandemic, virtual, reopening), which varied across measures due to the very high-risk and transient nature of the families included in BTC programming. The data limitations may have contributed to the violation of assumptions for statistical tests, such as Levene's test of equal variances on the measure of clients' length of service engagement. Further, the comparisons of pre-pandemic and pandemic measures in this study were not based on repeated measures

collected from the same clients at different time points but were from unique client groups referred at different time points. Future research will benefit from following the same group of clients and evaluating changes in their functioning over time.

Moreover, this study was limited in its generalizability to marginalized communities or even to communities of substance-involved families more specifically. Given the mothers and children's participation in BTC's early intervention programming for substance exposed families, they had access to supports that other families may not have had access to, both pre-pandemic and during the pandemic, especially for those who engaged in care from pregnancy onwards. Additionally, the treatment program at BTC follows a relational, trauma-informed, and developmentally sensitive model that is unique to integrated programming. As such, these findings may not generalize to other families engaged solely in addiction treatment (without the relational and parent-child component integral to BTC). The findings in the present study may therefore underestimate the adversity that marginalized families experienced during the pandemic. In turn, the City of Toronto had more lockdown days than any other city in Canada, potentially exacerbating the impact of risk factors related to the pandemic on women and children engaged in BTC treatment programming relative to other regions across the nation.

Finally, the measures collected for the purpose of this study were obtained through maternal self-reporting and are limited by respondent bias. Despite the skill and expertise of BTC clinicians who work with these families, women completing intake assessments may be reticent to disclose details of their home environments (including potential domestic violence), their parenting stress and parenting approach, or their substance use and mental health status, out of fear of child welfare involvement and separation from their children. As such, this limitation may further contribute to the underestimation of the adversity and substance exposure

experienced by these families. Further clinical involvement with these families will allow for a deeper understanding of the mothers, children, the mother-child dyad, as well as their contextual circumstances, to provide a more accurate depiction of their stories.

Implications and Conclusion

The COVID-19 pandemic created unprecedented circumstances that exacerbated the challenges already faced by women involved in substance use treatment and their children. Notably, the virus and its related public health response measures created circumstances that inadvertently displaced women and children accessing programming for substance involvement, reduced their access to in-person services thereby reducing maternal service engagement and developmental supports and increasing mental health challenges and substance exposure for mother and child. Given that maternal substance use often co-occurs with myriad environmental risk factors that threaten healthy child development (e.g., Carta et al., 2001; Nair et al., 2003), it is in the best interest of society at large to support at-risk communities with effective, timely, and uninterrupted prevention and intervention approaches.

STUDY 3: INCREASED RISK AND REDUCED PROTECTION AMONG FAMILIES AFFECTED BY INTERRUPTIONS TO SERVICES FOR MATERNAL SUBSTANCE USE DURING THE COVID-19 PANDEMIC

Introduction

The constellation of risks and protective factors that affect women and children exposed to substance use is multifaceted (Bondi et al., 2020; Carta et al., 2001). Some of the adversities experienced by women who use substances include trauma related to substance exposure and abuse in early life, parenting difficulties, domestic violence, as well as financial and resource scarcity (Eiden et al., 2011; Espinet et al., 2016; Nair et al., 2003; Rutman et al., 2020). To compound these risk factors, the recent COVID-19 pandemic had a disproportionate effect on vulnerable families that were already facing social, economic, and health-related stressors (e.g., CIHI, 2021; Clemens et al., 2020; Paremoer et al., 2021). While various domains of risk within the perinatal environment have adverse effects on child outcomes within the context of maternal substance use (e.g., Carta et al., 2001; Conners et al., 2004), research has shown that positive developmental outcomes can be observed in the presence of accumulated protective factors across domains that attenuate the negative effects of cumulative risk (e.g., Bondi et al., 2020; Crosnoe et al., 2010; Furstenberg et al., 1999; Ostaszewski & Zimmerman, 2006). As such, family functioning within the context of maternal substance use can be best understood through a domain-specific conceptualization of risk and protective factors (Bondi et al., 2020; Evans et al., 2013; Hosman et al., 2009).

Integrated interventions that reduce the risks associated with maternal substance use have been shown to effectively address addiction problems while reducing parental stress and increasing parenting capacity (e.g., Espinet et al., 2016). With over 25 years of service dedicated

to marginalized communities in Toronto, Breaking the Cycle (BTC), an integrated treatment program for maternal substance use, has been operating from a relational, trauma-informed, and developmentally sensitive stance to offer an array of protective services. However, in response to the COVID-19 pandemic, by the end of March 2020, non-essential, mental health care settings in Canada adopted virtual means of service delivery, interrupting traditional in-person programming (Government of Canada, 2020a). Despite many of the emerging benefits of virtual care (e.g., Siegel et al., 2021), BTC experienced first-hand the effects of the COVID-19 pandemic and its related public health restrictions on program disruptions and required adaptations that proved to be challenging for their marginalized clients (for a thematic analysis on this topic please see Study 1). Disruptions in prenatal care have been associated with higher anxiety and depression (Durankus & Aksu, 2020; Lebel et al., 2020; Moyer et al., 2020) and generally poorer mental health for substance-involved pregnant women (Groulx et al., 2021). Concurrently, research continues to reveal a pandemic-related increase in maternal substance consumption to cope with symptoms of anxiety, depression, social isolation (Durankus & Aksu, 2020; Mappa et al., 2020; Moyer et al., 2020), and in response to health concerns and financial instability (Brooks et al., 2020; Pfefferbaum & North, 2020). An evolved understanding of family functioning and the circumstances that plagued substance-involved mothers and their children during the pandemic requires a comprehensive analysis of cumulative risks and protective factors that are evaluated across the various domains of their lives.

Cumulative Risk Factors

Risk factors can be assessed for their association with an increased likelihood of developing negative or undesirable outcomes (Kraemer et al., 2005). Amongst others, exposure to parental and partner violence, mental health concerns, negative life events, intergenerational

substance use, and housing concerns (e.g., homelessness) have been identified as risk factors that place significant stress on marginalized families associated with adverse effects on their functioning (Conners et al., 2004; Kettinger et al., 2000; Nair et al., 2003; Slesnick & Erdem, 2012). For example, women struggling with substance use problems are often faced with difficult family dynamics and peer relationships (Kuo et al., 2013; Latuskie et al., 2019; Niccols, Milligan, Sword et al., 2012) and lack positive role models for healthy relationships (Andrews et al., 2018). As previously documented in research with this population, women who attend BTC programming commonly report physical, sexual and/or emotional abuse within their own family contexts and by current intimate partners (Espinet et al., 2013), who themselves have substance use problems as well as other mental health challenges (Espinet et al., 2013; Latuskie et al., 2019). Unhealthy partner relationships have been identified as a significant stressor that perpetuates substance use among mothers (Latuskie et al., 2019).

Cumulative risk modeling has shown synergistic effects from exposure to multiple risk factors (Carta et al., 2001; Evans et al., 2013). Research on cumulative risk associated with adults' substance use treatment outcomes indicates that a greater number of demographic risk factors amplifies the risk of post-treatment substance use (Kopak et al., 2016). Research has linked adverse childhood experiences (ACEs) with poor health outcomes in later life. A cohort study of an urban minority sample in the United States confirmed that there was a robust association between ACEs and poor outcomes in early adulthood (Mersky et al., 2013). Poorer outcomes included lower self-rated health and life satisfaction, as well as more frequent depressive symptoms, anxiety, tobacco use, alcohol use, and marijuana use throughout adulthood (Mersky et al., 2013). Cumulative adversity was also associated with cumulative effects across domains. Research shows a higher risk for poor developmental outcomes and psychological

disorders from concurrent exposure to multiple risk factors relative to a single physical or psychosocial risk exposure (e.g., Evans et al., 2013; Kessler et al., 1997, 2010; Sameroff, 2006). For example, cumulative risk exposure has been found to account for more of the variance in children's developmental trajectories than prenatal substance exposure alone (Carta et al., 2001). However, Yumoto and colleagues (2008) found that children with prenatal substance exposure who were also exposed to environmental risks experienced poorer cognitive and behavioural outcomes compared to children with no prenatal substance exposure. This research highlights the significance of including prenatal and postnatal risk factors in modeling to achieve a more accurate understanding of risk. Notably, an assessment of cumulative risk exposure, as opposed to single risk assessment, provides information about an individual's risk for detrimental developmental outcomes (Evans et al., 2013).

Cumulative Protective Factors

Research provides evidence of the benefits of protective factors in promoting positive development in populations of vulnerable youth living with adversity (e.g., Crosnoe et al., 2010; Furstenberg et al., 1999). Some researchers have found that cumulative protective factors can attenuate the negative effects of risk (Ackerman et al., 1999; Butler et al., 2022; Kirby et al., 2020; Ostaszewski & Zimmerman, 2006; Sylva et al., 2008). Butler and colleagues (2022) demonstrated a graded relationship between the number of sources (1, 2 or 3) of support in a child's life and the odds of that child experiencing low mental wellbeing, reflecting a cumulative protective effect. Although the authors' cumulative protection modeling showed the strongest synergistic effect from exposure to three sources of support (family adult support, school adult support, and school peer support) on optimal mental wellbeing, high peer support had an impact equivalent to the two other protective factors, highlighting the unequal effects of cross-domain

protective factors on developmental outcomes (Butler et al., 2022). Other researchers have found that warm, supportive parenting mitigates the impact of family financial difficulty on mental health difficulties in early and middle childhood, with highly supportive parent–child relationships playing a more important role in predicting child development than measures such as low parental education or income (Kirby et al., 2020; Sylva et al., 2008). Therefore, not only are cumulative protective factor scores associated with more positive developmental outcomes, but cumulative protective factor scores can interact with cumulative risk scores in predicting developmental outcomes, such that higher cumulative protective factor scores have the potential to attenuate the relationship between cumulative risk and negative developmental outcomes.

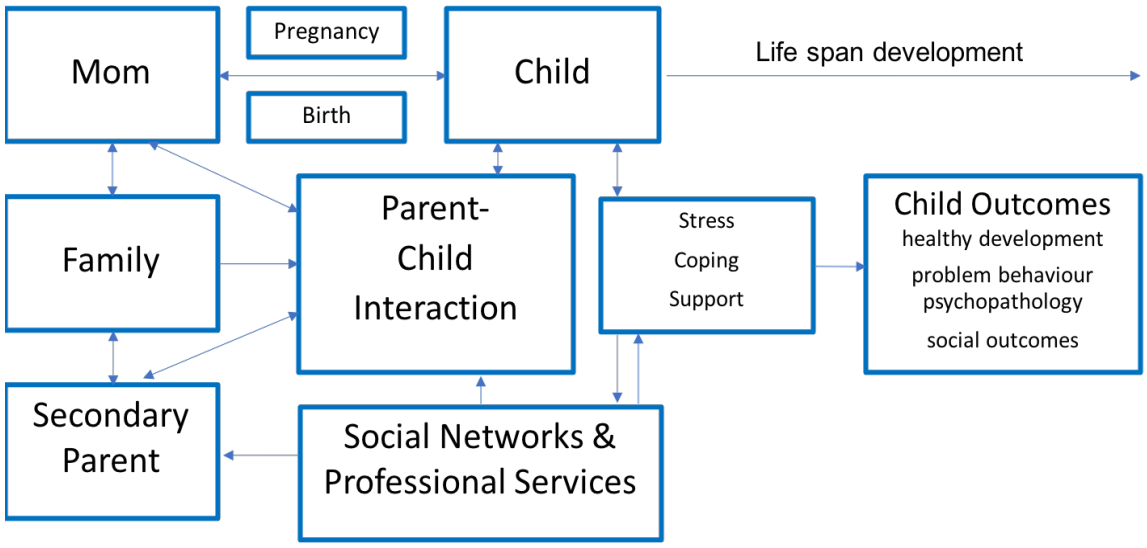
Within the context of maternal substance use, research from BTC has shown that targeted parent-child programming, as well as parenting groups and life skills workshops, foster healthier working models of relationships for the mother and the mother-child dyad, attenuating the adverse effects of adverse family dynamics affected by multigenerational substance use (e.g., Motz et al., 2011). Notably, early involvement with integrated treatment has been associated with more service utilization, and more service utilization has been associated with more positive outcomes upon service termination (Andrews et al., 2018). Furthermore, integrated programming such as that offered through BTC supports clients in building connections with community agencies, including city shelters. Research with shelter residents and participants in various community programs for women has documented the positive effects of a supportive group environment within the shelter system on women's emotional wellbeing (Abel, 2000; Tutty, 2015).

Theoretical Model for Cross-Domain Factors of Cumulative Risk and Protection

A unique constellation of risk and protective factors characterizes each family. Bondi and colleagues (2020) adapted the Developmental Model of Transgenerational Transmission of Psychopathology (Hosman et al., 2009) to conceptualize salient domains of risk and protective factors for children exposed to substances prenatally. Given the evidence of more profound adverse effects on children from cumulative cross-domain risk exposure relative to intense but concentrated intra-domain risk exposure, Bondi and colleagues (2020) tested a clinically and theoretically grounded framework that incorporated cross-domain cumulative risk and protection into the model (see Figure 9).

Figure 9

Adapted Theoretical Model Demonstrating the Developmental Overview of the Transgenerational Transmission of Psychopathology



Note. This theoretical model was adapted by Bondi, B. C. (2019) in a thesis titled "Cumulative risk and protective factors: Case studies of the neurodevelopment of children exposed to substances", at the Department of Psychology at York University.

Present Study

The conceptual model used in the present study, the Developmental Model of Transgenerational Transmission of Psychopathology, supports the evaluation of profiles of relative risk and protection within families using a comprehensive, domain-specific, system. The objectives of this study were two-fold.

The first aim was to build on previously presented findings (Study 1 and Study 2) and establish levels of relative risk and protection for families that attended BTC programming pre-pandemic vs. during the pandemic. Study 1 provided an understanding of the contextual factors that disproportionately exacerbated the circumstances of women and children referred to BTC during the pandemic, compared to those who attended services pre-pandemic. Following the qualitative analysis of Study 1, quantitative data analyses in Study 2 provided evidence of increased substance use during pregnancy, more depressive symptoms, and more disconnection from services among families referred during the pandemic compared to pre-pandemic. Given the findings from Studies 1 and 2, it was hypothesized that families referred to BTC during the pandemic would be characterized by generally higher levels of risk compared to families who were referred pre-pandemic and had access to in-person, wraparound services. The second aim of this study was to highlight emergent factors that distinguish families of varying levels of overall risk and protection, outside of the pandemic context, to inform research and clinical practice moving forward. Given the first-time application of this model of cumulative risk and protection with a larger sample of BTC families and the novel integration of qualitative and quantitative data to meet the study goals, this study was mainly exploratory in nature and no specific hypotheses were formulated for the second objective.

Method

Participants

Families included in this study were a subset of the original 68 clients referred for services at Breaking the Cycle and investigated in Study 2. The families in this study attended services between January 2017 and June 2023. Details on the full sample characteristics and background measures of women and their children (as well as substance-involvement during pregnancy for women referred prenatally) can be found in the previously presented research (see Study 2).

Of the 30 families included in this study, 14 families were referred to BTC pre-pandemic and later terminated services within the pre-pandemic timeframe (between January 2017 and December 2019); 16 families were referred to BTC during the pandemic and later terminated services during the pandemic (between March 2020 and June 2023). All families had received at least three months of service after their intake before their files were closed, and 100% of families included in this evaluation planned to parent at discharge.

Data evaluated for the purpose of this study pertain solely to clients who consented to participate in research. Ethics approval for this study was obtained through the York University Ethics Review Board.

Measures

Intake questionnaires

Mother. The intake questionnaire at BTC is completed with all women participating in the intake process after they have been referred to postnatal services. It is completed with an intake counsellor. This questionnaire provides information about general demographics as well

as information about life stressors, drug use, and mental health history including experiences of abuse and interpersonal violence.

Child and Prenatal Substance Exposure. The children's intake questionnaire at BTC is completed with women referred to postnatal services for programming with their child(ren). It is completed with an intake counsellor and contains information specific to the child's prenatal substance exposure, birth outcomes, family environment, as well as their involvement in child and parent-child programming both at BTC and externally with partnering agencies.

Maternal Substance Use and Mental Health

Drug-Taking Confidence. Women's self-efficacy related to avoiding substance-use was assessed using the Drug-Taking Confidence Questionnaire (DTCQ-8; Sklar & Turner, 1999). This 8-item questionnaire is a global measure of coping self-efficacy with regards to substance use (i.e., confidence to resist using alcohol or another specified drug) in eight different specific situations (three personal situations and five situations involving others). Ratings are on a scale from 0% ("not at all confident") to 100% ("very confident"). Mean scores of 80% or above indicate high confidence in one's ability to avoid substance use. The DTCQ-8 has demonstrated strong reliability ($\alpha = .89$), and good construct and convergent validity (Sklar & Turner, 1999).

Anxiety. The Beck Anxiety Index (BAI; Beck & Steer, 1993) is a 21-item questionnaire in which participants rate the degree to which a symptom of anxiety has bothered them in the past week. Response values range from 0 (not at all) to 3 (severely). Final scores range from 0 to 63 with higher scores indicating higher levels of anxiety. The BAI has a clinical cut-off of 16 and total scores falling above these thresholds indicate significant psychological distress that requires further assessment.

Depression. The Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) is a 20-item questionnaire, in which participants rate the frequency of depressive symptoms experienced in the last week on a four-point Likert scale. Responses are assigned a value ranging from 0 (rarely or none of the time, i.e., less than one day in the week) to 3 (most or all of the time, i.e., five to seven times in a week). Total scores range from 0 to 60 with higher scores indicating higher levels of depressive symptoms (Radloff, 1977). Scores of 16 or higher are considered to be in the clinical range.

Mother's Relationship with Others and Parenting Stress

Adult Attachment. The Revised Adult Attachment Scale (R-AAS; Collins, 1996) was used to assess mothers' own attachment style. The R-AAS is a 21-item scale with six items for each of the three adult attachment styles: Close (the extent to which the mother feels comfortable with closeness and intimacy), Depend (extent to which the mother feels that she can depend on others to be available when needed), and Anxiety (extent to which the mother feels fearful about being rejected or unloved in relationships). Each subscale score is obtained by calculating the mean of the responses for the six items in each subscale. Mothers rate the extent to which each statement describes their feelings. Internal consistency for the subscales ranges from .69 to .75 and the two-month test-retest reliability correlations range from .52 to .71 (Collins & Read, 1990).

Parental Self-esteem. The Being a Parent scale is an adaptation of the Parenting Sense of Competence Scale (Gibaud-Wallston & Wandersman, 1978), which assesses parenting self-esteem. The 12 items assess Parenting Satisfaction, an affective dimension reflecting parenting frustration, anxiety, and motivation, and Parenting Efficacy, an instrumental dimension reflecting

competence, problem-solving ability, and capability in the parenting role (Johnston & Mash, 1989).

Parenting Stress. The Parent Stress Index-Short Form (PSI; Abidin, 1995) is a 36-item scale with three main subscales: Parental Distress (mother's stress with respect to her parenting role), Parent-Child Dysfunctional Interaction (mother's perceptions of the quality of and satisfaction with her interactions with her child); and Difficult Child (behavioural characteristics of the child that may lead parents to perceive them as difficult to manage). Internal consistency ranges from .85 to .91 and test-retest reliability ranges from .68 to .85 for the subscales and Total Stress scale (Abidin, 1990).

Parenting Attitudes. The Adult-Adolescent Parenting Inventory-2 (AAPI-2; Bavolek & Keene, 2010) assesses parenting and child rearing attitudes of adult and adolescent parenting and prenatal populations. Pre-test (Form A) and post-test (Form B) versions are available. The 40-item inventory measures parental behaviors and is commonly used to assess the risk of child abuse and neglect. The AAPI-2 instrument generates five subscales: Expectations of Children, Parental Empathy towards Children's Needs, Use of Corporal Punishment, Parent-Child Family Roles, and Children's Power and Independence. The alpha reliability coefficient for the full 40-item scale is .85 and ranges from .50 to .79 for the individual subscales (Conners et al., 2006).

Perceived Social Support. The Perceived Social Support - Family Scale and Perceived Social Support - Friends Scale (PSS-Fa and PSS-Fr; Procidano & Heller, 1983) scales were used to measure the extent to which mothers perceive they receive social support from families and friends. Each scale is a 20-item self-report questionnaire, with higher overall scores suggesting greater social support. The PSS has been used with a variety of clinical adolescent and adult populations and both scales have high levels of construct validity and test-retest reliability

(Cronbach's α = .90 for PSS-Fa, and .88 for PSS-Fr). Previous research using this measure with substance using mothers suggests that raw scores below 11.9 and 8.0 are in the clinical range for the PSS-Fa and PSS-Fr scales, respectively (Suchman et al., 2005).

Cumulative Risk and Protective Factor Scores

In the present study (Study 3), cumulative risk and protective factor scores were calculated for 30 families who had terminated services at BTC and whose files had officially been closed at the time of analysis. Closed files (discharged clients) typically contain the most comprehensive collection of data for BTC clients. Client charts included referral forms, mother and child intake forms, progress notes, medical notes, correspondence, addiction counseling notes, mother-child interactional support notes, clinical team review notes, child developmental assessment measures and reports, and service ending (discharge) forms. Information on service engagement at BTC and with partnering agencies, as well as custody status and plans for parenting after discharge, were reviewed wherever available. These data were all necessary to complete a thorough evaluation of risk and protective factors in the calculation of the cumulative risk and protection scores. Available data on each family varied slightly, as clients differed in the frequency and length of their service engagement at BTC and within the community. Client data were retained if the family had at least 50% of maternal and child intake data available for review. Both maternal intake and child intake data were featured in the calculation of total risk and protection scores.

I generated scores to calculate cumulative risk and protection by modeling the design and calculation protocols described in Bondi and colleagues (2020). The conceptual model is depicted in Figure 9. The score was created following a meticulous process of extracting a comprehensive array of risk and protective factors from clients' charts (Motz et al., 2011). The

following domains were assessed from the perspective of risk and protection: mother, secondary parent, family, pregnancy, birth, child, parent-child interactions, social networks, and professional services (Bondi, 2019). Domain-specific cumulative risk and cumulative protective factor scores, as well as the total cumulative risk and cumulative protective factor scores, were calculated for each child. Each risk factor was coded dichotomously, with exposure = 1 and no exposure = 0, and each protective factor was coded dichotomously, with exposure = 1 and no exposure = 0. Domain-specific and total cumulative risk and cumulative protective factor percentages were considered clinically significant if the percentage was above 25%. For each family, the number of clinically significant domains of protection was subtracted from the number of significant risk domains (Risk – Protection). This enabled us to quantify the balance between cross-domain risk and protection, with positive numbers indicating more risk domains relative to protection domains (Bondi, 2019; Bondi et al., 2020).

Procedure

Archival BTC data were accessed for the purpose of retrospective, quantitative analyses. Reviews of client (family) files were completed to fill missing data points with accurate information wherever possible from referral and intake packages and, in tandem with questionnaires, to generate comprehensive cumulative risk and protection scores for each family. Missing data did not undergo data imputation, as the intention was to present a genuine representation of the unique experiences of the marginalized families in this study. Scores were compared across pre-pandemic (January 2017 – December 2019) and pandemic (March 2020 – June 2023) phases; the pandemic phase was collapsed across virtual (March 2020 - December 2021) and reopening (January 2022 - June 2023) stages of the pandemic due to small sample sizes.

Profiles of cumulative risk and protection were established for each family in the study that had terminated their programming at BTC and closed their file. These families had information in their files pertaining to service engagement and child outcomes upon discharge, which were meaningful when calculating scores that comprehensively encapsulated their stories. Amongst others, variables of interest included maternal (and other parent's) mental health and substance use, family environment and access to instrumental resources (food security, clothing), childcare/babysitting attendance, access to required services (e.g., treatment, medical care, and early intervention programming), children's development (e.g., recent diagnoses and health status), and various forms of social support. The protocol for establishing profiles based on qualitative, cumulative, and cross-domain consideration of risk and protection followed the same methods used in Bondi and colleagues (2020). Assignment of risk and protection was dichotomized for exposure vs. no exposure. Incorporating protective factors into this evaluation allowed for a comprehensive consideration of life circumstances in each family. This analysis resulted in the creation of categories representing relative levels of risk and protection which further expanded the model adapted by Bondi et al. (2020). The profile of relative cumulative risk and protection was captured for each family in the sample and compared across pre-pandemic and pandemic groups to evaluate whether differences in proportions of the sample at each level could be observed between groups.

Finally, as described in Study 2, data collection with families at BTC stopped almost entirely during the first 10 months of the pandemic (March 2020 – December 2020). Virtual data collection commenced in January 2021 and these data then became available for evaluation. Qualitative (Study 1) and quantitative (Study 2) data were converged in Study 3 to explore how key risk and protective factors that emerged from clinician interviews mapped onto the levels of

relative risk and protection that emerged from the calculation of cumulative risk and protection scores. This provided a broader look at risk and protection factors outside of the scope of the pandemic, which could be utilized to flag and distinguish between clients who fall across diverse levels of risk in future work, as well as in clinical practice.

Analyses

Cumulative Risk and Protective Factor Scores

Cumulative risk and protective factor scores were created by following the design and calculation protocols of Bondi et al. (2020). Scores were calculated for the following eight domains of both risk and protection: Mother, Secondary Parent, Family, Pregnancy, Birth/Post-natal, Child, Parent-Child Interactions, and Social Networks and Professional Services (Bondi et al., 2020) (see Figure 9).

Variables of interest incorporated into the model were extracted from a comprehensive array of factors from clients' charts (referral, intake, discharge, and questionnaire data) and can be found in Appendix C. Each risk and protective factor was mapped onto the target theoretical model by domain to conceptualize risk and protection relevant to family functioning and engagement in services pre-pandemic versus during the pandemic. In the present study, the final eight domains of risk contained the following factor counts per domain: 1) Mother = 31, 2) Secondary Parent = 5, 3) Family = 14, 4) Pregnancy = 12, 5) Birth /Postnatal = 12, 6) Child = 6, 7) Parent-Child Interactions = 12, and 8) Social Networks and Professional Services = 4. The final eight domains of protection contained the following factor counts per domain: 1) Mother = 14, 2) Secondary Parent = 4, 3) Family = 7, 4) Pregnancy = 2, 5) Birth /Postnatal = 2, 6) Child = 9, 7) Parent-Child Interactions = 12, and 8) Social Networks and Professional Services = 17.

For each family, I calculated domain-specific cumulative risk and cumulative protective factor scores as well as the total cumulative risk and protection scores, as described next. Each risk factor was coded dichotomously, with exposure = 1 and no exposure = 0. Risk assignment was accomplished by statistical criteria (e.g., upper quartile of risk exposure = 1; all others = 0) or based on a priori theoretical and conceptual categorization (e.g., pre-existing clinical classifications like the clinical cutoff for anxiety or depression) when appropriate. Similarly, each protective factor was coded dichotomously, with exposure = 1 and no exposure = 0. Again, assignment was accomplished by statistical criteria (e.g., lower quartile of risk exposure = 1; all others = 0) or based on a priori theoretical and conceptual categorization (e.g., accessing specific early-intervention services), when appropriate. Dichotomous factors within each domain were then summed to generate domain-specific cumulative risk and cumulative protective factor scores. These scores were converted into percentages to ensure that the denominator was dependent on the number of items applicable for each child per domain, with unknown factors removed. The following two examples illustrate the calculations for percentage of risk in the "mother" domain: Family 1 had data available on 30 out of the 31 factors (1 unknown factor), with 15 of the 30 factors contributing towards the calculation of risk exposure (15/30), while Family 2 had data available on only 16 out of the 31 factors (15 unknown factors) with 8 of the 16 factors contributing towards the calculation of risk exposure (8/16). In both examples, the proportion of risk is 0.50 (or 50%). Total cumulative risk and cumulative protective factor scores were computed by adding the scores across each domain, then converting into percentages to ensure that the denominator was based on the number of items applicable for each family. Every domain was represented in each family's total cumulative risk and protective factor score. Domain-specific and total cumulative risk and cumulative protective factor percentages were

considered clinically significant if the percentage was above 25%. The number of clinically significant domains of protection were subtracted from the clinically significant domains of risk (Risk – Protection) for each family to quantify the balance between cross-domain risk and protection, with positive numbers indicating more risk domains relative to protection domains.

The calculation of total cumulative risk and protection scores for each family revealed three domains of relative risk and protection, which are discussed in the results section of this study. The relative risk and protection categories expanded the model adapted by Bondi and colleagues (2020).

Mixed-Methods Convergent Analyses

A mixed-methods convergent design with integration of both quantitative and qualitative data was used to allow for a "more complete and synergistic utilization of data than do separate quantitative and qualitative data collection and analysis" (Wisdom & Creswell, 2013, p. 1). Similarly, Fetters and Molina-Azorin (2017) highlight the inherent value of the "integration" of mixed-method approaches as the "linking of qualitative and quantitative approaches and dimensions together to create a new whole or a more holistic understanding than achieved by either alone" (p. 293), a conclusion also made by others (Creamer, 2021; Mertens et al., 2016).

Information on the key factors that contributed to the experiences of families during the pandemic was acquired by interviewing clinicians (see Study 1). Selection of the factors that would be included in the mixed-methods evaluation was completed by mapping the most frequently discussed topics during the interviews onto the variables available for quantitative analysis from the maternal intake data and questionnaires. A list of the top 12 most frequently discussed factors of risk and the top 12 most frequently discussed factors of protection for families were then chosen for further evaluation in a mixed-methods design. The key risk factors

that were highlighted throughout the interviews *and* collected during the intake with mothers were: poverty, anxiety, depression, history of abuse, having three or more children, partner is a substance user, partner has mental health problems, domestic violence, prenatal substance use, high parental stress, low social support from friends, low social support from family. The key protective factors that were highlighted throughout the interviews and also collected during the intake with mothers were the following: regular use of BTC services, previous POP involvement, BTC addiction counselling, BTC addiction group participation, BTC home visiting, BTC parent-child support, BTC developmental screens and assessment, involvement in other BTC instrumental supports (cooking, clothing drive, food bank), community housing support, public health nurse involvement, access to a physician or psychiatrist, participation in community child services (therapy, early learning programming). These risk and protective factors were then mapped separately onto the broad categories of relative risk and protection generated in the quantitative portion of this study (discussed above) to allow for a closer look at the factors of risk and protection that appeared to most clearly distinguish the emergent groups of families with varying levels of relative risk.

Results

Assessment of the Representativeness of the Sample

The sample of families (n = 30) in the present study was compared for discrepancies with the sample of 38 families included in Study 2 (N = 68), but excluded here. Pearson's chi-square test of independence showed that there was no significant association between membership to either sample of families and membership to the pre-pandemic or pandemic group, $\chi^2(1, N = 68) = 0.49$, $p = .63$. Similarly, there was no significant association between membership to either sample and referral from BTC's pregnancy outreach programming or from an external source, χ^2

(1, $N = 68$) = 1.23, $p = .31$. Furthermore, a comparison of maternal background characteristics revealed no differences between samples in clients' age, education, legal involvement, substance use (at referral to pregnancy outreach programming or at intake to postnatal services), involvement with child welfare, history of abuse or self-harm, or reported history or current domestic violence (all *ps* > .05). There were also no significant differences between the samples on any of the maternal substance use and mental health measures or on any of the scales related to maternal relationships with others and parenting stress (all *ps* > .05) that were investigated in Study 2.

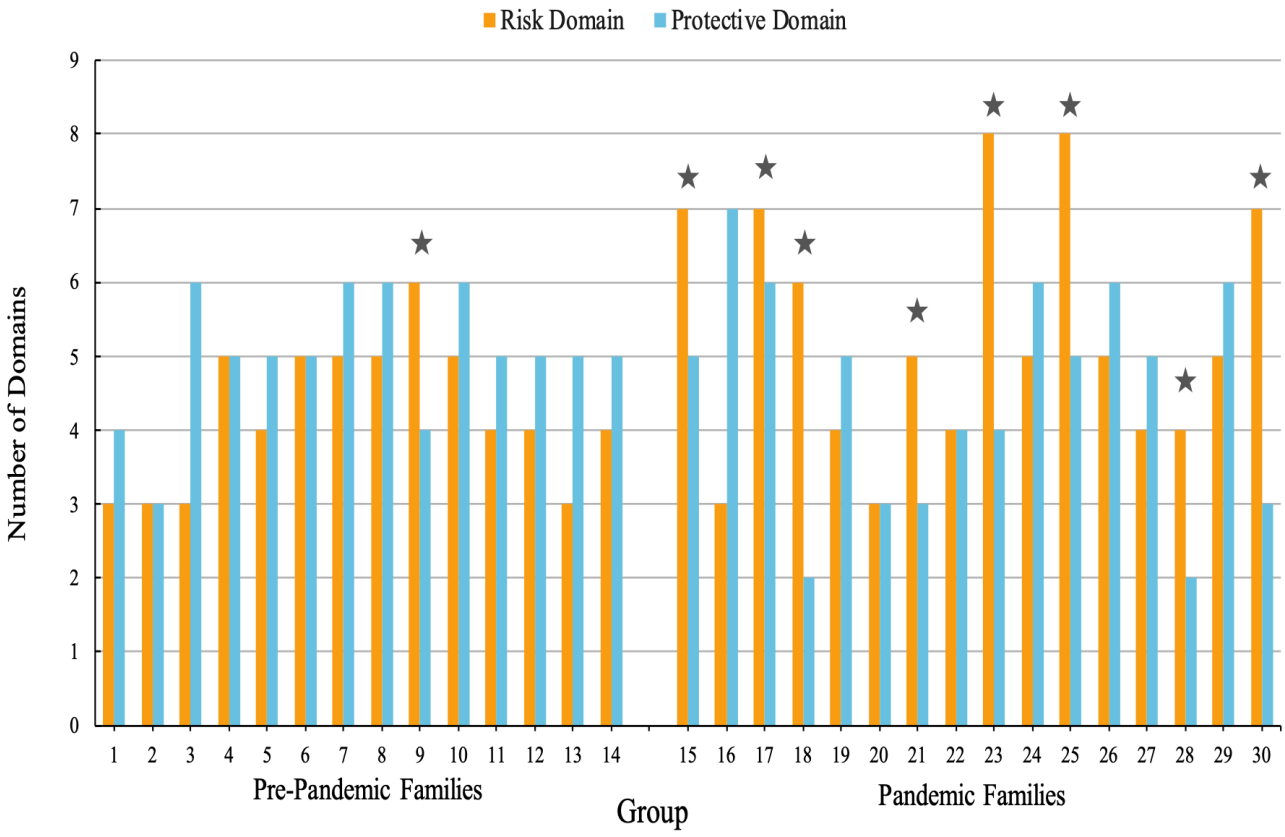
Cumulative Risk and Protective Factor Scores

From the sample of 30 families included in this study, 14 families were in the pre-pandemic group and 16 families were in the pandemic group (virtual and reopening phases). Due to the small sample size, the pandemic group participants were collapsed and not differentiated based on whether they started services during the virtual or reopening pandemic stage.

Following the protocol of Bondi and colleagues (2020), a cumulative risk score, a cumulative protection score, and a total cumulative risk and protection score were created for each family. Domain-specific percentages were considered clinically significant if the percentage was above 25%. Figure 10 presents the number of clinically significant domains of risk and protection that emerged from this calculation, per family, by group (pre-pandemic and pandemic). Analyses revealed that out of the 14 families in the pre-pandemic group, only one of them (7%) had more domains of risk than protection that characterized their family profile. From the pandemic group, eight out of the 16 families profiled (50%) were identified as having more domains of risk than protection.

Figure 10

Number of Clinically Significant Domains of Risk and Protection per Family in the Pre-Pandemic and Pandemic Groups



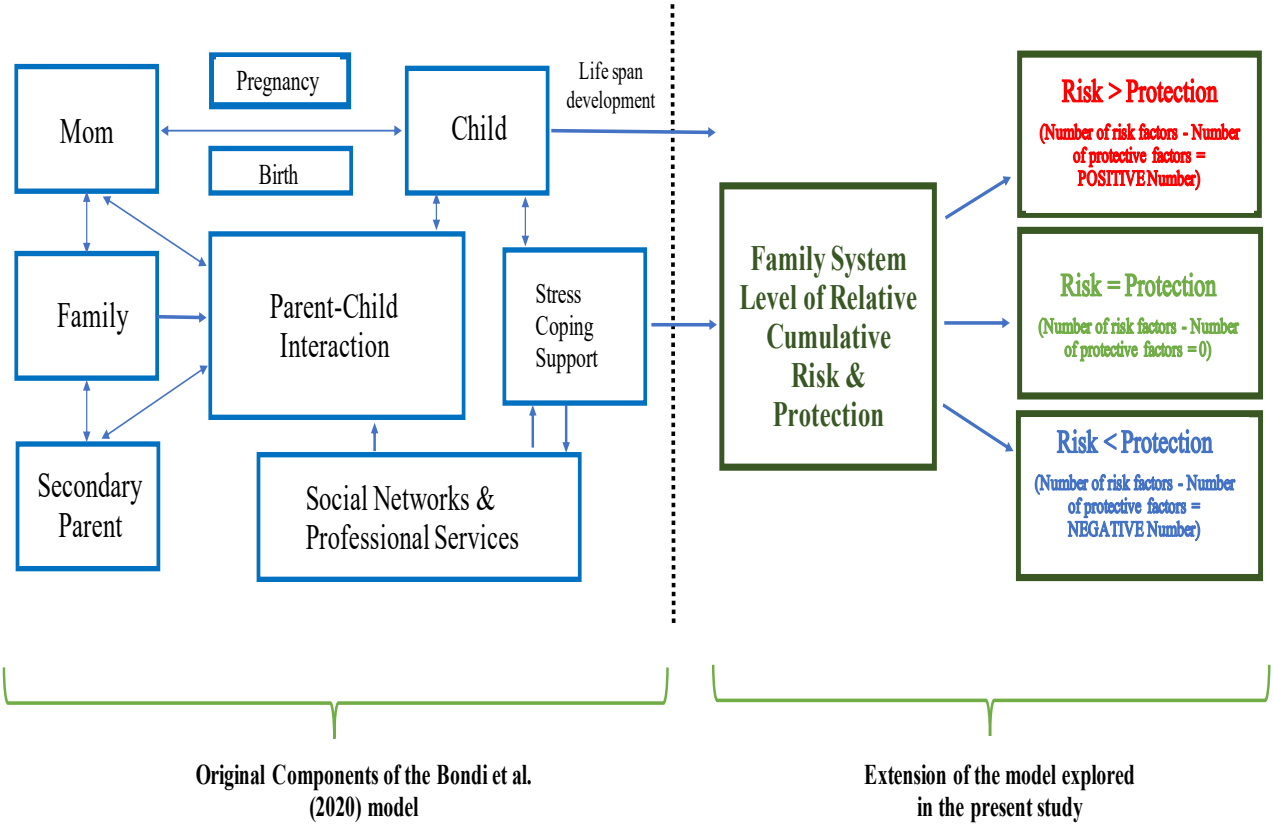
Note. Families that have been identified with the star symbol (★) have more domains of risk than protection (risk – protection = a positive number).

Subsequently, the number of clinically significant domains of risk and protection were subtracted (Risk – Protection) for each family to quantify the balance between cross-domain risk and protection. The calculation of total cumulative risk and protection for each family revealed three categorizations of relative risk and protection that have been highlighted in the re-

conceptualized (extended) model presented in Figure 11 below. Three levels of relative risk and protection emerged, namely: 1) Risk > Protection, the total cumulative risk and protection score is positive, meaning that the level of relative risk is greater than the level of protection (high-risk group), 2) Risk = Protection, the total cumulative risk and protection score is zero, meaning that the relative levels of risk and protection are equivalent (moderate-risk group), and 3) Risk < Protection, the total cumulative risk and protection score is negative, meaning that the level of relative risk is less than the level of protection (low-risk group).

Figure 11

Present-study Extension of the Developmental Model of Transgenerational Transmission of Psychopathology to Three Levels of Relative Risk based on the Family System's Score of Cumulative Risk and Protection



From the sample of 30 families included in the analyses, 9 families had positive scores and were labeled the high-risk group (Risk > Protection), 5 families had a score of zero and were labeled the moderate-risk group (Risk = Protection), and 16 families had negative scores and were labeled the low-risk group (Risk < Protection). Table 6 presents the breakdown of these categories of relative risk and protection by group (pre-pandemic vs. pandemic) with the number

of families in each category. Due to the small sample sizes across all categories, the two smallest categories, namely the moderate-risk group (Risk = Protection; n = 5) and the high-risk group (Risk > Protection; n = 9) were collapsed (n = 14) into the moderate-to-high-risk group, for the purpose of the mixed-methods convergent analyses.

Table 6

Number of Clients Assigned to One of Three Levels of Relative Risk and Protection by Group (Pre-Pandemic vs. Pandemic)

	Pre-Pandemic (2017-2019)	Pandemic (2020-2023)		
Level	Frequency *(n=14)*	Frequency *(n=16)*	*z*	*p*
Moderate-to-high-risk Group				
High: Risk > Protection (R > P)	1	8	-2.56*	.01
Moderate: Risk = Protection (R = P)	3	2	0.65	.52
Low-risk Group				
Risk < Protection (R < P)	10	6	1.86	.06

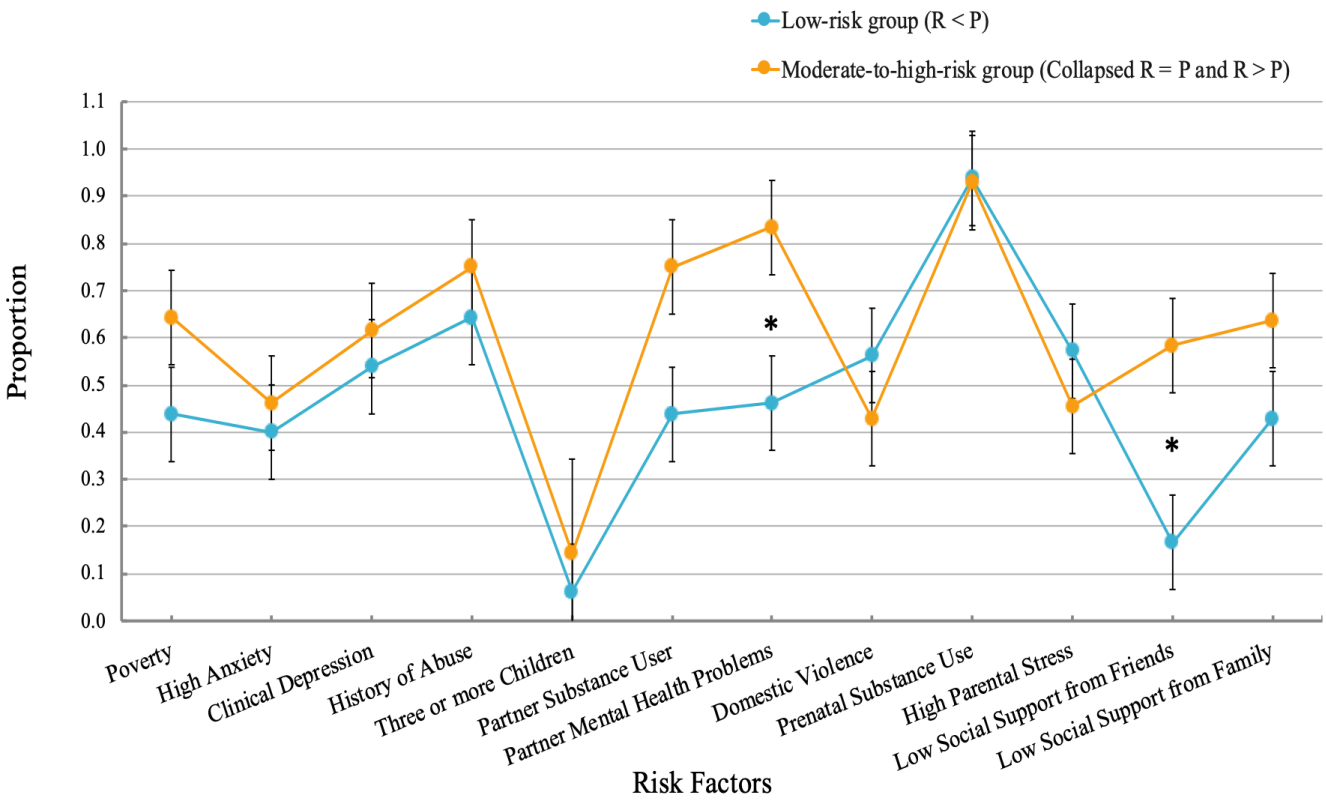
Mixed-Methods Convergent Analyses

While the focus of previously described categories of risk and protection was primarily on the number of risk vs. protective domains, the focus of the present mixed-methods convergent analysis was to explore factors that differentiate the categories of low-risk and moderate-to-high-risk. Given the small sample sizes across categories of relative risk and protection, the mixed-methods analyses did not comprise an evaluation of group differences on the basis of time of referral to BTC services (i.e., pre-pandemic vs. pandemic).

Figure 12 depicts the proportion of families, by category of relative risk and protection, exposed to each selected *risk* factor (informed by Study 1). Two risk factors showed up as more prevalent in one group compared to the other group: presence of mental health among partners and clients' perceived level of low social support from friends. Families in the moderate-to-high-risk group had a higher proportion of partners with mental health problems (83%) than families in the low-risk group (44%), $z = 2.12$, $p = .03$. Further, families in the moderate-to-high-risk category reported 'low levels of perceived social support' at a significantly higher rate (61%) relative to families in the low-risk group (17%), $z = 2.11$, $p = .03$. Despite clinically relevant differences observed between groups for other risk factors, no other risk factors emerged as statistically different between the groups.

Figure 12

Proportion of Clinician-Informed Risk Factors Represented Across Categories of Relative Risk and Protection



Note. The asterisk (*) denotes a statistically significant difference in the proportion of families reporting exposure to a given risk factor between groups, $p < .05$. The bars represent the standard error around the proportions.

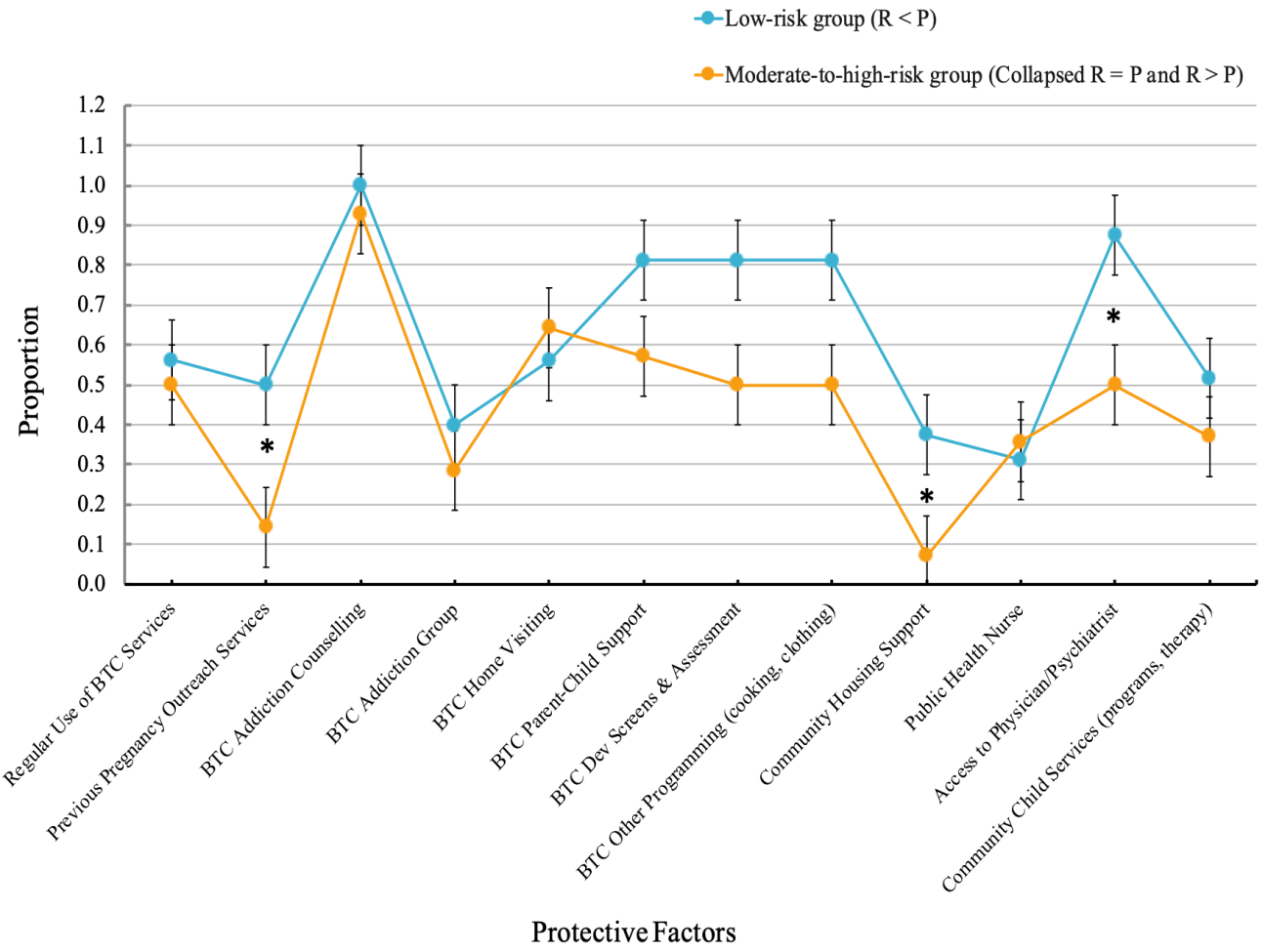
Figure 13 depicts the proportion of families, by category of relative risk and protection, exposed to each selected *protective* factor (informed by Study 1). The three protective factors that were represented significantly more by one group than the other, were: previous

involvement in pregnancy outreach services, access to community housing support, and access to a physician or psychiatrist.

Families in the low-risk group reported a significantly higher proportion (50%) of involvement with BTC pregnancy outreach services prior to postnatal programming relative to the moderate-to-high-risk group (14%), $z = 2.07$, $p = .04$. Secondly, families in the low-risk group (38%) reported a significantly higher proportion of access to housing support relative to the moderate-to-high-risk group (7%), $z = 1.961$, $p = .051$. Finally, families in the low-risk group reported a higher proportion (88%) of 'access to a physician or psychiatrist' than families in the moderate-to-high-risk group (50%), $z = 2.24$, $p = .02$. Despite clinically relevant differences observed between groups on other protective factors, none of the others emerged as statistically more prevalent in one group relative to the other.

Figure 13

Proportion of Clinician-Informed Protective Factors Represented Across Categories of Relative Risk and Protection



Note. The asterisk (*) denotes a statistically significant difference in the proportion of families reporting exposure to that protective factor between groups, $p < .05$. The bars represent the standard error around the proportions.

Discussion

This study investigated the changes in profiles of risk and protection that took place over the course of the COVID-19 pandemic among families referred to integrated substance use treatment. Eight domains were considered in the evaluation of cumulative risk and protection profiles according to the adapted Developmental Model of Transgenerational Transmission of Psychopathology (Bondi et al., 2020): Mother, Secondary Parent, Family, Pregnancy, Birth/Post-natal, Child, Parent-Child Interactions, and Social Networks and Professional Services. With the present investigation, I aimed to establish a score of cumulative risk and protection for each family to evaluate differences in relative risk and protection between families referred pre-pandemic vs. during the pandemic. I also aimed to highlight factors that differentiate between families of varying levels of overall risk and protection, irrespective of the pandemic context, to inform clinical practice beyond the COVID-19 global crisis.

As expected, families referred during the pandemic were significantly more likely to have profiles of higher risk relative to protection, compared to families referred to BTC prior to the pandemic. This finding supports results from Study 1, in which the interviews with BTC staff members highlighted the adverse experiences of substance-involved women and their children during the pandemic. Furthermore, in Study 2, I presented the first set of quantitative results that revealed more substance use during pregnancy, heightened levels of depression, worsened self-efficacy, and shorter length of service engagement in the group of BTC clients referred during the pandemic, compared to clients referred prior to the pandemic.

Within the context of cumulative factors of risk that often accompany maternal substance use (e.g., Andrews et al., 2019; Latuskie et al., 2019; Nair et al., 2003), cumulative protective

factors have been found to attenuate the negative effects of overall risk (Ackerman et al., 1999; Butler et al., 2022; Kirby et al., 2020; Ostaszewski & Zimmerman, 2006; Sylva et al., 2008). Targeted interventions, such as those at BTC, that provide wraparound, integrated programming including parenting groups and parent-child counselling, have been shown to foster adaptive relationship dynamics that favour healthy development, thereby reducing the impact of maternal substance exposure (e.g., Motz et al., 2011). However, with the onset of COVID-19 and the attempted containment of the virus through public health restrictions, marginalized families were further isolated from the in-person services and connections with clinicians that they relied on prior to the pandemic to attenuate their level of adversity across other life domains (see Study 1). The present study revealed a shift in the protection to risk ratio, favouring pre-pandemic clients, and echoing the findings from the literature of service interruptions (less protection) within the context of increased adversity during the pandemic (increased risk). The present study indicated that significantly more families receiving services pre-pandemic had profiles with more protective domains than risk domains on the variables investigated, compared to families referred to BTC services during the pandemic. Although there was only a trend for a difference between groups, this finding informs our understanding of the experiences of the families in this study.

The present study expanded the model proposed by Bondi and colleagues to include the identification of three levels of relative risk and protection: 1) Risk > Protection, the total cumulative risk and protection score is positive, meaning that the level of relative risk is greater than the level of protection (high-risk group), 2) Risk = Protection, the total cumulative risk and protection score is zero, meaning that the relative levels of risk and protection are equivalent (moderate-risk group), and 3) Risk < Protection, the total cumulative risk and protection score is

negative, meaning that the level of relative risk is less than the level of protection (low-risk group). Such a system of categorization may have clinical applications in supporting the process of identifying families with various levels of need.

The mixed-methods convergent analyses in this study allowed for an evaluation of risk and protection with focus on relevant factors. This evaluation explored staff-informed factors of risk and protection (from Study 1) that disproportionately presented themselves (through the observations of BTC staff members) among families identified as lower-risk vs. higher-risk. Due to the small sample size across all three categories of relative risk and protection established in the present study, the two smallest groups (families represented by Risk > Protection and Risk = Protection) were collapsed and identified as the 'moderate-to-high-risk' group. From the factors of risk identified in the interviews with BTC staff, two factors of risk emerged as significantly more prevalent among families in the moderate-to-high risk group compared to families in the low-risk group, namely the presence of mental health problems in a partner and low levels of perceived social support from friends. Given the emphasis on isolation from services and community supports in tandem with increased environmental risks discussed during the interviews with BTC staff (Study 1), these findings are not unexpected but are a reminder of the relevance of relational factors in the experiences and treatment progress of women involved in substance use. Despite clinically relevant differences between groups on reporting of low social support from 'family', the difference that emerged in the present analysis of risk and protective factors was not statistically significant. Further, a clinically relevant group difference also emerged in relation to having a partner who was a substance user, but it was not statistically significant. These findings affirm previous research documenting commonly occurring difficulties in family dynamics and peer relationships for women who use substances (Kuo et al.,

2013; Latuskie et al., 2019; Nair et al., 2003; Niccols, Milligan, Sword et al., 2012), and frequent reporting of physical, sexual and/or emotional abuse in earlier life and the present, make both family interactions and current partner relationship dynamics difficult (Espinet et al., 2013). To address this challenge, integrated programming at BTC supports women in developing healthier working models of relationships (Motz et al., 2011). Therefore, women who can apply these models of healthy dynamics to peer and intimate relationships beyond the treatment centre may be able to choose supportive social relationships, with relatively lower-risk profiles as a result. With restrictions on social distancing, many women referred during the pandemic did not experience in-person, trusting, staff-client interactions nor did they have the opportunity to observe staff-to-staff interactions that foster healthy relationship dynamics and support healing from relational traumas.

From the factors of protection selected based on clinician interviews, three factors of protection emerged as significantly more prevalent among families in the low-risk group compared to the moderate-to-high risk group: previous pregnancy outreach involvement, regular access to community housing support, and regular access to a physician or psychiatrist. BTC's pregnancy outreach programming is a relationally-focused service that capitalizes on the window of opportunity during pregnancy to engage women in service utilization (e.g., Daley et al., 1998; Racine et al., 2009) and encourage long-term involvement postnatally to support healthier mother-child relationships (Espinet et al., 2016); the present results reaffirm previous findings on the benefits of early intervention for substance-involved women (e.g., Andrews et al., 2018; Nathoo et al., 2013). Furthermore, practical interventions such as housing and supportive services positively influence the lives of women and children living under impoverished socio-

economic conditions, reducing substance use and increasing parental self-efficacy (Slesnick et al., 2023).

The needs of mothers involved in substance use and their substance-exposed children (prenatally and/or postnatally) require multifaceted care that engages a network of social and healthcare services even in the absence of fully integrated treatment models (e.g., Hubberstey et al., 2019; Nichols et al., 2023), including physicians and mental health professionals (psychiatrists, psychologists, social workers, etc.). Although fragmentation in the network of services is typical, integrated, wraparound, programming can facilitate connections with these social services (e.g., housing support, medical care, child welfare, legal system, etc.). BTC strives to build service connections to ensure stability and continuity of care for both the mothers and their children (Andrews et al., 2018; Espinet et al., 2016). Although several protective factors did not emerge as statistically significant, they deserve attention for the clinically meaningful differences that were observed between groups of varying relative risk: BTC parent-child support, BTC developmental screens and assessment, and other BTC programming (cooking, clothing, food drive). These protective factors differed in prevalence between the low-risk and moderate-to-high risk groups in clinically relevant proportions, and together, emphasize the relevance of relational factors and attention to child development on the wellbeing of mothers involved with substances, and their children.

Taken together, clinician-informed data and calculated risk and protection scores allowed for a convergence of mixed-modelling to inform the understanding of the women and children participating in BTC programming outside of the context of the COVID-19 pandemic.

Strengths and Limitations

A major strength of this study is the investigation of a time-sensitive experience on a focal population: the experience of substance-involved women and their children during the COVID-19 pandemic. The present work addressed a gap in our understanding of how these marginalized families adapted to the challenges they experienced. This research also aimed to shed light on the context of disproportionate adversity within which these families live, and their complex needs that require attention.

Another major strength of this study was the application of a clinically and theoretically grounded model with cross-domain consideration of both cumulative risk and protection that was adapted for use with the clinical population of families with substance-involvement at BTC. Following the case study application of this model by Bondi and colleagues (2020), the present work extended the use of the adapted Developmental Model of Transgenerational Transmission of Psychopathology (Hosman et al., 2009) to a sample of 30 families with high-risk profiles and variability in accessing services. Additionally, this was the first application of the model to a clinical population of families who attended BTC services before and during the COVID-19 global pandemic. Finally, the present study extended the model to identify three levels of relative risk and protection that may support understanding in future research and clinical practice focused on marginalized families.

A limitation to the present research on cumulative risk and protective factors is the lack of a theoretical framework in determining which factors to include in the calculation and discussion of relevant factors (Evans et al., 2013). Further, the degree to which there is consensus and stability in what constitutes a risk or protective factor may differ across clinical and community populations and the questions of interest. As such the generalizability of findings

in the present study may be limited. To date, there has been little research measuring cumulative risk and protection for women and children affected by substance use; therefore, a clinically grounded approach was taken in the present research to encapsulate the key risk and protective factors relevant to families accessing services at BTC, within the limitations of data available for analysis. Given the breadth of the factors embedded within the measures used in this study, factors that are irrelevant to other populations can be easily discarded and others can be incorporated, without affecting the integrity of the tool itself.

Furthermore, in the present study, I was unable to address other shortcomings of such modeling, including the lack of information on the intensity of risk and protective factors within the model (i.e., loading or weight of each factor), and the intensity or degree of exposure to each risk and protective factor (Evans et al., 2013; Lima et al., 2010). I also recognize the inherent researcher bias in the method of selecting key factors of risk and protection for the mixed-methods analyses. The purpose of this work was to highlight factors informed by clinical practice and apply them to existing data to differentiate families of varying levels of risk. This was accomplished within the sample of families in this study attending services at BTC; however, these factors will vary based on the focal population and its clinically grounded considerations. Notably, it is possible that more or different factors of risk and protection may have emerged as statistically different between groups if the moderate-risk and high-risk groups were separated. This was not possible due to the small sample sizes within these categories, which increased the possibility of Type I error (believing there is a significant finding when there is not) and Type II error (believing there is no significant finding when in fact there is) (Shreffler & Huecker, 2023).

Implications and Conclusions

In summary, service disruptions and barriers to virtual service engagement during the pandemic reduced factors of protection and sources of ongoing support to families referred for substance use treatment at BTC. Coupled with the increase in factors of risk, the isolation from in-person maternal and developmental supports and clinicians increased overall levels of adversity for marginalized communities during the pandemic (see also Study 1). The findings will inform the work of clinicians and policy makers as we move forward, prompting reflection on how we can better support marginalized clients during future times of crisis in order to increase the prevalence of, and access to, supports while reducing circumstantial adversity and promoting treatment adherence and healthy development. Multi-method convergence of qualitative and quantitative data in the present study was useful in conceptualizing the experiences of families accessing services in the earlier phase of the pandemic and highlighting key factors from clinician interviews (Study 1) that can inform research as well as clinical practice, moving forward. Future clinical programming models will benefit from having plans in place to mitigate inadvertent harms with greater efficacy, as it is in the best interest of society at large to support at-risk communities with effective, timely, and uninterrupted prevention programming.

GENERAL DISCUSSION

Relational and trauma-informed integrated programming for maternal substance use continues to optimize treatment outcomes for affected families (e.g., Espinet et al., 2016; Milligan et al., 2010, 2011; Niccols, Milligan, Sword et al., 2012; Moreland & McRae-Clark, 2018). Breaking the Cycle (BTC), in Toronto, has been serving marginalized substance-involved women and their children for over 25 years, using a 'one-stop-shop' integrated treatment model that bridges connections across various social services (Milligan et al., 2020; Rutman et al., 2020; Urbanoski et al., 2018). While there is growing interest in integrated services and their positive impacts on clients, understanding of what happened to such programming during the COVID-19 pandemic and how clients adapted to the changes associated with it, remain largely unexplored. The present research aimed to gain insight into the experiences of families referred to BTC during the COVID-19 pandemic (Study 1), and to evaluate the influence of local public health restrictions on clients' psychosocial and emotional outcomes (Study 2) as well as on their profiles of risk and protection which shifted from before to during the pandemic (Study 3).

For Study 1, three BTC staff members were interviewed to capture clinicians' observations of clients' adaptation to changes in BTC programming over the course of the pandemic, clients' functioning and service engagement, as well as the accessibility of services through partnering agencies. Thematic analysis of staff members' interview data revealed emergent themes that highlighted the impact of COVID-19-related disruptions to traditional, in-person, service delivery on the network of care created for this marginalized population. Concurrently, themes highlighting the overarching strengths and values of the integrative treatment model at BTC also emerged and were conceptualized as highly adaptive for staff and clients throughout this period of crisis.

The first study provided a meaningful context for interpreting the findings from Study 2 and Study 3, which in turn offered a quantitative lens through which BTC clients' adjustment to COVID-19-related public health measures was evaluated. Data collected at referral, intake (background information and questionnaires), and at discharge, were compared for clients who were referred to services pre-pandemic (2017 – 2019) versus those referred during the pandemic (2020 – 2023). For Study 2, background information as well as psychological and socioemotional measures from the intake and questionnaire data were evaluated to compare pre-pandemic and pandemic clients on variables related to their mental health, living situation, substance use, birth outcomes, and other relevant maternal and child factors that offered insight into their overall wellbeing. For Study 3, a smaller group of clients who had terminated integrated treatment programming at BTC were included in analyses, as they had comprehensive data on service engagement, which contributed to the overall cumulative risk and protection scores calculated for each family. Further, a preliminary evaluation of risk and protective factors across families categorized as relatively low-risk vs. moderate-to-high-risk has clinical implications for the identification of clients based on level of relative risk, independent of the pandemic context.

COVID-19 and the Functioning of Families Engaged in Maternal Substance Use Treatment

The effects of COVID-19 and associated public health measures implemented globally to mitigate viral spread in 2020 had a disproportionate effect on vulnerable families who were already facing social, economic, and health-related stressors (e.g., Devoto et al., 2022; Fegert et al., 2020; Nobles et al., 2020; Paremoer et al., 2021). Social distancing and prolonged isolation, lockdowns that resulted in school and childcare closures, and reduced access to in-person mental health services exacerbated the cumulative risks experienced by marginalized substance-

involved women and their children (e.g., Clay & Parker, 2020; Galea et al., 2020; Pfefferbaum & North, 2020; Popova et al., 2022; Stewart, 2022). Overall, the pandemic increased levels of adversity within the family context and generated conditions of isolation and desperation that intensified systemic barriers under which substance use and addiction thrive (Russell et al., 2021).

Virtual Care and its Practical Implications

The COVID-19 pandemic took place at a time when the technology was available to connect people through online platforms using the internet (Wi-fi, data) for the purpose of telehealth or telemental health within the scope of psychological services (SAMHSA, 2021). The virtual connection made it possible for a variety of services to be reconceptualized, implemented, and sustained for clients during the pandemic (e.g., see Monaghesh & Hajizadeh, 2020, for a systematic review). Ongoing research indicates a variety of benefits and barriers to virtual service engagement for clients (see Siegel et al., 2021, for a systematic review) and clinicians (Bierbooms et al., 2020). In addition to implications for client care, there were many professional and educational benefits to virtual communication during the pandemic (see Soklaridis et al., 2024, for a narrative scoping review of virtual adaptations and innovations that facilitated engagement during the pandemic).

BTC clinicians, however, highlighted several considerations for virtual work with marginalized women and children that generated barriers to care during the pandemic, discussed in Study 1. For example, the risk of harm following disclosure during virtual meetings raised concerns specific to women (pregnant and/or caregiving) receiving treatment for maternal substance use, especially as they reported high rates of co-habitation with substance-using partners throughout the pandemic (see Study 2 and more discussion on this risk factor below).

Given the complex risk factors and special needs of children and women affected by substance use (e.g., Bondi et al., 2020; Carta et al., 2001; Eiden et al., 2011; Espinet et al., 2013), virtual interactions for the purpose of assessment and treatment were difficult to sustain (Study 1). The relational and trauma-informed theory that informs treatment planning and the approach of BTC staff supports the development of emotion regulation skills and parenting capacity (e.g., Espinet et al., 2016). In turn, the model nurtures the mother-child relationship shown to support optimal child development. However, for families that were referred to postnatal services during the pandemic, with either minimal or no treatment that fostered the mother-child relationship, the distress and challenge related to engaging children over the screen in prolonged assessment or treatment attempts may have felt dysregulating and unsustainable. For BTC families, many of whom had unreliable access to technology, engagement in safe and effective virtual services became almost impossible to maintain, despite clinicians' efforts and clients' commitment (see Study 1).

Shifts in Environmental Adversity and its Influence on Pregnancy and Family Functioning

The context of maternal substance use predating the pandemic presented a complex array of risk factors and needs, for women, children, and the mother-child dyad (e.g., Bondi et al., 2020; Carta et al., 2001; Cataldo et al., 2019; Espinet et al., 2013; Niccols, Milligan, Sword, et al., 2012; Rutman et al., 2020). In Study 1, BTC staff members expressed concerns regarding the compounding effects of their clients' pre-existing challenges with the pandemic constraints of fewer in-person treatment options, isolation from other community supports, and increased risks (distal and proximal) on the functioning of their pregnant and/or parenting clients and children.

The second study in this dissertation substantiated clinicians' concerns with quantitative findings comparing treatment support for families prior to and during the pandemic. There were

many reductions in BTC service accessibility during the pandemic compared to pre-pandemic levels; the length of clients' service engagement decreased while cumulative risks (compared to protective factors) increased among families who completed services over the course of the pandemic. For example, maternal reports from Study 2 suggested a trend towards reduced access to parent-child counselling services during the pandemic, in addition to reduced access to child welfare (partnering agency to BTC services). Further, in addition to treatment disruptions, substance-involved women and their children who relied on community-based services were met with school and daycare centre closures (Caldwell et al., 2020; Clemens et al., 2020; Government of Canada, 2020b), limited or discontinued access to food banks, shelters, and other housing supports (Russell et al., 2021), which further exacerbated the level of adversity within their lives.

BTC staff interviews provided extensive insights into the precarious housing and other environmental risks experienced by women in their care. Unhealthy, substance-using, intimate partner relationships have been identified as significant stressors that promote maternal substance use (Latuskie et al., 2019), as well as relapse after treatment (Fusco et al., 2024). Compared to women at BTC prior to the pandemic, those who accessed services during the pandemic reported a higher likelihood of being in an intimate relationship (with limited data on the quality of the relationship), of being with partners who use substances and have ongoing mental health challenges, and of living with their partners and children in the same residence. This finding is consistent with the perceptions of BTC staff in Study 1, who reported a trend towards increases in intimate relationships and shared living arrangements for BTC clients during difficult times, including the pandemic. They interpreted this as arising from a heightened sense of isolation from community and supports, as well as anxiety, fear, and helplessness.

During the pandemic, many shelters for women and their children were closed due to the close living situation for residents and the potential for viral spread. These closures forced many marginalized populations into alternate risky living situations including encampments, hotel shelters, or other private residences with drug users and dealers.

Without appropriate intervention and community support, women with substance use issues have limited exposure to positive role models for healthy relationships (Andrews et al., 2018). In turn, children born into families with maternal substance use, and without early intervention, are more likely to be exposed to maladaptive relational dynamics (Carta et al., 2001; Motz et al., 2011). These conditions were exacerbated during the pandemic, resulting in a rise in health and safety concerns regarding families' risky home environments and the potential lasting effects that they will have on mothers' outcomes and children's developmental trajectories.

Psychosocial Functioning and Substance Use During a Time of Crisis

The pandemic-related increase in levels of isolation from community supports, adversity, and instability, generated the perfect storm of circumstances under which mental health challenges, substance use and addiction could thrive (Canadian Centre on Substance Use and Addiction, 2020a, 2020c; CIHI, 2021; Russell et al., 2021). BTC staff members' recollections of client stories shed light on the desperation of addiction, as well as how social distancing measures isolated families from their community support networks. Both qualitative and quantitative data in the present research highlighted that BTC pregnancy outreach clients experienced not only heightened levels of mental health struggles (e.g., more depressive symptoms), but also a tendency to increase one's likelihood of engaging in substance use into the third trimester of pregnancy. These findings align with previous pandemic research underscoring

the rise of substance use among pregnant and/or parenting women (Joyce et al., 2022; Substance Abuse and Mental Health Services Administration, 2020; Vignes et al., 2022) and exacerbated mental health challenges (Fancourt et al., 2021; Groulx et al., 2021; Racine, Hetherington, et al., 2021). BTC staff noted a substantial increase in late-pregnancy (third trimester) referrals during the pandemic. The late referrals to BTC programming were likely associated with marked disruptions in prenatal care (e.g., Durankus & Aksu, 2020; Groulx et al., 2021; Lebel et al., 2020; Moyer et al., 2020) and poor mental health in this population (Barbosa-Leiker et al., 2021; Groulx et al., 2021). According to maternal reports presented in Study 2, BTC families with children were less likely to be involved with child welfare at referral during the pandemic compared to families referred pre-pandemic. These findings highlight the increase in marginalization of families referred to BTC services during the pandemic, at a time when their environmental risks, substance use, and disconnection from integrated, in-person, programming, were compounded by reduced support from child protective services.

Maternal substance use problems cause disruptions in caregiving and increase the likelihood that women and their children will experience homelessness, exposure to domestic violence, and abuse (Bondi et al., 2020; Carta et al., 2001; Hser et al., 2014; Motz et al., 2011; Niccols, Milligan, Smith et al., 2012). These factors, among others, significantly impact the formation of secure attachment relationships between mothers and their young children, placing children at risk of harm and maladaptive developmental trajectories (e.g., Cataldo et al., 2019; Espinet et al., 2013; Motz et al., 2011; Nair et al., 2003). Despite the lack of quantitative evidence in the present study for anticipated differences between pre-pandemic and pandemic levels of anxiety, parental stress, and perceived social support, the BTC staff members' observations together with previous research (e.g., Pierce et al., 2020; Public Health Ontario,

2021; Racine et al., 2021) suggest a less positive narrative of the psychosocial functioning of marginalized mothers during the pandemic. In general, public health restrictions during the pandemic negatively impacted parents' perceived stress, which in turn heightened pressures within the home environment (Connell & Strambler, 2021; Lawson et al., 2020) and exacerbated children's mental health and behaviour problems (Public Health Ontario, 2021). Further, the distress experienced by parents during COVID has been related to an increased risk for children of harsh discipline, neglect, and abuse (e.g., Bérubé et al., 2020; Lawson et al., 2020). Given the instrumental role that the caregiving environment plays in children's functioning, assigning additional resources towards supporting marginalized children in the aftermath of the COVID-19 pandemic will benefit communities in moving forward.

The reasons behind the lack of quantitative differences between pre-pandemic and pandemic mothers on reports of psychosocial and emotional functioning are speculative. The majority of families affected by maternal substance use are involved with child protection services and/or the court system (Hubberstey & Rutman, 2020; Niccols, Dobbins et al., 2010), tend to be unemployed and living at or below the poverty line (Andrews et al., 2018; Espinet et al., 2013). The worsened family circumstances and fear of losing custody of their children may have deterred many well-intentioned mothers from disclosing the desperate psychosocial circumstances they were trying to manage during the pandemic to avoid separation from their children. In future research, these barriers can be explored with women who return to in-person BTC services as they re-establish (or establish new) trusting relationships with clinicians in their system of care. Further exploration of the factors that affect transparency in disclosure may shed light on areas of significant challenges for BTC families, as clinicians engage in treatment planning tailored to address women and children's needs.

A Paradigm Shift that Serves Children: Integrated Treatment as an Essential Service

Arguably, the most poignant and hopeful message shared by BTC staff members in the present research was that supporting pregnant women and mothers is an essential mechanism to promoting the healthy development of young children. BTC's treatment model is strongly influenced by attachment (Ainsworth et al., 1978; Bowlby, 1969) and relational-developmental systems perspectives (Lerner et al., 2013). BTC programming was developed with the understanding that children's lifelong outcomes are largely influenced by their early life experiences, mainly within the context of the primary caregiver relationship (Cataldo et al., 2019; Mirick & Steenrod, 2016). Services at BTC are tailored to support the mother, child, and the mother-child dyad within the first six years of a child's life, which has been established as a critical period for the formation of healthy attachment relationships that facilitate optimal child outcomes (Cataldo et al., 2019; Espinet et al., 2016). From the onset of the pandemic restrictions, mental health practitioners and other staff who support children, families, and vulnerable populations were not designated as essential workers (Caldwell et al., 2020). Whenever possible, the Canadian government recommended a transition to virtual services for mental health practitioners including social workers and psychotherapists (Caldwell et al., 2020), as well as medical prenatal care providers (PHAC, 2020). As such, the essential nature of BTC services, especially as we consider the influence of discontinued intervention on substance-involved mothers and children explored in the present studies, deserves attention in future research and clinical practice.

In the first study, BTC staff members noted the need for a post-pandemic evaluation of what constitutes an essential service. This type of evaluation would inform our views, policies, and regulations related to the conceptualization of an essential service. It would also provide

guidance for programming and operations at BTC during a future time of crisis. Various authors have addressed this issue directly or indirectly, especially as it relates to responding to adverse child experiences with protective services (e.g., Campbell, 2020; Caldwell et al., 2020), a service that frequently engages families affected by maternal substance use (Hubberstey & Rutman, 2020; Niccols, Dobbins et al., 2010). Caldwell and colleagues (2020) recommend that child protection workers be deemed essential workers.

From a historical perspective, in his 1980 article, Garbarino conceptualizes child maltreatment as related to families' isolation from society. He dismissed the notion of 'defective parents' and placed the onus on society. Similarly, BTC staff dismissed the notion that BTC clients' lack of willingness or effort led to their disengagement from services during the pandemic. On the contrary, they reflected on the adaptations, inaccessibility, and unavailability of programming as the causes underlying their clients' disconnection from services. BTC staff commended their clients for the extraordinary efforts they made in the face of adversity, both during adapted programming and during the re-engagement phase when services reopened for in-person care. Conceptualized through this lens, we come to understand that the responsibility over the wellbeing of the most vulnerable citizens in our communities lies in the hands of society and the policies and structures in place (Garbarino, 1980). This view then lends itself to a discussion on how we can respond differently during a future crisis. Caldwell and colleagues (2020) assert that it will serve societies, as a whole, to consider the long-term wellbeing of the family system and children's development when assessing resource allocation and strategies for immediate health risk mitigation.

The return to in-person services was noted as instrumental to effective, integrated, service delivery at BTC and was reportedly warmly welcomed by families who returned to centre-based

programming. Assuring that families maintain access to relational and attuned centres like BTC not only supports mothers' addiction treatment but also their parenting skills and capacity to foster nurturing caregiving environments for their children (e.g., Espinet et al., 2016; Hubberstey et al., 2019; Niccols, Milligan, Sword et al., 2012). Findings from previous qualitative studies show that supportive and positive relationships in the lives of families with substance use issues facilitate substance use reduction while increasing psychological well-being (Kuo et al., 2013; Latuskie et al., 2019; Pepler et al., 2014; Sword et al., 2009). Despite the challenges imposed on families and service providers during the COVID-19 pandemic, the relational and trauma-informed nature of BTC programming remained foundational to the BTC service delivery approach. The thread of support that was woven into the fabric of BTC programming appeared to buffer the instability and dysregulation generated by the crisis. BTC's relational and trauma-informed approach emerged as highly supportive of client engagement, whenever and however it was made possible throughout the pandemic.

Overarching Limitations

Some noteworthy limitations apply to all studies and will be discussed in turn. Firstly, the small sample size on which the observations were based, across both qualitative (Study 1) and quantitative (Study 2 and 3) studies, is a limitation inherent to the present work. Especially during the pandemic, BTC experienced a reduction in referrals from pre-pandemic levels; therefore, BTC staff members' observations in the first study and quantitative data availability for analysis in the second and third studies were based on fewer family experiences and limited data collection, respectively. Secondly, this research was limited by its generalizability to marginalized communities or even to communities of substance-involved families more specifically. Given the mothers' and children's participation in BTC's early intervention

programming for substance exposed families, they had access to supports that other families may not have, both pre-pandemic and during the pandemic, especially for those who engaged in care from pregnancy onwards. Additionally, the treatment program at BTC follows a relational, trauma-informed, and developmentally sensitive model that is unique to BTC's specific integrated programming. As such, these findings may not generalize to other families engaged solely in addiction treatment (without the relational and parent-child component integral to BTC). The findings in the present study may therefore underestimate the adversity that marginalized families (without access to treatment) experienced more generally during the pandemic.

GENERAL CONCLUSION

The findings from this present multi-study dissertation contribute to a body of research that focuses on the experiences of substance-involved women and their children referred for treatment during the COVID-19 pandemic. During this unprecedented period in recent history, people around the globe were affected by an imminent disruption to daily operations as a public health response to manage a quickly spreading virus (WHO, 2020). This response, however, came at a cost, as the pandemic and its related public health restrictions had wide-spread effects on the population, with impacts on mental health (e.g., Fegert et al., 2020; Racine et al., 2021) and family functioning (e.g., Prime et al., 2020), among others. Notably, service disruptions across healthcare sectors disproportionately affected marginalized populations who were already facing social, economic, and health-related stressors (e.g., Fegert et al., 2020; Nobles et al., 2020; Paremoer et al., 2021), generating growing public health concerns regarding the rising rates of substance use among pregnant and parenting women (e.g., Barbosa-Leiker et al., 2021; Kar et al., 2021; Vignes et al., 2022).

Marginalized women with substance use disorders and their children face adversities that require access to multiple services. While the stressors that drive and sustain maternal substance use are multifaceted (e.g., Popova et al., 2022; Stewart, 2022), integrated treatment programs reduce associated risks by simultaneously addressing addiction problems, the parent-child relationship, and a host of complexities experienced by marginalized women (e.g., Espinet et al., 2016; Niccols, Milligan, Sword et al., 2012) through a ‘one-stop-shop’ treatment model (Milligan et al., 2020; Rutman & Hubberstey, 2020; Urbanoski et al., 2018). However, non-essential services, including schools, childcare centres, as well as in-person mental health services (Caldwell et al., 2020) including integrated treatment centres, were discontinued or

required to adapt to virtual delivery methods throughout the pandemic. BTC is an integrated treatment centre serving pregnant and/or parenting substance-involved women and their children for over 25 years (Motz et al., 2006). From the outset of the COVID-19 pandemic, as BTC staff described, they made every effort to continue supporting families and transitioning to virtual care, when possible. Research has revealed barriers inherent to adapted, virtual, care that are relevant considerations for organizations serving families affected by substance use (e.g., Patton et al., 2021; see Siegel et al., 2021).

The present research with families referred for integrated maternal substance use treatment highlighted the burdens of pandemic-related restrictions and prolonged isolation on psychosocial functioning and mental health (Fegert et al., 2020; Prime et al., 2020). This research also highlights the importance of discussions between policy makers and family-serving organizations, who can play a key role in supporting marginalized populations experiencing unexpected crises. Future research and clinical work will benefit from exploring the post-COVID-19 re-adjustment period, as BTC continues its critical in-person programming. It is essential to recognize the pivotal role that a caregiver's psychosocial functioning and overall health play in child development. Supporting caregivers to ensure the wellbeing of children in our communities remains a collective responsibility that sets the path for generations to come.

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APPENDICES

Appendix A

Informed Consent Form for BTC staff

Study name: Maternal substance use treatment during a time of crisis: The role of COVID-19 restrictions on programming, family functioning, and community service engagement

Researchers:

Monika Janus, M.A., Doctoral Candidate

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Clinical Psychologist, Mothercraft

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Purpose of the research:

Our goal in this study is to gain a holistic understanding of the real-life implications of COVID-19 on affected women (and their children) seeking treatment for substance use during the

COVID-19 pandemic. You will be asked to engage in a semi-structured interview with Monika Janus, a doctoral candidate who is collecting data for her dissertation. The information we gather will be used to gain insight into the role of COVID-19 restrictions on programming at Breaking the Cycle (BTC), on the functioning and engagement of women and children referred to BTC programming (either prenatal or postnatal), and on the availability and accessibility of community services that typically serve these vulnerable families you have worked with prior to, and during, the pandemic. With your insight, we hope to develop a holistic understanding of the real-life implications of COVID-19 on the experiences of affected women and/or children in your care at BTC, which may inform future directions at times of crisis. We plan on sharing our findings with the scientific community.

What you will be asked to do in the research:

You will be asked to engage in a discussion with the researcher over the videoconferencing platform, Zoom, on the aforementioned topics of interest.

Risks and discomforts:

We do not foresee any risks or discomforts for you during participation in this research.

Benefits of the research and benefits to you:

The findings from this study will help us better understand the trajectories of development in families of diverse backgrounds engaged in treatment for maternal substance use at BTC over the course of the COVID-19 pandemic.

Voluntary participation:

Your participation in this study is completely voluntary and you may choose to stop participating at any time.

Withdrawal from the study:

You can stop participating in the study at any time, for any reason, if you so decide. Your decision not to volunteer will not influence the relationship you may have with the researchers or York University, either now or in the future. In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible.

Confidentiality:

All information that you provide through your participation in this study will be kept confidential. You will not be identified in the doctoral thesis or in any report or publication based on this research. You will be solely labeled by your role (i.e., a staff member who has worked with either prenatal or postnatal women at BTC and/or within the community). The data and recordings collected through this study will be kept in a locked cabinet for 10 years, after which they will be archived by Iron Mountain for future research purposes. Confidentiality will be provided to the fullest extent possible by the law.

Questions about the research?

If you have any questions about this research or the researchers, please do not hesitate to contact the principal researcher, Monika Janus, at mjanus@yorku.ca or her doctoral supervisor, Debra

Pepler, at pepler@yorku.ca. You may also contact the Psychology Graduate Program at York University by email at gradpsych@yorku.ca or telephone at 416-736-5814.

This research has been reviewed and approved by the Human Participants Review Sub-Committee, York University's Ethics Review Board, and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, you may contact the Senior Manager and Policy Advisor for the Office of Research Ethics, 5th Floor, York Research Tower, York University (ore@yorku.ca or 416-736-5914).

Legal rights and signatures:

I, _____, consent to participate in this research study entitled "Maternal substance use treatment during a time of crisis: The role of COVID-19 restrictions on programming, family functioning, and community service engagement", conducted by Monika Janus, Doctoral Candidate at York University. I have understood the nature of this project and wish to participate. I am not waiving any of my legal rights by signing this form. My signature below indicates my consent.

_____ _____

Participant's Signature Date

_____ _____

Principal Investigator's Signature Date

Additional consent

1. **Video recording**

I _____ consent to the use of videorecording (over Zoom) during the interview for the purpose of subsequent qualitative analyses which will be shared in the researcher's doctoral dissertation.

Signature:

_____ _____

Participant Date

Appendix B

Section 1: Pregnancy Outreach Services - Staff Member Interview Questions

BTC Programming:

1) When COVID-19 public health measures were first implemented in March 2020, what happened with the pregnancy outreach program at BTC? Please describe the changes that BTC's pregnancy outreach programming underwent and how those changes impacted **your role** as well as service delivery during these two phases:
    a. March 2020 – July 2020 (initial lockdown)
    b. August 2020 – December 2021 (shift to virtual services)

2) How was the program able to engage with clients?
    a. What barriers to service access were evident from the beginning?
    b. Were there any observable benefits to clients associated with the implemented changes in protocol?

3) What are some of the challenges you have faced personally while engaging in pregnancy outreach work with this population over the course of this pandemic?

4) What have you learned, from the programming perspective, that future BTC staff (and you!) would benefit from knowing as you move forward with prenatal client care?

Client Engagement + Risk/Protective Factors

5) How would you describe the impact of COVID-19 on pregnant women who use substances?
    a. Can you please comment on your clients' experience of isolation/connection, having basic needs met (food, shelter), access to infant health assistance, and the ability to travel during the pandemic (to BTC or other services)?
    b. What happened with respect to domestic violence, family support, and other relevant life circumstances I may not have considered?

c. Considering the two phases of the pandemic we alluded to previously (i.e., initial lockdown vs. shift to virtual services):
    i. What happened with respect to service engagement (i.e.: did the restrictions impact the number of clients referred to BTC pregnancy outreach services and their consistency/frequency of attendance? Did the restrictions impact the number of clients you were *able* to serve, compared to pre-pandemic levels?
    ii. What happened with respect to observable stress levels and mental health status (including substance use) of your prenatal clients?

d. If we consider changes across time in the profiles of risk and protective factors (above) for these families (infants and their mothers), which factors would you highlight as the most predictive of treatment trajectories and outcomes (i.e.: childbirth location/health, custody status, maternal wellbeing, transition to postnatal BTC services) – both positive and negative?
    i. Can you please share specific stories of women in prenatal services that may illuminate the role of COVID-19 on client wellbeing, and how their risk/protective factors were impactful in worsening or improving client engagement in services, experience of stress, and ultimately in affecting how well they were able to meet treatment goals (for the woman and newborn)?

Community Partners

6) Which community services – outside of BTC – did your prenatal clients most commonly rely on, pre-pandemic? How did engagement with these services change over the course of the pandemic (over the course of the two stages – initial lockdown and shift to virtual services)?
    a. How would you describe the impact of these disrupted community services on pregnant women who use substances?

b. If there were any beneficial shifts in service engagement, what were they and what impact did they have on the women?

Concluding Questions:

7) If a similar crisis situation emerged, what would we do similarly and what would we do differently (i.e.: What worked? What did not work?)?
    a. For whom did the service model work?
    b. Which clients (with which risk factors) should be considered highest risk? Which protective factors seem to be most strongly related to desired outcomes for this vulnerable population?

8) What inspired you and gave you hope over the last two years? What are you looking forward to, moving forward?

9) What do you wish people knew about the pregnant women seeking services during the pandemic?

Section 2: Postnatal Services - Staff Member Interview Questions

BTC Programming:

1) When COVID-19 public health measures were first implemented in March 2020, what happened with postnatal programming at BTC? Please describe the changes that BTC's programming underwent and how those changes impacted **your role** as well as service delivery during these two phases:
    a. March 2020 – July 2020 (initial lockdown)
    b. August 2020 – December 2021 (shift to virtual services)

2) How was the centre able to engage with clients?
    a. What barriers to service access were evident from the beginning?
    b. Were there any observable benefits to clients associated with the implemented changes in protocol?

3) What are some of the programming-related challenges you have faced personally while engaging in postnatal work with this population over the course of this pandemic?

4) What have you learned, from the programming perspective, that future BTC staff (and you!) would benefit from knowing as you move forward with postnatal care?

Client Engagement + Risk/Protective Factors

5) How would you describe the impact of COVID-19 on postnatal women who use substances?
    a. Can you please comment on your clients' experience of isolation/connection, having basic needs met (food, shelter), access to childcare/school, services for children with special needs, and the ability to travel during the pandemic?
    b. What happened with respect to domestic violence, family support, and other relevant life circumstances I may not have considered?
    c. Considering the two phases of the pandemic we alluded to previously (i.e., initial lockdown vs. shift to virtual services):

i. What happened with respect to service engagement (i.e.: did the restrictions impact the number of families referred to BTC and their consistency/ frequency of attendance? Did the restrictions impact the number of clients you were *able* to serve, compared to pre-pandemic levels?
ii. What happened with respect to observable parenting stress levels and mental health status (including substance use) of your postnatal clients?

d. If we consider changes across time in the profiles of risk and protective factors (above) for these families (children and their mothers), which factors would you highlight as the most predictive of treatment trajectories and outcomes – both positive and negative?
    i. Can you please share specific stories of families in postnatal services during the pandemic that may illuminate the role of COVID-19 on client wellbeing, and how their risk/protective factors were impactful in worsening or improving engagement in services, experience of parental stress, and ultimately in affecting how well they were able to meet treatment goals (for the woman and child/ren)?

Community Partners

6) Which community services – outside of BTC – did your postnatal families most commonly rely on, pre-pandemic? How did engagement with these services change over the course of the pandemic (over the course of the two stages – initial lockdown and shift to virtual services)?
    a. How would you describe the impact of these disrupted community services on substance-involved families?
    b. If there were any beneficial shifts in service engagement, what were they and what impact did they have on the women and their children?

Concluding Questions:

7) If a similar crisis situation emerged, what would we do similarly and what would we do differently (i.e.: What worked? What did not work?)?
    a. For whom did the service model work?
    b. Which families (with which risk factors) should be considered highest risk? Which protective factors seem to be most strongly related to attenuating the impact of risk factors and increasing the likelihood of attaining desired outcomes amongst these vulnerable families?

8) What inspired you and gave you hope over the last two years? What are you looking forward to, moving forward?

9) What do you wish people knew about the families you saw who sought services during the pandemic?

Appendix C:

Tables of Risk and Protective Factors Included in Analyses

Table I: Cumulative RISK Factor Score			
DOMAIN	**SCORING**		
PARENT - MOTHER (31 factors)			
Presence of a diagnosed DSM-IV-R/DSM-5 mental illness	(0) no	unknown	(+1) yes
Family history of mental illness	(0) no	unknown	(+1) yes
Chronic medical illness	(0) no	unknown	(+1) yes
Maternal level of education: has not completed high school	(0) no	unknown	(+1) yes
Own history of child welfare involvement	(0) no	unknown	(+1) yes
Conviction history	(0) no	unknown	(+1) yes
Current legal problems	(0) no	unknown	(+1) yes
Mother has history of abuse/neglect including domestic violence	(0) no	unknown	(+1) yes
History of self-harm behaviours or suicide attempt	(0) no	unknown	(+1) yes
History of eating disorder	(0) no	unknown	(+1) yes
Maternal anxiety symptoms (clinical level – BAI)	(0) no	unknown	(+1) yes
Mother endorses depressive symptoms (clinical level – CESD-D)	(0) no	unknown	(+1) yes
More than three births	(0) no	unknown	(+1) yes
Insecure attachment style (RAAS)	(0) no	unknown	(+1) yes
Does not feel she can depend on others (RAAS)	(0) no	unknown	(+1) yes
Is not comfortable with closeness and intimacy (RAAS)	(0) no	unknown	(+1) yes
Worries about being rejected or unloved (RAAS)	(0) no	unknown	(+1) yes
Low confidence regarding ability to cope with relapse crisis situations (old DTCQ)	(0) no	unknown	(+1) yes
Alcohol use	(0) no	unknown	(+1) yes
Cannabis use	(0) no	unknown	(+1) yes
Crack/cocaine use	(0) no	unknown	(+1) yes
Heroin use	(0) no	unknown	(+1) yes
Methadone use	(0) no	unknown	(+1) yes
Other opiates use	(0) no	unknown	(+1) yes
Hallucinogen use	(0) no	unknown	(+1) yes
Barbiturate use	(0) no	unknown	(+1) yes
Sedative use	(0) no	unknown	(+1) yes
Nicotine use	(0) no	unknown	(+1) yes
Inhalants use	(0) no	unknown	(+1) yes
Prescription drug use (e.g., antidepressants)	(0) no	unknown	(+1) yes
Polysubstance use	(0) no	unknown	(+1) yes
PARENT - OTHER (5 factors)			
Secondary parent is absent from child's life	(0) no	unknown	(+1) yes

Presence of a diagnosed DSM-IV-R/DSM-5 mental illness	(0) no	unknown	(+1) yes
Substance user	(0) no	unknown	(+1) yes
History of partners using substances	(0) no	unknown	(+1) yes
Current difficult/dysfunctional or abusive relationship with mother	(0) no	unknown	(+1) yes
FAMILY (14 factors)			
Child protective services involvement	(0) no	unknown	(+1) yes
Court ordered family services	(0) no	unknown	(+1) yes
Death of parent or important person	(0) no	unknown	(+1) yes
More than one child in the home	(0) no	unknown	(+1) yes
Family violence or trauma	(0) no	unknown	(+1) yes
Substance use by household member (non-parental)	(0) no	unknown	(+1) yes
Maternal grandmother uses substances	(0) no	unknown	(+1) yes
Maternal grandmother abusive or difficult relationship	(0) no	unknown	(+1) yes
Maternal grandfather uses substances	(0) no	unknown	(+1) yes
Maternal grandfather abusive or difficult relationship	(0) no	unknown	(+1) yes
Maternal siblings use substances	(0) no	unknown	(+1) yes
Maternal siblings abusive or difficult relationship	(0) no	unknown	(+1) yes
Employment/financial insecurity	(0) no	unknown	(+1) yes
Poverty or near poverty (less than $10,000)	(0) no	unknown	(+1) yes
PRE-NATAL/PREGNANCY (12 factors)			
Isolation	(0) no	unknown	(+1) yes
Domestic violence	(0) no	unknown	(+1) yes
Substance use prenatally	(0) no	unknown	(+1) yes
First trimester substance use	(0) no	unknown	(+1) yes
Second trimester substance use	(0) no	unknown	(+1) yes
Third trimester substance use	(0) no	unknown	(+1) yes
Transiency	(0) no	unknown	(+1) yes
Health complications during pregnancy (e.g., low/high maternal weight gain, high blood pressure/ pre-eclampsia, diabetes or other chronic health conditions)	(0) no	unknown	(+1) yes
Poor pre-natal nutrition	(0) no	unknown	(+1) yes
Mom >35 years	(0) no	unknown	(+1) yes
Teenage pregnancy	(0) no	unknown	(+1) yes
Minimal prenatal care	(0) no	unknown	(+1) yes
BIRTH/POST-NATAL (12 factors)			
Caesarean delivery	(0) no	unknown	(+1) yes
Induced delivery	(0) no	unknown	(+1) yes
Premature delivery	(0) no	unknown	(+1) yes
Child welfare involvement	(0) no	unknown	(+1) yes
Separation/apprehension at birth	(0) no	unknown	(+1) yes
Post-natal Medical Results and Diagnoses:			
Genetic disorder	(0) no	unknown	(+1) yes

Tested positive for substance exposure	(0) no	unknown	(+1) yes
Fetal Alcohol Spectrum Disorder	(0) no	unknown	(+1) yes
Drug withdrawal	(0) no	unknown	(+1) yes
Baby health complications at birth	(0) no	unknown	(+1) yes
Low birth weight	(0) no	unknown	(+1) yes
Post-natal Interventions (e.g., incubator, tube feeding, apnea monitor, respirator, medication required)	(0) no	unknown	(+1) yes
CHILD (6 factors)			
Poor health rating of child	(0) no	unknown	(+1) yes
Child in foster care or kin care/Change in primary caregiver	(0) no	unknown	(+1) yes
Health concerns at intake (e.g., chronic colds, respiratory problems, ear infections, heart problems, gastroenteritis, limited mobility, seizures)	(0) no	unknown	(+1) yes
Psychological/emotional problem	(0) no	unknown	(+1) yes
Developmental delays/delays in meeting developmental milestones	(0) no	unknown	(+1) yes
Other issues (e.g., injuries, eating problems, slow weight gain, sensory impairments)	(0) no	unknown	(+1) yes
PARENT-CHILD INTERACTION (12 factors)			
Separation within first three years of life	(0) no	unknown	(+1) yes
Low parental efficacy (BaP)	(0) no	unknown	(+1) yes
Low parental satisfaction (BaP)	(0) no	unknown	(+1) yes
High defensive responding (PSI)	(0) no	unknown	(+1) yes
High parental distress (PSI)	(0) no	unknown	(+1) yes
High parent-child dysfunctional interactions (PSI)	(0) no	unknown	(+1) yes
Mother's perception of having a difficult child (PSI)	(0) no	unknown	(+1) yes
Clinical level of stress in parenting role (PSI)	(0) no	unknown	(+1) yes
High parental expectations (AAPI)	(0) no	unknown	(+1) yes
Low parental empathy (AAPI)	(0) no	unknown	(+1) yes
High corporal punishment (AAPI)	(0) no	unknown	(+1) yes
Reversed familial/parent-child roles (AAPI)	(0) no	unknown	(+1) yes
SOCIAL NETWORK (4 factors)			
Disadvantaged minority ethnic background	(0) no	unknown	(+1) yes
Preferred language is not English	(0) no	unknown	(+1) yes
Low perceived social support – Family (PSS)	(0) no	unknown	(+1) yes
Low perceived social support – Friends (PSS)	(0) no	unknown	(+1) yes

Table II: Cumulative PROTECTIVE Factor Score			
DOMAIN	**SCORING**		
PARENT - MOTHER (14 factors)			
No presence of a diagnosed DSM-IV-R/DSM-5 mental illness	(0) no	unknown	(+1) yes
No history of abuse	(0) no	unknown	(+1) yes
Secure attachment (RAAS)	(0) no	unknown	(+1) yes
Is comfortable with closeness and intimacy (RAAS)	(0) no	unknown	(+1) yes
Feels she can depend on others (RAAS)	(0) no	unknown	(+1) yes
Does not worry about being rejected or unloved (RAAS)	(0) no	unknown	(+1) yes
High confidence regarding ability to cope with relapse crisis situations (old DTCQ)	(0) no	unknown	(+1) yes
Maternal level of education: has completed post-secondary education	(0) no	unknown	(+1) yes
Accessing mental health support/therapy/trauma counseling	(0) no	unknown	(+1) yes
Accessing addiction programming	(0) no	unknown	(+1) yes
Accessing BTC groups	(0) no	unknown	(+1) yes
Employed or experiencing financial security	(0) no	unknown	(+1) yes
Housing stability	(0) no	unknown	(+1) yes
Regular service engagement	(0) no	unknown	(+1) yes
PARENT - OTHER (4 factors)			
No substance use	(0) no	unknown	(+1) yes
Relationship rated as supportive	(0) no	unknown	(+1) yes
Relationship rated as good	(0) no	unknown	(+1) yes
Presence of positive secondary parental figure to child	(0) no	unknown	(+1) yes
FAMILY (7 factors)			
Family experiencing housing stability	(0) no	unknown	(+1) yes
Maternal grandmother rated as supportive	(0) no	unknown	(+1) yes
Relationship with maternal grandmother rated as good	(0) no	unknown	(+1) yes
Maternal grandfather rated as supportive	(0) no	unknown	(+1) yes
Relationship with maternal grandfather rated as good	(0) no	unknown	(+1) yes
Maternal sibling(s) rated as supportive	(0) no	unknown	(+1) yes
Relationship with maternal sibling(s) rated as good	(0) no	unknown	(+1) yes
PRE-NATAL/PREGNANCY (2 factors)			
Early-intervention through BTC Pregnancy Outreach Program	(0) no	unknown	(+1) yes
Attends BTC Pregnancy Outreach Program Prenatal Relapse Prevention group	(0) no	unknown	(+1) yes
BIRTH/POST-NATAL (2 factors)			
Neonatal follow-up	(0) no	unknown	(+1) yes
Attends BTC prenatal and postnatal counseling	(0) no	unknown	(+1) yes
CHILD (9 factors)			
Child meeting developmental milestones	(0) no	unknown	(+1) yes
No health concerns	(0) no	unknown	(+1) yes

Child was/is in daycare or with a babysitter	(0) no	unknown	(+1) yes
Child involved in community programming (e.g., early learning centre)	(0) no	unknown	(+1) yes
Developmental screening and assessment	(0) no	unknown	(+1) yes
Receiving FASD support	(0) no	unknown	(+1) yes
Received occupational therapy	(0) no	unknown	(+1) yes
Received speech/language therapy	(0) no	unknown	(+1) yes
Attending medical appointments / receiving public healthcare	(0) no	unknown	(+1) yes
PARENT-CHILD INTERACTION (12 factors)			
Receiving programming for parent-child relationship	(0) no	unknown	(+1) yes
Parent-child counseling	(0) no	unknown	(+1) yes
High parental efficacy (BaP)	(0) no	unknown	(+1) yes
High parental satisfaction (BaP)	(0) no	unknown	(+1) yes
Low parental distress (PSI)	(0) no	unknown	(+1) yes
Low parent-child dysfunctional interactions (PSI)	(0) no	unknown	(+1) yes
Mother's perception of having an easy child (PSI)	(0) no	unknown	(+1) yes
Low level of stress in parenting role (PSI)	(0) no	unknown	(+1) yes
Low parental expectations (AAPI)	(0) no	unknown	(+1) yes
High parental empathy (AAPI)	(0) no	unknown	(+1) yes
Low corporal punishment (AAPI)	(0) no	unknown	(+1) yes
Intact familial/parent-child roles (AAPI)	(0) no	unknown	(+1) yes
SOCIAL NETWORK/PROFESSIONAL CARE/SERVICES (17 factors)			
Non-family adult support network	(0) no	unknown	(+1) yes
Child welfare support	(0) no	unknown	(+1) yes
High Perceived Social Support from Friends (PSS-Friends)	(0) no	unknown	(+1) yes
High Perceived Social Support from Family (PSS-Family)	(0) no	unknown	(+1) yes
Access to other BTC services:			
Addictions individual counseling	(0) no	unknown	(+1) yes
Addictions group	(0) no	unknown	(+1) yes
Home visiting	(0) no	unknown	(+1) yes
Family relations support	(0) no	unknown	(+1) yes
Instrumental needs (e.g., food, clothing, baby needs)	(0) no	unknown	(+1) yes
Housing support	(0) no	unknown	(+1) yes
Access to other community services:			
Community addictions counseling	(0) no	unknown	(+1) yes
Community parent groups	(0) no	unknown	(+1) yes
Instrumental needs and supports (e.g., food, clothing, baby needs)	(0) no	unknown	(+1) yes
Housing support	(0) no	unknown	(+1) yes
High risk nurse services	(0) no	unknown	(+1) yes
Access to physician / psychiatrist	(0) no	unknown	(+1) yes
Financial Allowances (e.g., ODSP, OCCS, Ontario Works)	(0) no	unknown	(+1) yes