Early Fatherhood after a History of Childhood Maltreatment Trauma: Relationships, Experiences, and Intervention Needs

by

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DEDICATION

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ABSTRACT

Purpose: The overarching purpose of this dissertation is to reach a deeper understanding of how violence is transmitted through fathers in intergenerational patterns, and to explore how this transmission can be prevented.

Background: Child maltreatment trauma (CMT) is a significant public health problem with intergenerational patterns. Fathers with a history of CMT are more likely to have mental health problems associated with poorer early parenting outcomes, including posttraumatic stress disorder (PTSD) and depression. CMT can also have complex effects on adult survivors, including anger expression, interpersonal reactivity, substance use, and greater difficulty maintaining intimate relationships. Having a history of CMT puts fathers at higher risk for maltreating their own children due to these long-term effects and the poor role modeling of their own parents.

Parenting stress is a group of adverse reactions to the demands of parenthood. Higher parenting stress is associated with increased risk of CMT perpetration and poorer parenting quality. New fathers with a history of CMT may have higher parenting stress on average. The perinatal period is an ideal time to address the unique needs of fathers who have a history of CMT and help them reduce their parenting stress. However, the experiences and intervention needs of fathers who have a history of CMT are not well-understood, precluding the development of much-needed trauma-specific fathering interventions to prevent CMT.

Methods: We used an internet survey leading to purposive sampling for individual interviews with a subsample of 15 new fathers who had a history of CMT. Our purpose was addressed with three aims: 1) Synthesize a trauma-informed theory of paternal involvement that takes into account intergenerational patterns of CMT and psychiatric vulnerability, and can inform research and interventions to improve fathering and mitigate CMT. 2) Compare first-time fathers of children under age two who have a history of CMT and those who do not using survey data, and to examine predictors of parenting stress (a likely predictor of CMT perpetration risk as well as desire for a parenting intervention). 3) Explore the perinatal intervention desires of fathers who have a history of CMT in terms of content and format through content analysis of transcripts of semi-structured interviews.

Results: Through our synthesized theory, we propose that increasing both quantity (responsibility, accessibility, and engagement) and quality (self-regulation, mental health, and sensitivity) of paternal involvement improves child wellbeing. Through survey data analysis, we found that a history of CMT, posttraumatic stress disorder (PTSD), and depression were significantly associated with parenting stress for new first-time fathers. When interpersonal reactivity, anger expression and coparenting quality were added to the model, these were even stronger predictors of parenting stress than PTSD and depression. During qualitative interviews, fathers who have a history of CMT emphasized difficulty navigating relationships, often related to their past trauma. Many reported that difficulties coparenting, and the absence of high-quality fathering role models increased both their parenting stress and their desire for interventions. Fathers expressed desire for an intervention targeting parenting skills, mental health, and providing fathering role modeling. Preferences varied by person, and many fathers requested a program that can be tailored to their specific needs.

Conclusion: In addition to advancing maltreatment prevention science, this research lays groundwork for the creation of interventions for new fathers that could help interrupt intergenerational cycles of violence and reduce rates of CMT.

CHAPTER ONE: Background and Significance

Introduction and Overview of the Dissertation

Child maltreatment trauma (CMT) can have complex and long-lasting effects on adult survivors' mental health, physical health, and relationships. My long-term research goals include developing a deep understanding of the role that a history of CMT plays in men's transition to fatherhood and the complex influence it may have on early parenting. I came to this topic through my background in women's health, adolescent health, community-based participatory research, and partner involvement. As an undergraduate, I conducted research with Dr. Adejoke Ayoola on a community-based participatory research project, responding to needs expressed by the communities we partnered with. This two-arm randomized controlled trial focused on bolstering women's contraceptive and reproductive decision-making abilities, for which I delivered a manualized intervention via home visits. This work also included a literature review which demonstrated the immense impact of partners' involvement on women's health outcomes and their reproductive decision-making. Throughout this work, I witnessed the high prevalence of trauma, and the immense impact that male partners have on women's health. Realizing the immense and understudied impact of both trauma and male partners on the perinatal period led me to my current work and to Dr. Seng as my primary advisor.

My predoctoral work has focused on new fathers who have a history of childhood maltreatment trauma (CMT), and how that trauma impacts them as they transition to parenthood. My immediate goals of this work were to gain some theoretical understanding of trauma, posttraumatic stress disorder (PTSD), and fatherhood; examine predictors of parenting stress;

and explore survivor fathers' experiences and intervention needs during the childbearing year. This work is organized into a three-paper dissertation. Chapter one contains an overview of the literature most salient to this dissertation project, presents preliminary supporting data from Dr. Seng's study with mothers who have a history of CMT, and concludes with the significance and premise of this dissertation work. Chapter two presents the first of the three papers, a theory development project. Chapter three presents a report on an analysis of primary internet survey data exploring predictors of parenting stress. Chapter four reports on a mixed methods analysis of 15 qualitative interviews with fathers who have a history of CMT, exploring their perinatal experiences and intervention needs. Chapter five is a synthesis of lessons learned from this dissertation work and next steps. My long-term goal with this line of inquiry is to respond to fathers' unmet needs with intervention development, testing, and eventually implementation.

Chapters three and four rest on the results from an internet survey with new fathers, using the Prolific survey platform (*Prolific,* 2019). The primary outcome for the analysis in Chapter two is parenting stress. Parenting stress is a set of adverse reactions in response to a person adapting to the demands of parenthood (Abidin, 2012). In fathers, high parenting stress has been demonstrated to be associated with fewer positive parent-child interactions and a higher likelihood of child maltreatment perpetration (Rodriguez & Richardson, 2007), as well as lower levels of engagement with their child. (Halme et al., 2006). Mothers who have a history of CMT are at greater risk for having more parenting stress (Lange et al., 2019; Steele et al., 2016). To our knowledge, this this relationship has not been examined in fathers. We chose to examine parenting stress because it hints at multiple domains of interest, including a fathers' wellbeing in his role transition, the quality of parenting he demonstrates, and thus early child outcomes. In

addition, fathers who experience greater parenting stress may be more likely to be interested in participating in a perinatal intervention targeted to them.

Specific Aims

Aim 1 (Paper 1)

To synthesize a trauma-informed theory of paternal involvement that takes into account intergenerational patterns of child maltreatment trauma and psychiatric vulnerability, and can inform research and interventions to improve fathering and mitigate CMT.

Aim 2 (Paper 2)

To use survey data to compare first-time fathers of children under age two **who had a history** of CMT and those who did not by key factors, and to examine predictors of parenting stress (a likely predictor of CMT perpetration risk as well as desire for a parenting intervention) including maltreatment history, trauma-related mental health conditions, and relationship factors.

Aim 3 (Paper 3)

To explore the perinatal intervention desires of fathers who have a history of CMT in terms of both content and format through content analysis transcripts of semi-structured interview with 15 survivor fathers.

Background

Child Maltreatment Trauma

Prevalence and Maltreatment Types

Child maltreatment is a significant public health problem that includes physical, sexual, and emotional abuse; physical and emotional neglect; and custodial interference. (CDC, 2019c). In 2019, there were an estimated 656,000 victims of child abuse and neglect (U.S. Department of Health & Human Services [HHS] Administration for Children and Families [ACF]

Administration on Children Youth and Families [ACYF], 2022), and many more cases likely go undetected. Cumulatively, one in eight children will have a state-confirmed maltreatment report before the age of 18, and self-reported maltreatment data report roughly three times the rate of confirmed cases (Wildeman et al., 2014). To support this, one study examined the self-reported CMT incidence of a nationally representative sample of U.S. youth ages 14-17, finding that 38.1% reported physical, sexual, emotional abuse or neglect by a caregiver in their lifetime (Finkelhor et al., 2015).

Children in their first year of life have the highest rate of victimization, at 25.1 per 1,000 children nationally (HHS, ACF, ACYF, 2022). Approximately 1,750 children in the U.S. died from abuse and neglect in 2020, 46.4% of whom, were younger than 1 year old and about 70% of whom were under 3 years old (HHS, ACF, ACYF, 2022). Between 70-80% of child maltreatment cases both investigated and substantiated by Child Protective Services are cases of neglect (Kim et al., 2017; Wildeman et al., 2014). Physical abuse is the second most common maltreatment type at 16.5% of cases, followed by sexual abuse at approximately 9.4% of victims, (HHS, ACF, ACYF, 2022).

Adverse Childhood Experiences (ACEs)

The above child maltreatment data from the National Child Abuse and Neglect Data System (NCANDS) discusses only cases investigated and/or substantiated by Child Protective Services. In addition to leaving many cases of child maltreatment undetected, this approach has another important limitation. There are many other forms of childhood trauma that are not included under the umbrella of child maltreatment. These may still have significant lifelong effects on individuals who survive them. The most prominent effort to account for additional stressors began with the Adverse Childhood Experiences (ACE) study (Felitti et al., 1998). In

addition to psychological, physical, or sexual abuse, the study also included violence against mother and living with household members who were substance abusers, mentally ill or suicidal, or imprisoned. The results described a dose-response relationship between the number of ACEs experienced, and many forms of adult health risk behaviors and disease experienced by adult survivors.

Since the original ACEs study in the 1990s, the ACEs questionnaire has been adapted to a commonly used questionnaire that assess 10 types of abuse or household dysfunction (Table 1.1). It is currently used both for screening in healthcare settings (Purewal et al., 2016) and in health and social research and epidemiology (Gilbert et al., 2015). ACEs have been implicated in predicting many adverse outcomes for adult survivors, spanning both physical (Crandall et al., 2019; Nurius et al., 2019) and mental health (Kessler et al., 2010). Two systematic reviews and meta-analyses found significant relationships between ACEs and both depressive and anxiety disorders in adolescence and adulthood (Li et al., 2016; Lindert et al., 2014). ACEs also have a demonstrated relationship with PTSD, alcohol misuse, polysubstance misuse, dissociative disorders, personality disorders, psychotic disorders, suicidality, psychosocial functioning and overall quality of life (Sheffler et al., 2020).

Table 1.1: Adverse Childhood Experiences Questionnaire

Category	Trauma	Question
Abuse	Emotional	Did a parent or other adult in the household often or very often… Swear at you, insult you, put you down, or humiliate you? **OR** Act in a way that made you afraid that you might be physically hurt?
	Physical	Did a parent or other adult in the household often or very often… Push, grab, slap, or throw something at you? **OR** Ever hit you so hard that you had marks or were injured?
	Sexual	Did an adult or person at least five years older than you ever… Touch or fondle you or have you touch their body in a sexual way? **OR** Attempt or actually have oral, anal, or vaginal intercourse with you?

Neglect	Emotional	Did you often or very often feel that … An adult in the household never or very seldom made you feel safe and protected.
	Physical	Did you often or very often feel that … An adult in the household never or very seldom tried hard to make sure your basic needs were met.
Household Challenges	Intimate Partner Violence	Was your mother or parent... Often or very often pushed, grabbed, slapped, or had something thrown at her? **OR** Sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard? **OR** Ever repeatedly hit at least a few minutes or threatened with a gun or knife?
	Substance abuse in the household	Did you live with anyone who was a problem drinker or alcoholic or who used street drugs or misused prescription medication?
	Mental illness in the household	Was a household member depressed or mentally ill, or did a household member attempt suicide?
	Parental separation or divorce	Were your parents ever separated or divorced?
	Incarcerated household member	Did a household member go to prison?

Theories of Posttraumatic Stress

The literature on fathering and parenting stress and other important outcomes in the childbearing year is thin (Chamberlain et al., 2019). In situations where there are few observations or data, theory can be useful. In a 2021 paper I coauthored with Dr. Julia Seng called "Using theories of posttraumatic stress to inform perinatal care clinician responses to trauma reactions" in the *Journal of Midwifery and Women's Health* (Granner & Seng, 2021) we applied several theories of PTSD to the concerns of childbearing women. We can draw parallels to consider in studies of fathers. Excerpts from this manuscript are paraphrased below to explicate our understanding of posttraumatic stress in terms of both "classic" and

complex/comorbid PTSD, with a focus on individuals who have a history of CMT. These theories suggest factors to explore or consider based in how a variety of posttraumatic sequelae of CMT may affect people as they become parents.

Action systems for danger vs. daily life

Pierre Janet was one of the first to study structural dissociation as a response to trauma (Van der Kolk & Van der Hart, 1989). He proposed understanding trauma psychopathology in relation to memory and dissociation (Van der Hart et al., 2006), and his theorizing parallels modern views of ecological and evolutionary biology and psychology. Janet described humans as social creatures with two "action systems" that are based in experience and become nearly automatic. The first is the action system for danger which is the fight-or-flight mechanisms. This action system serves to preserve the individual when danger is recognized. The second is the action system for daily life, including play, work, exploring, sexual activity and caregiving, eating, sleeping, growing, and wound healing. This action system serves to preserve the species. Janet proposed that people exposed to danger early in life adapt to live in a dangerous environment, automatically deploying the action system for danger.

Janet's action systems have a parallel in current understanding of the function of the hypothalamic-pituitary-adrenal (HPA) axis of the sympathetic nervous system and oxytocin functions of the parasympathetic nervous system. These biologic systems are mutually regulating (Li et al., 2019). In adapting to a dangerous environment, the fight-or-flight reaction may become habitual or the default response, and the HPA axis may predominate. For people who have survived early or prolonged trauma, these behavioral and biological reactions may persist, even in the absence of danger, and often in response to triggers (Van der Hart et al., 2006).

Another theory about PTSD based on evolutionary biology and ecology is Stephen Porges' polyvagal theory. Polyvagal theory highlights connectedness as a biological imperative. Polyvagal theory focuses on the vagal nerves, especially the ventral (or "social") vagus (Dana, 2018). When this is stimulated, we seek connection. Connection facilitates "co-regulation" in a double sense in that the process of connection facilitates co-regulation of both the sympathetic and parasympathetic systems and it facilitates partnership with another person who is not experiencing fight or flight reactions. Thus, both parts of the autonomic nervous system are affected; the sympathetic via the HPA and modulation of catecholamine release and the parasympathetic via release of oxytocin. In practical terms, people seek opportunities to co-regulate when stressed or triggered. The autonomic nervous system responds to soothing others and being soothed, talking and listening, offering and receiving help, and connection with others that can affect our well-being (Dana, 2018).

The polyvagal theory is similar to the "tend and befriend" work of Taylor and colleagues (Taylor et al., 2000). They focused on "stress" more broadly, as a normal condition, rather than on PTSD as a pathological form of stress. Taylor noted the tendency of females in particular, human or other species, to seek out others in the same social group when under stress. They studied the oxytocin system response and subsequent affiliation and support-seeking as a means to reduce stress. Polyvagal theory expands this view to consider trauma and focuses on connection to others as a survival and recovery imperative, with implications for healing from trauma (Porges, 2015).

Janet's action systems that respond to danger and daily life, and Porges' polyvagal theory can be applied to new fathers who are navigating their transition to parenthood as survivors of CMT. We might expect that fathers who are coping with trauma have been focused on surviving

(i.e., drawing on anger and adrenaline) to the detriment of growing, playing, connecting, and exploring. They may lack knowledge to pass along to their children the skills needed in the action system of daily life, connecting for safety, and tending and befriending as a healthy stress management approach.

Failure of Fear Extinction

People with PTSD can be reminded of trauma and reexperience it, thereby inducing a fear response, even if the person is in a context of safety (Lanius et al., 2012). Fear and activation of the HPA axis continue to occur because the hippocampus and pre-frontal cortex, which usually supply contextual information to counter fear when there is no actual danger, do not respond in the usual way. Neuroimaging studies show that the person's response to a trauma-specific trigger is "under-modulated" if they have PTSD (Lanius et al., 2010). For those who react to triggers with the severe self-anesthetizing PTSD reaction of dissociation, there is evidence of an "over-modulated" response akin to a freeze or faint reaction.

The theory of PTSD as failure of extinction of the fear response has provided the foundation for some evidence-based treatments for PTSD. All the current psychotherapies that have strong evidence of effectiveness are cognitive therapies (Forbes et al., 2020). These therapies aim to decrease the impact of triggers, the reminders of trauma that evoke PTSD reactions, by focusing on trauma memories in a variety of different ways. All these therapies have the goal of transforming the memory from automatically provoking intense re-experiencing and hyper- or hypo-arousal reactions (Lanius et al., 2012) to diminishing the provocation and permitting the person to engage cognitive processes to manage the trigger.

The theory explaining how therapies work used to be that repeated exposure to the trauma memory or trigger decreased distress through habituation, which would decrease the

strength of PTSD reactions and symptoms (Sloan & Marx, 2019). Current research suggests that therapeutic exposure works instead through inhibitory learning (Craske et al., 2014). That is, the person learns they can tolerate being triggered, which diminishes the old responses to reminders of the trauma such as fear, or avoidance. Inhibitory learning theory suggests that when a person notices they are tolerating the fear reaction, that fear response is likely to diminish, especially if the intense reaction is expressed. Narrative theories suggest there may be additional benefit if the single focus on the fear reaction is enriched by making room in the person's memory and understanding for additional feelings and responses that likely also were part of the experience but were over-shadowed by the fear response (Rosenwald & Ochberg, 1992).

Depending on where fathers with a history of CMT are on their trauma recovery journeys, they may still see the world as dangerous. They may tend to react to triggers with fight-or-flight behaviors, including physical, verbal, or emotional ways that frighten or threaten harm to a child. People who have experienced trauma may act or react in ways that are not reflective or sensitive to what is actually happening with the child or in other relationships or situations. New parents who have the chance to experience the holding environment and learning experience that therapy or other growth-producing relationships provide may learn coping skills that help them manage their reactions (Kelly & Barnard, 1999). This process of metabolizing trauma may also help them see the world from the lens of their current life rather than their past trauma.

Allostatic Load & Weathering

Another set of PTSD theories focus on "dysregulation" of one's bio-psycho-social-spiritual self as the link between being exposed to a trauma and experiencing lasting, pervasive distress and impairments. Conceptually, the notions of homeostasis and allostasis can be helpful.

In the face of normal stressors, the body responds and then recovers, returning via homeostasis to the usual physiology. In the face of traumatic or severe chronic stressors, however, an allostatic process occurs, revising the "set points" so the person can adapt physiologic function to live in the more demanding environment (Guidi et al., 2021). For example, baseline adrenaline levels shift upward to facilitate fight or flight. This results in the hyperarousal symptoms of PTSD, including a hair-trigger for anger. The notion of this being visible as a "type A personality" with a link to heart disease is a common cultural trope. A more trauma-informed conceptualization would be to label this perception of "type A personality" as a person with hyperarousal symptoms of PTSD. This is an example of shifting from asking "What's wrong with this person?" to a trauma-informed approach that asks "What happened to this person?" The trauma-informed lens allows us to see hyperarousal reactions as body-based rather than purely behavioral.

Weathering is another theory, similar to allostatic load but is applied most often in relation to disparities in health status, disease, and early mortality experienced by Black, Indigenous, and People of Color (BIPOC) persons (Demby, 2018). Weathering describes the gradual, inevitable, and premature aging that involves shortened telomeres and wearing down of physiologic systems which are the result of pervasive exposure to racism in all its forms. The writings on weathering put the emphasis on the body's cost of allostatic overload when fight or flight are not feasible reactions. This up-regulating of the body's stress regulation systems could take a toll on new parents in the form of less physical well-being and more fatigue (Graham-Bermann & Seng, 2005; Schnurr & Green, 2004). Over time, this depletion or low mood can make it harder to rise to meet the challenges of early parenting. Some parents might also seek to down-regulate their chronic stress responses with substances (Stover et al., 2012).

Developmental Origins of Health and Disease (DOHaD)

The theory known as Developmental Origins of Health and Disease (DoHaD) takes a similar but intergenerational view of physiologic adaptation. This theory notes that a fetus, adapts to live in the in-utero environment that is affected by maternal physiologic responses which are, in turn, the result of the mother's environment and exposures during pregnancy. High maternal stress during gestation results in overriding some placental protective mechanisms, such as the placental enzyme 11-β-hydroxysteroid dehydrogenase-type 2 that usually would block excess cortisol (Blackburn, 2017), resulting in development optimized for survival in challenging circumstances. However, the cost is high since these adaptations can result in physiology that is prone to early onset of chronic pain, morbidity, and mortality. Weathering and allostatic load may also play an additional role in health disparities seen in parents and offspring who are BIPOC. Thus we might see health patterns across generations, such as preterm birth or low birth weight, that put infants at greater risk for being exposed to trauma (Seng, Low, et al., 2011).

Oxytocin Dysregulation

Although much of the dysregulation literature focuses on the sympathetic nervous system response to stress, in particular the HPA axis and effects associated with elevated cortisol levels (Epstein et al., 2021), the parasympathetic system may be dysregulated as well. Oxytocin, for example, normally down-regulates the cortisol response (Moberg, 2014). Oxytocin may promote a "tend and befriend" affiliative stress recovery and improve cardiac recovery when caregiving is activated.

An overarching theory known as cascade theory posits that childhood maltreatment leads to a cascade of adaptations in the function of oxytocin, catecholamines, and the HPA axis that can be permanent and maladaptive in the adult survivor (Teicher et al., 2003). For people who

have had chronic childhood trauma and chronic PTSD, awareness of these symptoms and reactions may be vague, and they may be unable to find words or names for their inner experience. They may have low "body awareness" or interoception of dysregulated physiology (Chen et al., 2021), even if they are aware that constant hyper-arousal is noxious. Without the salutary effects of normal oxytocin system function, parents might experience more difficulty feeling the feelings of bonding with their infant as well as inability to feel at ease and relaxed after a stressful situation.

Betrayal Trauma

In 1992, Judith Herman compellingly explained how family members could do particularly complex harm via abuse or neglect of a child in their care (Herman, 1992). This was because of both the child's vulnerability due to early developmental stage and because abuse or neglect is an injury to an attachment relationship that is vital to the child's survival. In 1994 Jennifer Freyd added to this understanding, focusing on child abuse and neglect as "betrayal trauma" (Freyd, 1994, 1996). More recently the concept of betrayal within a vital relationship has been expanded to include betrayal between institutions and those who depend upon those institutions (Smith & Freyd, 2014). Examples include military sexual trauma and sexual misconduct in the workplace, as well as rape on college campuses. The concept of betrayal trauma can be applied to healthcare settings as well, including betrayal that occurs secondary to the systemic racism, othering, discrimination, and marginalization that Black, Indigenous, and people of color (BIPOC) often experience in health care settings that reflect a white culture (C. Lee et al., 2009). In health systems, betrayals can take many forms, including lack of access, lack of acceptable services, not meeting expectations, or breaking promises. Betrayals may be compounded to the extent that they mirror betrayals that have occurred across generations. When

betrayal happens, reactions can include anger, loss of trust and increasing hypervigilance, ending the relationship, emotional numbing, dissociation, enduring, and/or avoidance (Boulware et al., 2016). Experiencing betrayal from those expected to help could have a logical impact on new parents. They might have adapted to past betrayals or being marginalized in healthcare. For example, fathers who have been excluded from maternity care might learn not to expect help and not to ask for it.

Thus, theories of what causes PTSD from across decades and disciplines suggest many ways in which trauma and the long shadow it casts could adversely affect fathering. They suggest factors to explore that could contribute to parenting stress and cycles of maltreatment.

Fatherhood and Child Maltreatment Trauma

Fathers are men (or people whose gender identity leads them to identify as a father) who share a biological or social parental connection with a child. Paternal involvement is the relationship between a father and a child and the impact of this relationship on a child's life. In general, more paternal involvement is beneficial for children and improves child outcomes in the domains of safety, health, development, and attachment (Adamsons & Johnson, 2013; Alio et al., 2010; Cabrera et al., 2018; Jeynes, 2015; Kennedy et al., 2015).

Father-Perpetrated Child Maltreatment

Not all forms of paternal involvement are positive, and father-perpetrated abuse and neglect are common in the U.S. Fathers commit or are involved in committing 44.3% of child maltreatment cases (HHS, ACF, ACYF, 2022). Research suggests that fathers and male caregivers are disproportionately implicated as perpetrators of maltreatment, including severe physical abuse and child homicide (Guterman & Lee, 2005; S. J. Lee et al., 2009).

Fatherhood after a History of Child Maltreatment

There is a dearth of research on fatherhood after a history of CMT, and a recent review found no observational or intervention studies specific to fathers who have a history of CMT (Chamberlain et al., 2019). However, some preliminary associations have been found in the few studies since then that do assess fathers' histories of CMT. One study found that for fathers, a history of child maltreatment was negatively associated with both prenatal bonding and fathers' views on the importance of fatherhood to the health and wellbeing of the infant (Dayton et al., 2019). The mechanism by which trauma history affects prenatal outcomes is likely mental health pathologies (Berthelot et al., 2020), as well as other long-term behavioral, situational, or hormonal trauma sequelae (Seng & Taylor, 2015). To support this, another study explored the association between fathers' histories of CMT and their and perinatal depressive symptoms and pregnancy-related anxiety (Skjothaug et al., 2015). They found that fathers who have a history of CMT suffer from significantly more perinatal depressive and anxiety symptoms than those who do not. Another study found that even after controlling for sociodemographic factors, fathers who have a CMT history experienced significantly more psychological symptoms (Berthelot et al., 2020) than non-survivors. Among CMT-exposed fathers, only fathers who had current psychopathologies suffered from poorer attachment with their infant and parenting confidence, and there was no significant relationship between CMT exposure and impaired attachment in the absence of psychopathology (Berthelot et al., 2020). However, the sample size was very small (71 men, 22.5% of which were CMT-exposed), and these results should be interpreted cautiously. More research is needed to explore these associations and gain a clearer understanding of how CMT impacts early fatherhood (Christie et al., 2017).

Fathering with Mental Health and Substance Use Symptoms

CMT is associated with a multitude of mental health symptoms and substance use behaviors (CDC, 2019a; Felitti et al., 1998; Runyan et al., 2002). Although associations between trauma history itself and poorer fathering behaviors have hardly been studied (Chamberlain et al., 2019), there is a growing body of evidence that fathers' mental health and substance use problems are are associated with adverse parenting and early child outcomes (Table 2.2).

Intergenerational Patterns of Trauma

CMT and psychiatric vulnerability tend to follow intergenerational patterns (Lang & Gartstein, 2018; Thornberry et al., 2013), as parents who perpetrate child maltreatment were often maltreated themselves (CDC, 2019c). This pattern is likely due to some combination of poor parenting role models, low or risky social support, difficulty forming stable adult attachments, oxytocin and hypothalamic pituitary adrenal axis dysregulation, psychiatric vulnerability and adverse mental health sequalae such as anxiety, depression, postraumatic stress disorder, interpersonal reactivity and personality disorders (Seng, 2010; Seng & Taylor, 2015; Skjothaug et al., 2015). Prior to becoming fathers, those who have a history of trauma have often had no help to recover from the physical and mental health sequelae from their own adverse childhood experiences (Chamberlain et al., 2019). These long-lasting trauma sequelae can be detrimental to fathers' parenting behaviors (Condon et al., 2022), thus continuing the intergenerational cycle of trauma (Greene et al., 2020)

Preliminary Supporting Data from Mothers

Data from the Stress, Trauma, and the Childbearing Year (STACY) study, collected by Dr. Julia Seng and an interdisciplinary team, support the validity of this dissertation project. The STACY study (NIH R01 NR008767) found that perinatal outcomes were significantly poorer for CMT-exposed mothers, which may hint at similar relationships in fathers. Preliminary analysis

done to underpin this dissertation project assessed associations between ACEs, bonding, and parenting sense of competence (Table 1.2) and determined effect sizes of maternal CMT history impact on key outcomes. Although parenting stress is the primary outcome for this dissertation study, it was not measured in the STACY project. Thus, for this preliminary analysis, I assessed the association between CMT and another relevant outcome, parent-infant bonding. The impact of CMT on mother-infant bonding was measured by the Postpartum Bonding Questionnaire (PBQ). Impaired bonding predicts higher parenting stress in both mothers and fathers (de Cock et al., 2017), which, in turn, predicts likelihood of maltreatment perpetration (Haskett et al., 2003; Niu et al., 2018).

Table 1.2: Correlations Between Maternal Trauma History, Mental Health Symptoms and Parenting Outcomes (STACY data)

	ACE	PBQ	PSoC
Variable	r	r	r
ACE Score	1		
PBQ - Mother-Infant Bonding Impairment	.05	1	
PSoC - Parenting Sense of Competence	-.077	.515**	1
Postpartum Depression	.211**	.472**	-.304**
Postpartum Anxiety	.205**	.444**	-.265**
PTSD Symptom Count	.336**	.407**	-.272**
Interpersonal Reactivity	.304**	.103*	-.039
DEST dissociation	.254**	.163**	-.150**

* p<.05 **p<.01 (two tailed)

Mean PBQ scores differed significantly (p<.001) between mothers who experienced CMT (M = 19.28) and those who did not (M = 16.47, pooled SD = 7.8). In addition, presence of

a CMT history had the small to medium effect size *d* of 0.339 on PBQ scores in postpartum women. Because parenting stress does not differ significantly between mothers and fathers (Deater-Deckard & Scarr, 1996), it seems reasonable to expect similar effect sizes of CMT on father-infant bonding. Yet because the mechanism may differ individually and by gender, we will also conduct qualitative interviews to examine the gender-specific story behind observed relationships.

In the STACY study data, an ACE score synthesized from the trauma history (modified to include only 7 variables due to secondary analysis limitations) was significantly correlated with depression, anxiety, PTSD symptom count, interpersonal reactivity, and dissociation in the postpartum period (Table 1.2). Each of these trauma sequelae was then associated with greater parent-infant bonding impairment and lower parenting sense of competence (PSoC), except interpersonal reactivity with PSoC. ACE score was not independently associated with PBQ nor PSoC. Therefore, it is likely that ACEs predict mental health symptoms, which in turn predict early parenting impairments. Even so, a significant proportion of people with ACEs do not experience mental health symptoms. This dissertation focuses on fathers who are adversely affected by ACEs and have unmet needs, including exploring statistical relationships between key factors and assessing what these needs are. There is likely much to learn from resilient fathers as well, which could be explored with further research.

Perinatal Interventions for Fathers who Have a History of Child Maltreatment

Even though biological fathers, adoptive fathers, and stepfathers commit or are involved in committing nearly half (44.3%) of child maltreatment (HHS, ACF, ACYF, 2022), they are often overlooked as recipients of clinical services and as targets of research (Self-Brown et al., 2018). There is much less empirical data about fathers than mothers because fathers are

significantly underrepresented in parenting research (Cabrera et al., 2018; Shadik & O'Connor, 2016). In addition, we are aware of few peer-reviewed trauma-specific interventions or observational studies specific to fathers who have a history of CMT (Chamberlain et al., 2019; Stephenson et al., 2018). Observational studies of fathers with a history of CMT are sorely needed in order to underpin future intervention development to support fathers and mitigate the long-term effects on them of child maltreatment they experienced, as well as to inform primary prevention of maltreatment for their children

Statement of the Problem and Purpose

We know that the prevalence of CMT is high (HHS, ACF, ACYF, Finkelhor et al., 2015; 2022), and that fathers who have a history of trauma often experience mental health and substance use sequelae (Skjothaug et al., 2015). We also know that mothers who have a history of CMT experience trauma-related challenges during their transition to motherhood and early parenting (Seng & Taylor, 2015). In addition, when fathers experience mental health and substance use problems, their parenting behaviors and early child outcomes often suffer (Greene et al., 2020). Child maltreatment is often transmitted in intergenerational patterns, likely due to these trauma-associated mental health and substance use sequelae in addition to poor parenting role models and riskier social support (Lang & Gartstein, 2018). However, there is very little research on fatherhood with a history of CMT (Christie et al., 2017). The particularities of how trauma history is associated with fathering and early child outcomes have not been fully explored, and it is not known whether fathers connect their mental health, substance use, or parenting behaviors to their traumatic experiences. In addition, it is not known whether fathers would find an intervention targeting parenting in tandem with posttraumatic recovery salient or acceptable.

To fill these gaps, we collected quantitative data on fathers' ACEs/CMT, childhood relationship with their own parents, mental health symptoms (PTSD, depression, anxiety, interpersonal reactivity, dissociative affect dysregulation, anger affect dysregulation), substance use behaviors (overall substance use and trauma-related substance use), mental health treatment, early parenting outcomes (parenting stress), coparenting relationship quality, and pregnancy intention. We also to assessed fathers' interest in a trauma-specific perinatal intervention, as well as characteristics of content, format, and mode of delivery of such an intervention. In addition to survey data, we used qualitative telephone interviewing to increase study depth and rigor and explore how fathers' trauma history has impacted their mental health, relationships, and parenting stress. This allowed us to add to the growing picture of how trauma can be transmitted intergenerationally.

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CHAPTER TWO: The Trauma-Informed Behavioral Ecology (TrIBE) Theory of Fatherhood

Abstract

Child maltreatment is a significant public health problem that has intergenerational patterns. Fathers are incredibly important to child health and wellbeing, but also perpetrate about 45% of child maltreatment cases substantiated by child protection agencies. Fathers who experienced child maltreatment themselves are especially at risk for perpetrating maltreatment with their own children. Despite literature supporting the importance of a trauma-informed lens in addressing child maltreatment prevention, no trauma-informed fatherhood theories have emerged. Our purpose is to present the Trauma-Informed Behavioral Ecology (TrIBE) Theory of Fatherhood to inform efforts to improve fathering and prevent child maltreatment. The Walker and Avant (2019) theory synthesis approach was used to specify focal concepts, review the literature, and construct an integrated representation of the synthesized theory. Our work builds on theories developed by Lamb et al. (1987) and Pleck (2010), synthesizing them with constructs related to trauma, child maltreatment, posttraumatic stress, and complex relational sequelae. Considering intergenerational patterns of child maltreatment, we propose that increasing both quantity (responsibility, accessibility, and engagement) and quality (self-regulation, mental health, and sensitivity) of paternal involvement improves child wellbeing. Paternal involvement, maltreatment prevention, and trauma-informed care are highly complex phenomena. This newly synthesized theory presents a contemporary 'state of the science' depiction of their intersection

and illuminates evidence-based avenues for intervention to decrease child maltreatment and promote safe, stable, and nurturing father-child relationships.

Keywords: fatherhood, paternal involvement, theory, child maltreatment, trauma-informed

Introduction

Fathers are immensely important to child health and development, but there is a scarcity of research and program development targeting fathers. The lack of a 'grand unifying theory' informing fatherhood research (Roggman et al., 2012) makes it challenging to develop effective, tailored fathering interventions. There is thus a need for advancement in fatherhood theory and a strong call for the development of trauma-informed theory, research, and practice (American Academy of Pediatrics, 2019; Cabrera et al., 2018). Little attention has been given to the role of trauma in fatherhood, and no trauma-informed fatherhood theories have emerged.

Trauma has intergenerational patterns. Those who have a history of child maltreatment are at higher risk of perpetrating maltreatment when they become fathers. This paper thus incorporates an intergenerational perspective in the development of a middle-range, trauma-informed theory of fatherhood, using the Walker and Avant (2019) theory synthesis method. The newly synthesized TrIBE Theory has the potential to inform trauma-specific fathering interventions that break intergenerational cycles of trauma.

Background

Fatherhood and Paternal Involvement

Fathers are men (or people whose gender identity leads them to identify as a father) who share a biological or social parental connection with a child. Paternal involvement is the relationship between a father and a child and the impact of this relationship on a child's life. In general, more paternal involvement is beneficial for children and improves child outcomes in the domains of safety, health, development, and attachment (Adamsons & Johnson, 2013; Alio et al., 2010; Cabrera et al., 2018; Jeynes, 2015; Kennedy et al., 2015). However, not all forms of paternal involvement are positive, and father-perpetrated abuse and neglect are common in the

U.S. Fathers commit or are involved in 44.3% of child maltreatment cases (U.S. Department of Health & Human Services [HHS] Administration for Children and Families [ACF] Administration on Children Youth and Families [ACYF], 2022). Research suggests that fathers and male caregivers are disproportionately implicated as perpetrators of maltreatment, including severe physical abuse and child homicide (Guterman & Lee, 2005; S. J. Lee et al., 2009).

Child Maltreatment and its Long-Term Effects

Child maltreatment (physical abuse, emotional abuse, sexual abuse and/or neglect) is a significant public health problem (Centers for Disease Control and Prevention, 2019). 38.1% of a nationally representative sample of youth ages 14-17 reported physical, sexual emotional abuse or neglect by a caregiver in their lifetime (Finkelhor et al., 2015). One in eight children will have a state-confirmed maltreatment report before the age of 18 (Wildeman et al., 2014) and many more cases likely go undetected. The economic cost of child maltreatment trauma (CMT) is enormous, estimated to be $124 billion per year in the U.S. (Centers for Disease Control and Prevention, 2019). Health and developmental outcomes are significantly poorer for individuals who have experienced CMT because CMT causes chronic stress that can disrupt the early development of the brain, nervous system and immune system (Shonkoff et al., 2012). Later in life, individuals who have a history of CMT are at higher risk for health problems such as alcoholism, depression, drug abuse, eating disorders, obesity, high-risk sexual behaviors, smoking, suicide, and other chronic diseases (Centers for Disease Control and Prevention, 2019; Felitti et al., 1998; Runyan et al., 2002).

Intergenerational Patterns of Trauma

CMT and psychiatric vulnerability tend to follow intergenerational patterns (Greene et al., 2020; Lang & Gartstein, 2018; Thornberry et al., 2013), as parents who perpetrate child

maltreatment were often maltreated themselves (Centers for Disease Control and Prevention, 2019). Parents who have a history of CMT often have poor parenting role models and low or risky social support (Seng & Taylor, 2015), in addition to significant impairments in mental and physical health. Prior to becoming fathers, those who have a history of trauma have often had no help to recover from the physical and mental health sequelae from their own adverse childhood experiences (ACEs). These long-lasting trauma sequelae are often detrimental to parenting behaviors (Condon et al., 2022), thus continuing the intergenerational cycle of trauma (Greene et al., 2020).

Lack of Trauma-Informed Fathering Research and Programs

Even though biological fathers, adoptive fathers, and stepfathers commit or are involved in committing nearly half (44.3%) of child maltreatment cases (HHS, ACF, ACYF, 2022), they are often overlooked as recipients of clinical services and as targets of research (Chamberlain et al., 2019; Self-Brown et al., 2018). There is thus much less empirical data about fathers than mothers because fathers are significantly underrepresented in parenting research (Cabrera et al., 2018; Shadik & O'Connor, 2016). In addition, we are aware of few if any peer-reviewed trauma-specific interventions or observational studies specific to fathers who have a history of CMT (Chamberlain et al., 2019; Stephenson et al., 2018). Development and study of interventions for survivor fathers to prevent child maltreatment are sorely needed (Christie et al., 2017).

Need for Theory to Inform Trauma-Specific Fathering Interventions

Interventions should be theory-based in order to increase treatment fidelity (Bellg et al., 2004), yet there are no trauma-informed theories of fatherhood, a significant gap. To fill this gap, we will synthesize the TrIBE Theory of Fatherhood, which incorporates factors at both intragenerational (immediate family) and intergenerational (population) levels. Because trauma

follows intergenerational patterns, an evolutionary psychology perspective is most useful for trauma-informed fatherhood theory development. The vast majority of fatherhood research currently focuses on intragenerational components of fatherhood in the context of individuals or families. A trauma-informed lens demands the additional focus on the intergenerational transmission of trauma, health, and behavior, and has potential implications for improving population-level health.

Current Maltreatment Prevention Efforts are not Trauma-Informed nor Father-Specific

The CDC promotes the following approaches to decrease child maltreatment rates: changing social norms to support positive parenting, promoting early childhood home visitation, and nourishing parenting skills and family relationships (Centers for Disease Control and Prevention, 2021). Parenting preparation and home visiting strategies are applied much more often to mothers, and the needs of many new fathers go unmet (Lee et al., 2018). Although the American Academy of Pediatrics calls for universal trauma-informed care (American Academy of Pediatrics, 2019), universal programs are not likely to meet the needs of parents impaired by their own unresolved trauma or those who lack role models and social support for parenting (Seng & Taylor, 2015). Some fathers may seek specialist trauma-focused treatment that considers their role as fathers, but specialist mental health treatment is not always accessible or acceptable (Isacco et al., 2016). Targeted interventions are a middle ground, as they are offered based on self-identifying as a member of a client population (Granner & Seng, 2021). Targeted interventions that are trauma-specific, manualized, and build upon these CDC approaches to mitigate child maltreatment (Centers for Disease Control and Prevention, 2021) can be delivered by frontline health system workers or near-peers to fill a key gap. Trauma-specific behavioral interventions with fathers are a promising approach that would incorporate these CDC-

recommended strategies as well as addressing the needs of survivor fathers, potentially decreasing prevalence of child maltreatment. To meet the highest standards for research and implementation, however, behavioral interventions require theoretical underpinnings from which to posit and test a theory of change (Bellg et al., 2004).

Intended Population for this Trauma-Informed Theory of Paternal Involvement

We synthesized this theory to advance trauma-informed attention to the parenting role of fathers, in contrast with the parenting role of mothers. Gender dichotomies and parenting role distinctions are decreasing in favor of less binary views; however, research, practice, and policy work still tends to use binary categories. We include as "fathers" any person whose gender and role identities align with that term. This theory applies to both biological fathers and relational fathers, including step-, social, adoptive, and legal guardian fathers. Due to the dearth of research on single, gay, and nonbinary fathers, this theory requires further testing to determine if it adequately accounts for their unique experiences and needs. This is a middle-range theory (Higgins & Shirley, 2000) that potentially applies to all cultural, racial and ethnic groups, as it is not tailored to any one group.

Synthesizing from Existing Fatherhood Theory

This theory of fatherhood builds on *A biosocial perspective on paternal behavior and involvement* (Lamb et al., 1987), a dominant evolutionary psychology model of fatherhood, hereafter referred to as the Lamb-Pleck Model (Pleck, 2010). The Lamb-Pleck model provides a solid base on which to build because it is rooted in behavioral ecology and evolutionary psychology. This lends itself well to the study of the intergenerational patterns of trauma because it addresses changes in individuals and populations over time. However, the Lamb-Pleck model may not adequately account for fathers' trauma histories, and intergenerational patterns of

interaction and psychiatric vulnerability. The TrIBE Theory of Fatherhood was guided by the approach of Walker and Avant (2019), synthesizing concepts from the Lamb-Pleck model with concepts from the fatherhood, child maltreatment, and trauma bodies of literature. In addition to informing public policy, this state-of-the-science intersection of these spheres will maximize the theory's usefulness for researchers who seek to develop interventions in the domains of trauma-informed perinatal and pediatric care, parenting support, and child welfare.

The Lamb-Pleck Model of Paternal Involvement

Lamb et al. (1987) defined paternal involvement with three components: responsibility (ensuring that children are taken care of and arranging resources to be available), accessibility (potential availability for interaction), and engagement (direct contact with children). The Lamb-Pleck model has been highly impactful in informing measurement and program development targeting fathers. Over time, the 'paternal involvement' construct has shifted in meaning, particularly the 'engagement' construct (Pleck, 2010). This led (Pleck, 2010) to develop a revised conceptualization of paternal involvement including three primary components: 1) positive engagement activities, 2) warmth and responsiveness, and 3) control and decision-making. Indirect care (activities done for the child without face-to-face interaction) and process responsibility (ensuring that the child's needs are met) are included as auxiliary domains, dividing Lamb's original responsibility concept (1987) into two subcomponents. In synthesizing this trauma-informed theory, we draw from both the updated 2010 version of the Lamb-Pleck model and from the original 1987 model. The updated 2010 model may be more comprehensive and contemporary, whereas the 1987 perspective contributes a strong base in behavioral ecology, which is useful for studying intergenerational patterns of trauma.

A Word on Naming TrIBE Theory

We use ‘TrIBE’ as an acronym based on the anthropological meaning of the word, which we define as a human social group grounded in kinship of shared spaces, language, culture, or history. Tribe emphasizes community beyond the traditional conceptualization of nuclear family. The TrIBE theory is inclusive and can apply to any individual filling a co-parenting role with the mother of a child, regardless of whether he is the biological father. Our aim in using the word is greater inclusivity, with a nod to the evolutionary roots of the Lamb et al. (1987) original theory, and to the importance of “tribal connection,” or belonging in small groups defined by clear purpose and understanding to facilitate trauma recovery (Junger, 2016). We use the word ‘tribe’ here as a notional structure, seeking to shed the history of colonial exploitation of indigenous people groups. Patriarchal connotations are similarly rejected in this theory, as we promote women’s status as full and equal members of society. Through our use of the word ‘tribe,’ we seek to honor and emphasize the benefits of close-knit and supportive communities in both trauma recovery and early parenting.

Methods

We used the three-step Walker and Avant (2019) theory synthesis approach to develop the TrIBE Theory of Fatherhood. The three steps are to specify focal concepts that serve as anchors for the synthesized theory, review the literature to identify factors related to focal concepts and to specify relationships, and to organize the concepts and statements into an integrated and efficient representation of phenomena of interest. Specifically, we (1) specified focal concepts from the Lamb-Pleck model (1987; 2010) to serve as anchors for the synthesized theory, (2) reviewed the literature to identify factors related to fatherhood and paternal involvement, child maltreatment, and trauma recovery, and to specify the nature of the theoretical relationships, and (3) organized concepts and our hypothesized relationships between

them into an integrated representation. All concepts of the newly synthesized theory are defined in Table 2.1 and presented in a schematic in Figure 2.1. Proposed relationships between concepts are described in the text.

Results

Step One: Specify Focal Concepts from the Lamb-Pleck Model

Focal concepts were identified from the Lamb-Pleck model (Lamb et al., 1987; Pleck, 2010) and we retained concepts from the Lamb-Pleck model that have documented associations or relationships with CMT. The Lamb-Pleck Model divides determinants of paternal involvement into proximate and ultimate factors, which describe two ways that our human evolution influences how we behave. Proximate factors focus on an individuals' internal and external states (intragenerational factors), and ultimate factors focus on phenomena that occur in populations over generations (intergenerational factors). In this trauma-informed theory, we use these proximate and ultimate factors but refer to them as intragenerational and intergenerational factors, terms that usefully capture both the elements of time (chronosystem) and the elements of social ecology (microsystem, mesosystem, and macrosystem; Bronfenbrenner, 1979).

We included a total of 11 concepts from the Lamb-Pleck model (Lamb et al., 1987; Pleck, 2010): one intergenerational factor (maximization of inclusive fitness) and three intragenerational factors (motivation, skills, and community support) to describe the behavioral ecology of fatherhood. We included four subconcepts characterizing paternal involvement (responsibility, accessibility, engagement, and sensitivity), and three child wellbeing outcomes (safety, development, and attachment). These concepts are defined and described below in step three, the integrated representation of the synthesized TrIBE Theory of Fatherhood.

Step Two: Review the Literature and Identify Additional Concepts

We performed a review of the literature to identify factors related to the focal concepts (child welfare, trauma, paternal involvement, and fatherhood in any constellation), as well as relationships between concepts. The search was conducted using the PubMed, Cumulative Index to Nursing and Allied Health Literature and PsycInfo databases to identify relevant articles. Search terms used were 'paternal, father*, trauma, maltreatment, child welfare, and theory.' No timeframe limitations were used in order to capture all relevant results. We included articles in the English language that identified concepts describing paternal involvement and were relevant to child wellbeing or maltreatment based on both peer-reviewed literature demonstrating relationships between the included concepts and trauma and the authors' expertise. Included concepts are those which are useful for trauma-informed inquiry and diverse clinical practice.

The literature search yielded 486 articles, with six hand-searched articles. Title, abstract, and full-text screening by the first author resulted in 34 articles that described 13 concepts that fit the inclusion criteria. Fatherhood concepts identified as having relationships with trauma or child maltreatment were paternal identity, pregnancy intention, adoption/fostering, step-fathering, fathering role, economic resources, paternal maltreatment history, paternal attachment, maternal gatekeeping, paternal self-regulation, paternal mental health, and child health.

Step Three: Construct an Integrated Representation with All Elements of the Synthesized Theory

Concepts identified from the Lamb et al. (1987) theory, *A biosocial perspective on paternal behavior and involvement*, and those identified through the literature search were evaluated for relevance and synthesized into this theory. The schematic depiction of this theory is presented in Figure 2.1, and theory concepts are defined in Table 2.1. The main concepts, subconcepts, and relationships between and among concepts are described in the text.

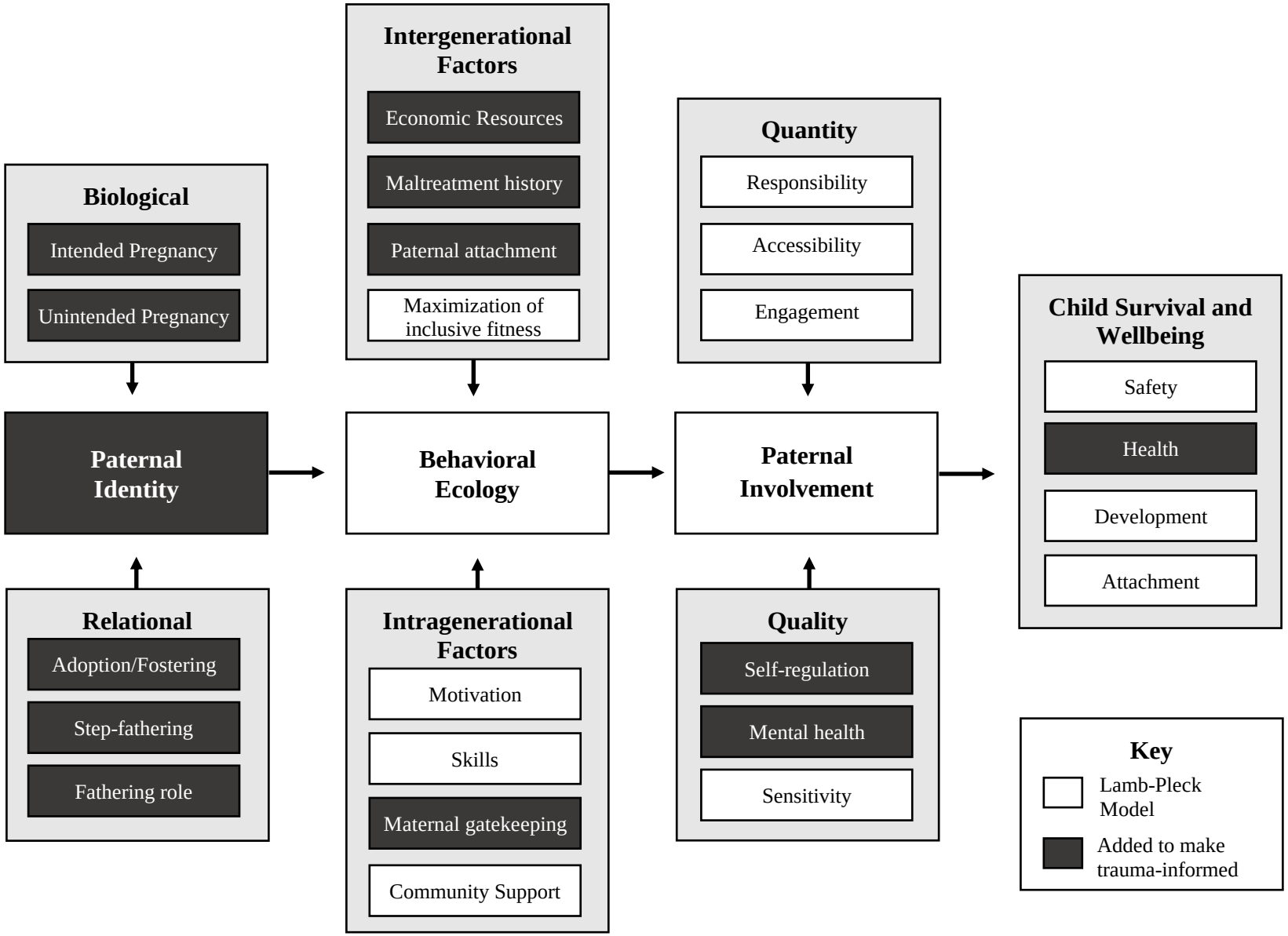
Table 2.1: Definitions of Concepts in the TrIBE Theory of Fatherhood

Concept	Definition
Paternal identity	An individual's belief that fatherhood is an important part of their who they are
Biological	A man contributed sperm to help conceive a child
Intended/Unintended pregnancy	Whether or not a mother and father planned to conceive a child
Relational	An individual identifies with the social role of father but is not a child's biological father
Adoption/Fostering	An individual is the legal father or state-certified caregiver of a child not biologically their own
Step-fathering	An individual in a relationship with the mother of a child not biologically their own acts as a stepparent
Fathering role	An individual fills a paternal role in the life of a child not biologically their own
Behavioral Ecology	The study of human behavior from an adaptive perspective, focusing on how human behavior varies with ecological context (Nettle et al., 2013)
Intergenerational Factors	Phenomena that occur in populations over several generations
Economic Resources	Family income if household finances are combined, or paternal income if parents' finances are not combined
Maltreatment history	Physical abuse, emotional abuse, sexual abuse and/or neglect that occurs before the age of 18 (CDC, 2019a)
Paternal attachment	An enduring emotional bond that connects one person to another across time and space (Bowlby, 1969)
Maximization of inclusive fitness	The goal to increase representation of an individual's genes in future generations
Intragenerational Factors	Phenomena that occur at the individual or family level
Motivation	A father's desires, attitudes and beliefs regarding involvement in a child's life
Skills	A father's perceived and/or actual ability to competently meet a child's needs (Singley et al., 2018)
Maternal Gatekeeping	Mother's beliefs, attitudes and behaviors towards a father's involvement in her child's life (Schoppe-Sullivan et al., 2008)

Community Support	Both tangible parenting assistance (i.e. pastoral and social service supports), and nuanced social norms related to fatherhood.
Paternal Involvement	The relationship between a father and a child, and the impact of this relationship on a child's life
Quantity	The amount of time and effort a father dedicates to their child
Responsibility	Indirect care (arranging both material goods and social connections) and process responsibility (taking initiative and seeing what needs to be done)
Accessibility	A father's potential availability for interaction
Engagement	The time a father spends in direct caretaking or play interactions with their child
Quality	Positive characteristics of father that facilitate a safe, stable and nurturing father-child relationship
Self-Regulation	Ability to regulate negative emotions and restore balance when experiencing distress
Mental Health	Psychological and emotional well-being, and the absence of significant phycological impairments
Sensitivity	Responsiveness to a child's signals and needs
Child Survival and Wellbeing	Positive outcomes related to a child living and thriving
Safety	Absence of neglect, abuse or chronic stress resulting from unstable family relationships or danger from outside threat
Health	State of physical, mental, and social well-being, surpassing the absence of disease or infirmity (WHO, 2005)
Development	Maturation over time, including physical, cognitive and social growth
Attachment	Parental-child interaction with in-borne biological systems to produce patterns of relating to others, especially those in close relationships (Briere et al., 2017)

Concepts in white are contributions of the Lamb-Pleck model. Concepts in dark gray were included from review of the literature using theory synthesis methods. Citations are provided when the definition is from a single source.

Figure 2.1: Trauma-Informed Theory of Paternal Involvement Schematic



Paternal Identity

Biological paternal identity factors are *pregnancy intendedness* and *pregnancy unintendedness*. Men who become fathers as a result of unintended pregnancies may experience greater psychosocial challenges at the transition to parenthood than fathers with planned pregnancies, including higher parenting stress and feelings of powerlessness in adapting to the arrival of a new infant (Clinton & Kelber, 1993; Shawe et al., 2019), and fathers' parenting stress is associated with greater child abuse potential (Rodriguez & Richardson, 2007). Pregnancy intendedness may also affect paternal identity, as unintended pregnancy is associated with lower levels of paternal involvement for non-resident fathers and lower self-appraisals of fathering quality for residential fathers (Lindberg et al., 2017). Pregnancy intendedness also impacts paternal involvement quality. One study found that men who became fathers as a result of unintended pregnancy were less likely to exhibit paternal warmth and nurturing activities than their counterparts (Bronte-Tinkew et al., 2007).

Relational paternal identity factors are *adoption/fostering*, *step-fathering*, and *fathering role* (Table 2.1). These three subconcepts are sociobehavioral manifestations of fatherhood that inform paternal identity. The involvement of nonbiological fathers can enrich child survival and wellbeing outcomes in a similar way to biological fathers (Harris, 2009), especially when the child is very young at the initiation of the fatherhood relationship. However, families with non-biological fathers living in the home have over twice the risk for CMT than families with two biological parents cohabitating (Hilton et al., 2015; HHS, ACF, ACYF, 2022). Paternal identity, which is influenced by both biological and relational factors, is therefore conceptualized as an important precursor to paternal involvement (Habib, 2012) from a trauma-informed perspective and to mitigate intergenerational transmission of violence.

Behavioral Ecology

Intergenerational Factors. Intergenerational factors are phenomena that occur in populations over several generations, in contrast to intragenerational factors which are at the individual or family level. Intergenerational factors are maximization of inclusive fitness, paternal attachment, paternal maltreatment history, and economic resources.

Maximization of inclusive fitness refers to the goal of an organism to maximize the representation of its genes in future generations, including both high levels of fertilization and the rearing of one's offspring to reproductive maturity. This impacts paternal involvement because paternal involvement makes it more likely for a father's genes to be maximally represented in future generations, as it improves child outcomes in several domains (Goncy & van Dulmen, 2010; McMunn et al., 2017; Opondo et al., 2016). The second ultimate factor is *paternal attachment.* Paternal attachment to a child increases paternal involvement and improves the outcomes of child safety, health, development, and attachment (Condon et al., 2008). There is some evidence that attachment styles follow intergenerational patterns, and even that father-son attachment has a measurable impact on the son's engagement in sexual violence (Sitney & Kaufman, 2021).

The third intergenerational factor is paternal *maltreatment history*, which significantly increases the likelihood of fathers maltreating their own children (Thornberry et al., 2013). This relationship is likely due to a combination of poor parenting role models, low or risky social support, difficulty forming stable adult attachments, oxytocin and hypothalamic pituitary adrenal axis dysregulation, psychiatric vulnerability, and biobehavioral sequelae (Seng, 2010). These sequelae include anxiety, depression, posttraumatic stress disorder, interpersonal reactivity, anger expression, numbing behaviors, substance use, and personality disorders (Seng, 2010;

Seng & Taylor, 2015). A father's maltreatment history increases his risk of experiencing these trauma-related mental health symptoms (Skjothaug et al., 2015), which can make it more difficult to cultivate a safe, stable and nourishing father-child relationship (Table 2.2; Berthelot et al., 2020).

The fourth intergenerational factor is *economic resources*, referring to either paternal income or family income, depending on if the incomes of the mother and father are combined as household income or not. There are significant differences in both paternal involvement and rates of CMT based on income level (Kim et al., 2017), and children of families who live in poverty experience higher rates of child maltreatment compared to those who do not. In addition, children who live in neighborhoods with high rates of poverty experience more than three times the rates of Child Protective Services visits than children who live in neighborhoods with low rates of poverty (Fong, 2019). One study found that fathers with fewer economic resources had greater child abuse potential, less consistent parenting, and poorer quality home environments (Miller & Azar, 2019). Among non-resident fathers, another study found a significant association between fathers' income and father-child contact (Guarin & Meyer, 2018). Although fathers with low socioeconomic status are at higher risk of living within intergenerational cycles of trauma, intervention with fathers in this population can be more challenging, because low income and education are also associated with poor attendance in fatherhood programs (Laxman et al., 2019).

Table 2.2: Correlations Between Fathers' Trauma-Associated Mental Health and Substance Use Problems and Adverse Parenting Outcomes

Trauma-Associated Symptom	r	Fathering Outcome
PTSD	.53**	Child abuse potential (Hicks & Dayton, 2019)
	.53**	Child abuse potential (Fredman et al., 2019)
	.34**	Hostile/aggressive parenting (Stover et al., 2012)
	.35*	Difficult infant behavior (Parfitt et al., 2013)
	-.34**	Frequency of contact with child (Ruscio et al., 2002)
	-.48**	Overall father-child relationship quality (Ruscio et al., 2002)
	-.31*	Positive sharing interactions with child (Ruscio et al., 2002)
Depression	.40**	Difficult infant behavior (Parfitt et al., 2013)
	-.19**	Positive parenting behavior (Wilson & Durbin, 2010)
	.16**	Negative parenting behavior (Wilson & Durbin, 2010)
	OR 1.8*	Impaired bonding (Edhborg et al., 2005)
Anxiety	.44*	Unresponsive father-infant interaction (Parfitt et al., 2013)
	.36**	Compulsive infant behavior (Parfitt et al., 2013)
Anger Expression	.49**	Child abuse potential (Rodriguez & Richardson, 2007)
	.27**	Physical abuse perpetration (Rodriguez & Richardson, 2007)
	.40**	Psychological aggression (Rodriguez & Richardson, 2007)
	-.30**	Attachment to child (Rodriguez & Richardson, 2007)
	.49**	Attributing conflict control to child (Rodriguez & Richardson, 2007)
	.70**	Parenting stress (Rodriguez & Richardson, 2007)
Dissociation/ Numbing	-.49**	Positive sharing interactions with child (Ruscio et al., 2002)
	.49**	Child misbehavior (Ruscio et al., 2002)
	-.39**	Frequency of contact with child (Ruscio et al., 2002)
	-.66**	Overall father-child relationship quality (Ruscio et al., 2002)
Avoidance	-.29*	Frequency of contact with child (Ruscio et al., 2002)
	-.42**	Overall father-child relationship quality (Ruscio et al., 2002)
	-.21*	Positive sharing interactions with child (Ruscio et al., 2002)
Alcohol use	.27**	Fathers' aggressive behavior (Eiden et al., 2002)
	.15*	Perceived difficult infant temperament (Eiden et al., 2002)
Drug use	.26*	Hostile/aggressive parenting (Stover et al., 2012)
Marijuana use	OR 2.8*	Sudden infant death syndrome risk (Klonoff-Cohen & Lam-Kruglick, 2001)

* $p<.05$ **$p<.01$ (two tailed)

Economic resources reflect a different concept than responsibility for indirect care, or provisioning. Economic resources are a more distal concept to child survival and wellbeing outcomes than provisioning, because children can be insulated from economic hardship to

varying degrees, depending on how fathers, families, and non-familial supports choose to allocate resources. In addition, economic hardship impacts family dynamics in complex ways. According to Family Stress Theory, because economic pressure leads to parent psychological distress, it also results in interparental relationship problems and disrupted parenting. These, in turn, lead to child and adolescent adjustment problems (Masarik & Conger, 2017). Economic resources are included as an intergenerational factor because there is considerable evidence that poverty follows intergenerational patterns, and children who grow up in poverty are more likely to be poor as adults (McEwen & McEwen, 2017).

We propose that the above four intergenerational factors impact how paternal identity leads to paternal involvement. Although maximization of inclusive fitness is likely not testable, paternal attachment, maltreatment history (with associated adverse mental health sequelae), and economic resources are directly testable and the proposed framework can be used to describe how they relate to paternal identity, paternal involvement, and child survival and wellbeing.

Intragenerational Factors. Intragenerational factors influence paternal involvement at the immediate individual or family level. Four intragenerational factors that influence paternal involvement are. Paternal *motivation* is a fathers' desire and intention to be involved in a child's life, and can influence fathers' level of involvement because motivation is a precursor to action. There is evidence that the more motivated a father is to be involved in a child's life, the more likely it is that he will be involved (Perry & Langley, 2013). *Skills* refer to the actual or perceived ability of a father to successfully meet their child's needs. Even when a father is motivated to be involved in childcare, involvement may be limited by an actual or perceived lack of skills (Benzies et al., 2008). However, although mothers are stereotypically labeled as more nurturing, and they tend to take responsibility for more caregiving activities than fathers, fathers are equally

capable of performing childcare activities (Lamb et al., 1987; Magill-Evans et al., 2007).

Maternal gatekeeping, a third intragenerational factor, refers to a mother's beliefs, attitudes and behaviors that impact a father's involvement in a child's life (Schoppe-Sullivan et al., 2008). Maternal gatekeeping can either increase or decrease a fathers' interaction with their child. Even after accounting for paternal role beliefs and the overall quality of the coparenting relationship, greater maternal encouragement is associated with increased paternal involvement (McBride et al., 2005). Mothers may encourage fathers to be more involved in sharing parenting responsibilities, which is often beneficial to children as paternal involvement generally improves child outcomes (Goncy & van Dulmen, 2010; McMunn et al., 2017; Opondo et al., 2016).

Alternatively, maternal gatekeeping may decrease paternal involvement, because some mothers discourage paternal involvement through criticism or more tangibly by limiting the father's access to the child through custody battles or increasing geographic distance (Schoppe-Sullivan et al., 2008). If a father is abusive to mother or child, a mother may limit father-child contact in an effort to protect the child from father-perpetrated violence. Mothers must, therefore, take into account a multitude of factors (e.g., financial stability, love relationship, coparenting relationship, cohabitation, caretaking), as well as the potential of a father to abuse herself or maltreat their child (Puhlman & Pasley, 2013) when making gatekeeping decisions. Paternal involvement may positively or negatively influence child wellbeing, depending on whether or not his involvement provides a safe, stable and nurturing relationship (Centers for Disease Control and Prevention, 2019). Therefore, the nuanced concept of maternal gatekeeping may either increase or decrease paternal involvement, which may subsequently either improve or worsen child wellbeing.

Community support is a fourth intragenerational factor that influences paternal

involvement, including both tangible parenting assistance such as social service supports, as well as nuanced social norms and expectations related to fatherhood. The beliefs propagated by a father's milieu related to the role of a father and desirable level of paternal involvement impacts his beliefs. These beliefs then inform the actions taken by the father and the level of paternal involvement he decides to carry out (Perry & Langley, 2013). Stigma may also decrease the amount of support that fathers receive, as social stigma is a barrier to help-seeking behaviors for fathering education and support (Lanier et al., 2017). Masculinity may also contribute to stigmatization or fear of stigmatization for men, because hypermasculine socialization and stereotypically male gender roles may lead fathers to focus on provisioning, success, power, and competition. Focus on these aspects may also lead to conflicts between work and family (Hooper & Quallich, 2016; O'Neil, 2008). Hypermasculine socialization may also restrict emotional expression, affectionate behavior, and help-seeking (Chamberlin, 2012). Lack of social support for fathers is a significant predictor of child maltreatment risk (Guerrero, 2009), and community support is thus an important determinant of paternal involvement quality and quantity.

Paternal Involvement

Paternal involvement is the relationship between a father and a child, and the impact of this relationship on a child's life. Paternal involvement is informed by characteristics that can be divided into two categories: quantity (responsibility, accessibility, and engagement) and quality (self-regulation, mental health, and sensitivity). We propose in this trauma-informed theory that high quality and quantity of paternal involvement contributes to improved child survival and wellbeing outcomes (safety, health, development, and attachment), but that quantity of paternal involvement alone may be insufficient.

Quantity. The three subconcepts that inform paternal involvement quantity are paternal

responsibility, accessibility, and engagement. *Responsibility* refers to a father's role in making sure that the child is adequately cared for (Lamb et al., 1987), including both indirect care (arranging both material goods and social connections) and process responsibility (taking initiative and seeing what needs to be done; (Doucet, 2009; Pleck, 2010). Provisioning may also improve child survival and wellbeing outcomes by providing needed resources and opportunities allocated to children (Pleck, 2012). Responsibility in the form of custody decision-making, child support payment, and child living arrangements may significantly inform paternal involvement in families with parents who are separated or non-cohabitating (Waller & Jones, 2014).

Accessibility is a second characteristic of paternal involvement quantity, referring to the amount of time a father is available to a child (Lamb et al., 1987). There is a dearth of research on paternal accessibility, likely because for much of the history of fatherhood research, norms of masculinity dictated that provisioning was more important for fathers than being accessible to their children. In recent decades, residential fathers have significantly increased the amount of time that they are accessible to their children (Parker & Livingston, 2019). However, a growing number of children's fathers do not live with them (Martin et al., 2018), and one study found that from a nationally representative sample, about 27.6% of fathers were nonresidential (Jones & Mosher, 2013). Although nonresidential fathers may serve as a significant support to children (Adamsons & Johnson, 2013), they are less accessible as they are not present in the home.

Incarceration is a major factor that limits paternal accessibility. Black fathers and those who have experienced trauma are significantly more likely to be incarcerated than their counterparts (Jäggi et al., 2016). Paternal incarceration decreases involvement by severely limiting fathers' accessibility (Washington et al., 2018), because they must rely on others such as coparents, friends, or other family members family to facilitate interaction with their child.

Incarceration may also decrease accessibility in the long-term by affecting paternal identity. Incarcerated fathers are often unable to meet the expectations that they themselves and society place on them to be good fathers (Dyer et al., 2015). Thus, they are forced to either reduce their commitment to their paternal identity or reduce their fathering standards to meet self-appraisals. Both of these adaptations result in a withdrawal of fatherhood identity (Chui, 2016), which may decrease accessibility and motivation to be involved, reducing overall paternal involvement.

Engagement is a third characteristic of paternal involvement quantity, which is the time a father spends in direct caretaking or play interactions with their child (Pleck, 2010). In recent decades, residential fathers more than tripled the amount of time they spend on childcare in a given week. In 1965, fathers spent about 2.5 hours per week on childcare. In 2016, that number was 8 hours per week (Parker & Livingston, 2019). Residential fathers have increased time spent in housework and childcare activities from 13% in 1965 to 30% in 2016. Notably, mothers in American families still do the large majority of housework and childcare (Parker & Livingston, 2019). Yet, cohort trend data suggest that today's fathers are spending much more time than their own fathers in hands-on parenting and childrearing and creating an environment that promotes child wellbeing.

Paternal engagement is usually beneficial for children, and it is negatively associated with child behavioral problems and aggression, independent of their mother's engagement (Mincy et al., 2016; Wang et al., 2019). However, fathers' mental health problems can have a negative impact on their engagement with their children. Table 2.2 shows correlations published in peer-reviewed literature between fathers' trauma-associated mental health and substance use problems and adverse parenting and child outcomes. For example, posttraumatic stress disorder (PTSD) had a negative correlation with fathers' frequency of contact with their child as well as

the number of positive sharing interactions (Ruscio et al., 2002).

Quality. The three subconcepts that inform paternal involvement quality are paternal *self-regulation, mental health, and sensitivity.* A first subconcept of paternal involvement quality is *self-regulation*. Self-regulation is essential for good parenting because it plays an important role in morality, empathy, emotional expression, adjustment, social competence, delay of gratification, goal setting, and acting in accordance with one's goals (Sanders et al., 2019). Paternal emotional and physical self-regulation during conflict decreases the likelihood of hostile parenting behavior and maltreatment (Sturge-Apple et al., 2019), which increases the quality of paternal involvement and the extent to which it improves child welfare outcomes.

Paternal *mental health* is a second subconcept of paternal involvement quality. Mental health issues that have often resulted from a father's own childhood adversity negatively impact parenting quality, worsening child survival and wellbeing outcomes (Table 2; Berthelot et al., 2020; Centers for Disease Control and Prevention, 2021; Greene et al., 2020; Seng et al., 2013). Approximately 7-10% of fathers report depression in the perinatal period (Davis et al., 2011; Lee et al., 2012), and this is associated with lower levels of paternal involvement. Paternal depression is also associated with child neglect (Lee et al., 2012), poorer early child behavioral and emotional development (Ramchandani et al., 2005), and psychiatric disorders in early childhood (Ramchandani et al., 2008).

Paternal PTSD also tends to result in poorer child outcomes due to symptoms' interference with quality parent-child interactions and caregiving behaviors (Fredman et al., 2019; Hicks & Dayton, 2019; Lang & Gartstein, 2018). Children of parents with PTSD may witness intense emotional reactions (fearfulness, anger, sadness) and behavioral patterns, (impulsivity, negative affect, dissociation, withdrawal). Child adoption of these characteristics

through social learning accounts for some of the intergenerational transmission of PTSD and points to the importance of mental health as an important quality of paternal involvement.

When fathers have PTSD, depression, anxiety, anger expression, dissociation/numbing, avoidance, alcohol use, and marijuana use, parenting outcomes and early childhood outcomes may suffer. Associations between these mental health or behavioral problems in fathers and parenting outcomes have been demonstrated in the literature (Table 2.2). These mental health and behavior problems of do not occur randomly in the population, nor are they or entirely endogenous, as childhood adversity and/or CMT significantly increases risk for adult psychopathology and substance misuse (Felitti et al., 1998; Russotti et al., 2021). Therefore, CMT exposure and parents' ACEs are a major contributor both to mental health outcomes of parents and the continuity of intergenerational patterns of trauma.

Sensitivity, a third subconcept of paternal involvement quality, refers to a father's responsiveness to a child's signals. Sensitivity is essential for the father-child relationship, because it decreases child maltreatment risk and increases child safety, health, development, and attachment (Hazen et al., 2010). Paternal sensitivity increases child attachment security (Grossmann et al., 2002), and securely attached children show fewer behavior problems, greater sociability, more reciprocated friendships, greater emotional regulation, and higher school performance (Brown et al., 2012). Therefore, high paternal sensitivity is likely instrumental in increasing child survival and wellbeing outcomes through paternal involvement.

Child Survival and Wellbeing Outcomes

Four positive child outcomes are safety, health, development, and attachment. The first outcome, *Safety,* refers to protection from danger from outside threats. The second is *health,* meaning a state of physical, mental, and social well-being, surpassing the absence of disease or

infirmity (World Health Organization, 2005). The third is *development,* meaning physical, cognitive, and social maturation. The fourth is *attachment* meaning a child's bond with their caregivers through in-borne biological systems to produce patterns of relating to others, especially those in close relationships (Briere et al., 2017).

Numerous studies have demonstrated potential positive impacts of paternal involvement on child survival and wellbeing in the domains of safety, health, development, and attachment (Adamsons & Johnson, 2013; Alio et al., 2010; Cabrera et al., 2018; Jeynes, 2015; Kennedy et al., 2015). Both residential and nonresidential father figures can serve to promote children's better school performance, superior peer relationships, fewer behavioral problems, better cognitive development and greater perceived competence (Goncy & van Dulmen, 2010; McMunn et al., 2017; Opondo et al., 2016; HHS, ACF, ACYF, 2022). The TrIBE Theory of Fatherhood asserts the important impact of paternal involvement on child survival and wellbeing and describes its significant determinants and areas for clinical consideration and intervention. However, we also propose that paternal involvement may only be beneficial if child maltreatment is not being perpetrated by the father. The long-term detrimental impact of CMT across many domains of wellbeing has been well documented (De Bellis & Zisk, 2014; Weber et al., 2016). Therefore, paternal involvement improves child survival and wellbeing outcomes in the absence of CMT, especially when all six components are present: responsibility, accessibility, engagement, self-regulation, mental health, and sensitivity.

Discussion

Potential to Advance Science

Because recent scientific advances highlight the salience of trauma to human health, development, and relationships, trauma-informed theory development is needed across all

domains of social and health care. Although practice disciplines favor the interrelatedness of theory, research and practice, most theories that inform research and practice are not yet adequately trauma informed. Because no trauma-informed theory of fatherhood existed, this theory fills a significant gap in the scientific literature. In addition, this theory emphasizes relevant trauma-related concepts to contribute to the mainstreaming of trauma-informed care, which is a necessary direction for all health and social care professions (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). Paternal involvement, maltreatment prevention, and trauma-informed care are highly complex phenomena. This newly synthesized theory presents a contemporary 'state of the science' depiction of their intersection and illuminates evidence-based avenues for intervention to decrease child maltreatment.

Potential to Inform Research and Practice

The TrIBE Theory of Fatherhood has the potential to help researchers and clinicians better understand how trauma is transmitted intergenerationally. They can then apply a tiered response intervention model to help build resilience in fathers and families and to promote population-level posttraumatic growth. Such interventions range from highly targeted, intensive and individualized trauma-focused treatments to first-line trauma-specific behavioral and psychoeducational interventions, to universal trauma-informed care. Targeted trauma-focused treatments include providing and referring fathers for therapy, medication or substance use programs. Trauma-specific interventions include educational and behavioral programs to educate fathers about trauma, trauma sequelae, and how to develop a safe, stable and nourishing relationship with their child as a trauma survivor. Unfortunately, very few such interventions have been documented in the literature (Chamberlain et al., 2019; Condon et al., 2022; Pruett et al., 2019; Stephenson et al., 2018; Stover et al., 2020), which is a major gap in perinatal and

pediatric research and care. Researchers and practitioners should thus work together to create, test and implement trauma-specific interventions, guided by this theory. Such interventions have the potential to mitigate trauma sequelae and promote positive parenting.

Universal interventions include practicing trauma-informed care in all health and social care organizations. This theory can guide implementation of trauma-informed practice in clinical settings. These include *realizing* the importance of trauma and *recognizing* the signs of trauma in fathers, which may include mental health and behavioral symptoms that are associated with impaired parenting (Table 2.2). Practitioners can also *respond* to trauma by connecting fathers with the resources they need to be healthy enough to be capable of positive parenting. Lastly, clinicians should *resist re-traumatization* by helping fathers who have a history of trauma to identify triggers of posttraumatic stress and to find appropriate ways to cope (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014).

Limitations

There are cases in which this theory may not accurately describe paternal involvement. Although we strive for inclusivity with regard to emerging and shifting norms of family structure, we are likely biased towards consideration of fatherhood as it presents in the U.S. We also may not adequately account for extremely adverse contexts such as war, political unrest, or refugee status. In addition, culture likely impacts the conceptualization of positive paternal involvement and child cognitive appraisal of paternal involvement in diverse groups where norms of family structure and positive parenting differ. Although this theory's intergenerational factors (Bronferbrenner's chronosystem) are likely generalizable to universal human development, its clinical utility centers on intragenerational factors in Bronfenbrenner's microsystem (1979). Therefore, this theory may require tailoring or adaptation if applied to

different exosystems and macrosystems.

Potential to Inform Emancipatory Progress

Although this theory asserts the significance of paternal involvement, we reject notions of male dominance within families and larger social structures. Paternal involvement, particularly in the care of young children, is one way that we seek to promote the social, political and economic equality within diverse families. In addition, children in single-parent families experience higher levels of child maltreatment compared to children in two-parent families, mostly in the form of neglect due to the economic and social stress which falls on single mothers (HHS, ASPE, 2005). Supporting fathers to increase high-quality paternal involvement and effective coparenting partnerships is a way to challenge toxic gender norms which limit the choices available to both mothers and fathers and make child maltreatment more likely.

An additional avenue of cultural diversity to pursue in the future conceptualization of trauma-informed fatherhood is gender inclusivity. Gender is a social construct, as is paternal identity. Therefore, it may not be necessary for an individual with paternal identity to be male. The differentiation between the words, 'paternity' (biological contribution of sperm) and 'fatherhood' (social construct) thus warrants a concept analysis when considering the generalizability of this theory to transgender populations. In this paper, the words are used interchangeably, because our primary focus is on people who identify with the fathering role inclusive of non-binary and transgender gender identities. A barrier to the distinction between the words is the lack of a commonly used adjective version of the word 'father,' (the purpose that the word 'paternal' serves). The gerund 'fathering' connotes biological parenthood more than does 'mothering,' which is seen as behavioral. This semantic false dichotomy of fatherhood as biological and motherhood as behavioral may confuse our purpose of investigating behavioral

paternal involvement. Because this is a middle-range theory, it may have applicability in families with transgender parents, but future testing is needed to determine the extent to which it applies.

Potential to Influence Policy

Most fathers who have a history of CMT have not received any help to recover from their own trauma before becoming parents (Chamberlain et al., 2019; Condon et al., 2022). Trauma-specific parenting interventions are a promising avenue to break intergenerational cycles of violence (Condon et al., 2022). Rates of CMT are highest in the first year of life, at 25.7 per 1,000 infants under one year of age, and the majority of cases include neglect (HHS, ACF, ACYF, 2022). Increasing paternal involvement in the first year of life has the potential to decrease these rates. Yet, there are few programs to support fathers in the perinatal period (Lee et al., 2018). Furthermore, fathers in the U.S. have no nationally-mandated paternity leave policies giving them the right to paid time off surrounding the birth or adoption of a child. Although about half of fathers in the U.S. have the right to unpaid leave under the federal Family and Medical Leave Act, few fathers take more than one week of parental leave (Pragg & Knoester, 2017). Fathers taking longer parental leave is associated with greater involvement in caregiving at nine months of age (Nepomnyaschy & Waldfogel, 2007), and greater paternal engagement at both one and five years later (Pragg & Knoester, 2017). Policies to mitigate CMT should thus move in the direction of paid paternity leave for employed fathers.

Policies to promote family health should recognize paternal identity as an important factor impacting the quality and quantity of paternal involvement. Specifically, policies should maximize intended pregnancies through universal access to contraception and comprehensive reproductive healthcare. Health and social care settings serving fathers should acknowledge diverse family constellations including biological and nonbiological fathers. Although biological

fathers may participate in healthcare with their partner and infant, they seldom receive social or mental health care themselves. Adoptive and foster fathers often receive social care, but rarely mental health care. Stepfathers are unlikely to receive any type of training or care. Organizations should thus implement mental health screening and referral pathways for new biological and relational fathers and include them as much as possible in perinatal and pediatric settings.

Perinatal settings should screen both mothers and fathers for mental health symptoms and trauma histories. Although fathers' perinatal depression is common (Davis et al., 2011; Lee et al., 2012), screening for fathers' perinatal depression is rare (Yogman et al., 2016). It is fairly common practice to address mothers' mental health in perinatal settings, because of the widely-researched detrimental impact that mental health diagnoses have on obstetric outcomes. However, perinatal settings should also screen women for trauma history, as it is highly correlated with mental health pathologies (Seng & Taylor, 2015). Perinatal and pediatric settings should also screen fathers for trauma history, mental health symptoms, and substance use, as these are associated with poorer parenting outcomes (Table 2.2). Organizational and political policies should prioritize appropriate tiered referral pathways, including targeted trauma-focused treatments, trauma-specific educational and behavioral interventions, and universal trauma-informed care.

This theory synthesis promotes the mainstreaming of a trauma-informed perspective, which is desperately needed in the public spheres of health and social care, including breaking the taboo against discussing trauma and family violence (Herman, 1992). This focus is necessary because of the staggering prevalence of individuals who have experienced trauma and child maltreatment. Developing protective legislation for at-risk families is vital in the attempt to decrease and prevent the occurrence of child maltreatment. In addition, supportive interventions

for at-risk families need to be incorporated into public policy. This newly synthesized theory including factors influencing paternal involvement, trauma-informed care, and child maltreatment has the potential to influence lawmakers and inform policy. According to Chinn and Kramer (2017), emancipatory knowing emphasizes action arising from an awareness of social injustices embedded in a social and political system. The high prevalence of an injustice such as child maltreatment along with the sparsity of trauma-informed interventions is unsatisfactory, requiring new and innovative solutions. The next steps in the development of such solutions may be facilitated by using the TrIBE Theory of Fatherhood to inform research, practice, and public policy.

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CHAPTER THREE: Predictors of Parenting Stress for New Fathers Point Towards Trauma-Specific Perinatal Interventions

Abstract

Title: Childhood maltreatment trauma and mental health symptoms are predictors of parenting stress in new fathers

Purpose: To examine relationships between new fathers' history of child maltreatment trauma (CMT), and their mental health and parenting stress during the transition to parenthood.

Research Questions: What is the relationship between new fathers' experiences of CMT, their perinatal mental health, and their early parenting stress? What predictors of parenting stress could be useful targets of interventions to support new fathers with high parenting stress?

Methods: We recruited 298 first-time fathers of children under the age of two to participate in an anonymous online survey. Measured constructs include child maltreatment history, PTSD, depression, interpersonal reactivity, substance use, anger expression, coparenting quality, and parenting stress. Parenting stress was the primary outcome of interest, measured by the Parenting Stress Index (scale from 36-180). We used bivariate analyses of the data (t-tests and chi squared tests), comparing new fathers who have a history of CMT to those who do not. We then tested a multivariate model of the relationships between CMT, mental health, coparenting quality, and parenting stress using hierarchical linear regression.

Results: Bivariate analysis demonstrated that new fathers who had a history of child maltreatment (N=94) had significantly higher parenting stress ($\overline{x}$ = 85.3, σ = 18.7) than those

who did not (N=204; $\bar{x}$ = 76.0, σ = 16.6; P<.000). Regression results indicated that a history of CMT, probable posttraumatic stress disorder diagnosis, and probable major depressive disorder diagnosis were significantly associated with parenting stress for new first-time fathers. When interpersonal reactivity, anger expression and coparenting quality were added to the model, these were even stronger predictors of parenting stress than PTSD and depression.

Conclusions: Interventions to reduce fathers' parenting stress should target both mental health and navigating relationships. Specifically, addressing fathers' PTSD symptoms, depression, coparenting relationships, and improving interpersonal reactivity are promising avenues to break intergenerational cycles of trauma.

Background

Child Maltreatment Trauma (CMT). CMT is a significant public health problem that includes physical, sexual, and emotional abuse; and physical and emotional neglect (CDC, 2019c). In 2019, there were an estimated 656,000 victims of child abuse and neglect (HHS, ACF, ACYF, 2022), and many more cases likely go undetected. Cumulatively, one in eight children will have a state-confirmed maltreatment report before the age of 18, and self-reported maltreatment data register roughly three times the rate of confirmed cases (Wildeman et al., 2014). Other adverse childhood experiences (ACEs) that can have long-term effects include parental intimate partner violence or separation; household substance abuse or mental illness; and incarceration of a family member.

Long-Term Effects of CMT on Mental Health. Both CMT and ACEs can have noxious effects that last well into adulthood (Felitti et al., 1998). This is due in part to chronic stress during childhood that can disrupt the early development of the brain, nervous system, and immune system (Shonkoff et al., 2012). Two prominent psychopathologies associated with a history of child maltreatment are posttraumatic stress disorder (PTSD) and major depressive disorder (MDD).

Complex Trauma Sequelae. When CMT is perpetrated by caregivers in a way that causes injury to the attachment system, children are at greater risk of developing complex posttraumatic adaptations such as dissociation, high interpersonal reactivity, misuse of substances to cope, and higher levels of anger expression (Seng, 2010; Spinazzola et al., 2018). Parents are the most common perpetrators of CMT (HHS, ACF, ACYF, 2022), and maltreatment by parents is the most likely to cause these complex posttraumatic sequelae. This may be because in addition to navigating a stressful or unsafe environment, a child may be left without a safe

attachment figure to soothe their distress, co-regulate levels of arousal, and model emotion regulation (Lunkenheimer et al., 2018). This adverse context can interfere with a child's key developmental tasks of attachment formation and emotion regulation, leading to increased risk of complex psychopathology (Choi et al., 2020).

Intergenerational Patterns of Trauma. When survivors of CMT become parents, they bring with them their higher risk for PTSD and MDD, as well as any complex trauma sequelae. The transition to parenthood can also trigger more severe PTSD symptoms, even if they weren't distressing beforehand (Seng & Taylor, 2015; Tolman & Walsh, 2020). Parents' mental health status is a major contributor to the quality of the early parenting they provide (Greene et al., 2020), and their ability to bond with their baby (Seng et al., 2013).

The Importance of Fathers. Fathers are men (or people whose gender identity leads them to identify as a father) who share a biological or social parental connection with a child. In general, more paternal involvement is beneficial for children and improves child outcomes in the domains of safety, health, development, and attachment (Adamsons & Johnson, 2013; Alio et al., 2010; Cabrera et al., 2018; Jeynes, 2015; Kennedy et al., 2015). However, not all forms of paternal involvement are positive, and father-perpetrated abuse and neglect are common in the U.S. Fathers commit or are involved in committing maltreatment in 45.2% of child welfare cases (HHS, ACF, ACYF, 2020). Research suggests that fathers and male caregivers are disproportionately implicated as perpetrators of maltreatment including severe physical abuse and child homicide (Guterman & Lee, 2005; S. J. Lee et al., 2009).

Fathers with a CMT History. There is a dearth of research on fatherhood after a history of CMT (Chamberlain et al., 2019). A history of CMT in fathers has been found to be negatively associated with both prenatal bonding and fathers' views on the importance of fatherhood to the

health and wellbeing of the infant (Dayton et al., 2019). It has also been associated with perinatal depressive symptoms and pregnancy-related anxiety (Skjothaug et al., 2015). In one study, the mechanism by which trauma history affected prenatal attachment and parenting confidence was likely mental health pathologies (Berthelot et al., 2020). Other long-term behavioral, situational, or hormonal trauma sequelae may also affect outcomes in the childbearing year (Seng & Taylor, 2015). Another study found that fathers with a CMT history experienced significantly more psychological symptoms than non-survivors (Berthelot et al., 2020). Among CMT-exposed fathers, only fathers who had current psychopathologies suffered from poorer attachment with their infant and parenting confidence, and there was no significant relationship between CMT exposure and impaired attachment in the absence of psychopathology (Berthelot et al., 2020). More research is needed to explore these associations and gain a clearer understanding of how CMT impacts early fatherhood (Christie et al., 2017).

Parenting Stress. Parenting stress is a set of adverse reactions in response to a person adapting to the demands of parenthood. In fathers, high parenting stress is associated with fewer positive parent-child interactions and a higher likelihood of child maltreatment perpetration (Rodriguez & Richardson, 2007), as well as lower levels of engagement with their child. (Halme et al., 2006). Mothers who have a history of CMT are at greater risk for having more parenting stress (Lange et al., 2019; Steele et al., 2016). To our knowledge, this this relationship has not been examined in fathers.

Insufficient Perinatal Interventions for Fathers who Have a History of CMT. Although child maltreatment shows patterns of intergenerational continuity, many parents succeed in breaking the cycle. The perinatal period is a key point of intervention to empower new fathers to do so, because of their increased contact with the healthcare system and

potentially increased openness to change (Lindstedt et al., 2021; Tolman & Walsh, 2020). In addition, parents' mental health status can worsen during the perinatal period, especially for parents who have a history of CMT, because of the presence of many additional triggers. Thus, the perinatal period is a primary prevention opportunity that can be lost if health services do not offer perinatal support prior to the onset of parenting stress and adverse experiences of being a father. Although perinatal interventions are a promising avenue to break intergenerational transmission of CMT, we know of no perinatal interventions specific to fathers who have a history of CMT. The purpose of this study is to explore predictors of parenting stress in new fathers to identify promising targets of perinatal interventions to break intergenerational cycles of trauma.

Methods

Design

We conducted a sequential mixed-method survey project. The first component was an online survey project, and the second was a qualitative study done with a purposive sub-sample of the survey respondents who had a history of maltreatment. This paper reports the survey study elements fielded to understand differences between men who do and do not have a history of CMT. Our first aim was to compare survivor fathers and non-survivor fathers. Our second aim was to examine predictors of parenting stress, including maltreatment history and trauma-related mental health condition symptoms. We made use of statements from the qualitative interviews to illuminate key statistical associations with explanations in the words of some fathers who have a history of CMT. The University of Michigan Health and Behavioral Sciences Institutional Review Board determined this study to be exempt from their oversight.

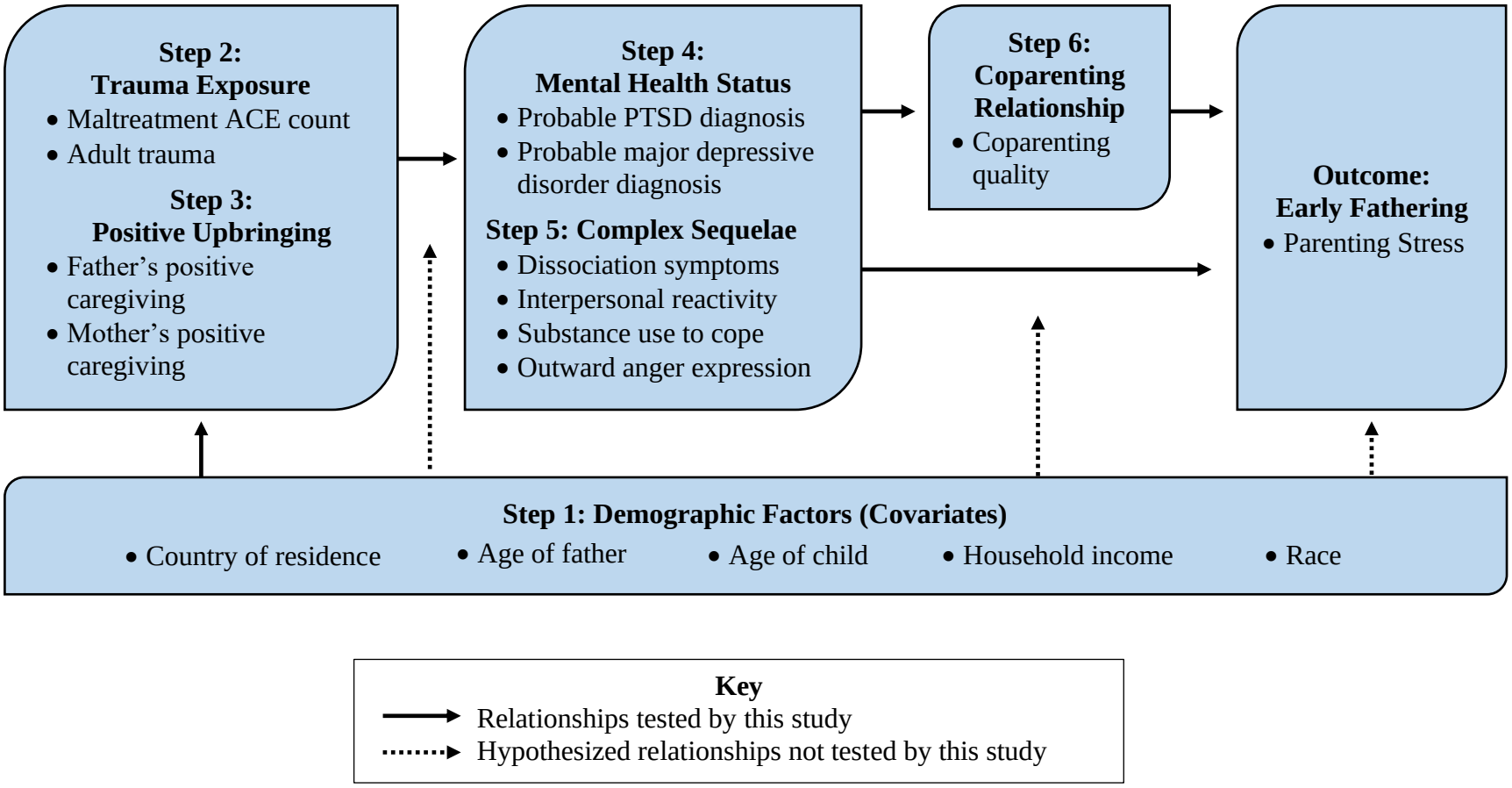
Sample and Data Sources

We recruited new first-time fathers to an anonymous survey using Prolific, a web-based platform that connects survey researchers with eligible participants (*Prolific,* 2019). Prolific contains tens of thousands of research participants who take surveys online for compensation through the website. Participants were eligible if they were over the age of 18, identified as men, and had their first child in the past two years. We chose to recruit online due to the stigma surrounding CMT, which is likely accentuated by societal norms of masculinity (Chamberlin, 2012). Although web-based surveys are a relatively novel methodology, researchers have successfully replicated the results of a number of influential experiments online (Crump et al., 2013; Horton et al., 2011), supporting that this method likely yields reliable data.

Conceptual Model

We hypothesize that a history of CMT leads to greater incidence of probable diagnosis of PTSD and MDD, as well as increased complex trauma sequelae including dissociation, interpersonal reactivity, substance use to cope, and outward anger expression (Figure 3.1). We hypothesize that these indicators of mental health status are then associated with increased parenting stress, both independently and by decreasing coparenting relationship quality.

Figure 3.1: Conceptual Model—Pathway from Child Maltreatment Trauma (CMT) to Increased Parenting Stress



Measures

A list of measures used in this study is available in Appendix Table A.1: Measures Used on the Prolific Internet Survey.

Outcome

The Parenting Stress Index—Short Form (PSI-SF) uses 36-items to measure the degree of stress and negative attitudes experienced in reaction to the demands of parenting (Abidin, 2012; Haskett et al., 2006). The PSI-SF contains three subscales—parental distress, parent–child dysfunctional interaction, and difficult child. Together, they provide a Total Stress score from 36-180 which we used in our analyses. In our sample, the internal consistency of the PSI-SF was $\alpha = .91$.

Trauma Exposure & Positive Upbringing (Steps 2 and 3)

The first 5 items of the ACEs Questionnaire (Felitti et al., 1998; Murphy et al., 2014) assess child maltreatment history (physical, sexual, and emotional abuse; and physical and emotional neglect). We used a Maltreatment ACE score from 1-5 in our analyses, counting the types of maltreatment experienced.

We measured positive upbringing with a 9-item questionnaire derived from the Descriptions of Parental Caregiving Style (DPCS; Dalton III et al., 2006). The modified DCSP measures three sets of parenting characteristics associated with different attachment styles—warm or responsive, cold or rejecting, and ambivalent or inconsistent. Three items measure each style, totaling 9 items and a score from 0-36. We used the same scale twice, regarding first the participants' father (scale $\alpha = .92$) and then their mother (scale $\alpha = .89$). Participants indicated whether they answered regarding their biological parent, stepparent, or parent figure. Only participants who had both parents and completed the modified DPCS for each were included in

the analysis because imputation is not used in the case of survey skip patterns. In addition, fathers who were raised by a single parent may have different experiences and intervention needs during their transition to parenthood, which should be explored with further research.

Mental Health Status and Complex Sequelae (Steps 4 and 5)

The PTSD Checklist for DSM-5 (PCL-5) contains 20 items that assess the presence and severity of PTSD symptoms, corresponding with DSM-5 criteria for PTSD (Blevins et al., 2015; Weathers et al., 2013), resulting in scores from 0-80. Participants with scores above 32 were considered to have probable PTSD. We used the Patient Health Questionnaire-8 (Kroenke et al., 2009) to measure depression, using a cutoff of ≥ 10 to determine probable MDD diagnosis. Because PTSD and MDD diagnoses have considerable comorbidity and collinearity, we used a count of the number of probable diagnoses, either zero, one (PTSD or MDD) or two (PTSD and MDD).

The Interpersonal Sensitivity subscale of the Symptom Checklist-90-Revised (Derogatis & Cleary, 1977a, 1977b) uses 9 items to measure interpersonal reactivity, or negative feelings in relationships such as inadequacy and inferiority in comparison to other people, and self-consciousness and negative expectations about relationships. The resulting scale from 0-36 had an internal consistency of $\alpha = .91$ in our sample.

We used the 7 items from the Dissociative Subtype of PTSD Scale (DSPS) that assess depersonalization and derealization symptoms (Wolf et al., 2017) in alignment with the dissociative subtype of PTSD from the DSM-5. We used a symptom count score from 1-7, which had an internal consistency of $\alpha = .88$ in our sample.

The State Trait Anger Expression Inventory (STAXI) contains several components measuring various aspects of anger. We used the two outward subscales—Anger Expression-Out

to measure expression of angry feelings toward other persons or objects in the environment, and Anger Control-Out to measure holding in or suppressing angry feelings (Spielberger et al., 1999). Each subscale contained 8 items, resulting in a score from 14-64 which had an internal consistency of $\alpha = .88$ in our sample.

We assessed substance use reported as a way to cope with difficult emotions (alcohol, tobacco, marijuana, illicit/street, and other), resulting in a count score from 0-3 or more.

Coparenting (Step 6)

The Coparenting Relationship Scale – Brief version (CRS-B) (Feinberg et al., 2012) uses 14 items to measure overall quality of the coparenting relationship, including closeness, exposure of child to conflict, support, undermining, endorsement of partner's parenting, and division of labor. The scale was scored from 10-56, and it had an internal consistency of $\alpha = .83$ in our sample.

Demographic Covariates

The model was adjusted for country of residence (US or UK), age of father (distance from the mean), age of the child in months, household income, and race. Only variables which were significant predictors of parenting stress are displayed in Table 3.3. Thus, of the demographic variables, only income and country of residence are included in Table 3.3. We adjusted the model for age of father, age of child, and race, but did not display them because they were non-significant at every step of the hierarchical regression.

Statistical Analysis

We conducted preliminary analyses to assess missing data and to verify assumptions for statistical testing were met. We used bivariate analyses (chi-squared and t-tests) to compare fathers who had a history of CMT with those who did not (Table 3.2) by all measured constructs

included in the regression analysis. Bivariate analyses only include participants who were also included in the regression analysis. In our interpretations of the significance of P values, we correct for multiple comparisons using Bonferroni's method (Abdi, 2007). Thus, statistical tests with P values below .004 were interpreted as statistically significant.

We then tested a multivariate model (Table 3.3) using hierarchical linear regression, with variables entered in six theory-driven steps (Figure 3.1). Entering variables in theory-based steps allowed us to consider whether each additional block of covariates improves the overall model, and if added constructs independently predict parenting stress after accounting for previous steps. Some demographic covariates were not associated with either CMT history or parenting stress and did not significantly affect the standardized beta coefficients when included in the model. Thus, they were used only to adjust the model in its entirety. We first regressed fathers' maltreatment ACE score and adult trauma exposure on parenting stress. We then added participants' father's positive caregiving score, and mother's positive caregiving score. Mental health status, proxied by probable PTSD and/or MDD diagnosis count was entered next, followed by complex trauma sequelae (dissociation, interpersonal reactivity, substance use to cope, and anger outward expression). Lastly, we added coparenting quality to the model. We conducted all analyses in 2021 using Stata/IC version 16.1 (Stata Corp, College Station, TX). Finally, in our discussion we illustrate some of the quantitative associations with qualitative data from the subset of interviews conducted with men who had experienced maltreatment.

Results

Describing the Sample (Table 3.1)

There were 371 fathers who met eligibility criteria (men whose first child was under 30 months of age), and who consented to participate in the study. Of these, 349 completed the entire

survey. Just less than half of the sample was from the US versus the UK, and 82% of the sample was White. Participants ranged from 19-53 years old, and their first children ranged from 0-30 months old. The majority of participants were both in a relationship with the baby's mother (93.2%) and living together (96.9%). Over a quarter of participants reported that their pregnancy was not intended, meaning that it was either not wanted or that it was too soon.

Of the 371 participants, 33.2% had a history of at least one type of child maltreatment before age 18. At the time of the survey, 13.2% met the PCL-5 threshold for probable PTSD diagnosis, 16.7% or participants met the PHQ-8 criteria for a probable MDD diagnosis, and 8.6% met the criteria for both PTSD and MDD.

Regarding participants' experiences of positive caregiving during their upbringing, 85.6% answered the DPCS-F about their biological father, and 4.4% about a stepfather or father figure. 96.5% of participants answered the DPCS-M about their biological mother, and 1.6% regarding a stepmother or mother figure. Participants who had only one parent (1.9% had no mother or mother figure, and 8.7% had no father or father figure; n=31) were dropped from the regression analysis because they were not able to complete the DPCS-M or DPCS-F.

Table 3.1: Demographic description of the sample

	N M(SD)	% Range
Race/Ethnicity (N=363)		
White	301	82.9
Black	23	6.3
Asian	16	4.4
Mixed	18	5.0
Other	5	1.4
Household income (N=351)		
$0-$19,999	17	4.8
$20000-$49999	122	34.8
$50000-$79999	98	27.9
$80000-$149,999	88	25.1
$150000 or more	26	7.4
Age of participant in years (N=356)		
	31.42 (5.59)	19-53
Age of first child in months (N=361)		
	12.5 (6.41)	0-30
Maltreatment ACE count (N=371)		
0	248	66.9
1	57	15.4
2	43	11.6
3	18	4.9
4+	5	1.4
Living with baby's mother (N=354)		
Yes	343	96.9
No	11	3.1
Married or in a relationship with baby's mother (N=354)		
Yes	330	93.2
No	24	6.8
Pregnancy intended (N=352)		
Yes	252	71.6
No	100	28.4

Bivariate Analyses (Table 3.2)

Bivariate results with P values below .004 were considered significant, because we used Bonferroni's correction to adjust for our comparisons across 12 variables (Abdi, 2007). Fathers who had a history of CMT (31.5%) had significantly poorer outcomes than fathers who did not (68.5%). CMT survivors had significantly ($P<.004$) higher parenting stress, lower income level, lower positive caregiving scores for both their mother and father, more symptoms of dissociation, higher levels of interpersonal reactivity, greater outward anger expression, and lower coparenting quality. In addition, a significantly greater proportion of fathers who had a history of CMT lived in the US than the UK and had a greater number of mental health diagnoses (PSTD and/or MDD). The proportion of fathers who had a history of CMT in our sample did not vary significantly by race.

Table 3.2: Bivariate comparison of fathers who had a history survivors of child maltreatment trauma (CMT) and those who did not

	No CMT [a] (N=204)	**CMT+ (N=94)**	**Total (N=298)**	**Test statistic [d]**
	N (%) or M (SD)	N (%) or M (SD)	N (%) or M (SD)	χ^2 (P) or t (P)
Parenting Stress (score)	75.97 (16.45)	85.30 (18.70)	78.91 (17.70)	t = -4.35 (P<.000)
Income Level [b]	7.13 (3.03)	6.44 (3.10)	6.92 (3.92)	t = 1.85 (P=.033)
Country of residence				
US	96 (47.1)	56 (59.6)	152 (51.0)	χ^2 = 4.43 (P =.035)
UK	108 (52.9)	38 (40.4)	146 (48.0)	
Adult trauma				
No	167 (81.9)	58 (61.7)	73 (24.5)	χ^2 = 14.58 (P <.000)
Yes	37 (18.1)	36 (38.3)	225 (75.5)	
Father's Positive Caregiving (score) [c]	27.97 (6.77)	20.84 (8.03)	25.72 (9.91)	t = 7.98 (P<.000)
Mother's Positive Caregiving (score) [c]	32.00 (4.45)	28.39 (6.71)	30.86 (5.52)	t = 5.47 (P<.000)
Mental health diagnoses (count)				
0	180 (88.2)	67 (71.3)	247 (82.9)	χ^2 = 22.36 (P<.000)
1	19 (9.3)	11 (11.7)	30 (10.1)	
2	5 (2.5)	16 (17.0)	21 (7.1)	
Dissociation symptom (count 1-8)	1.04 (1.83)	1.73 (2.43)	1.25 (2.06)	t = -2.73 (P=.003)
Interpersonal reactivity (score)	5.59 (5.85)	8.80 (8.59)	6.60 (6.98)	t = -3.76 (P<.000)
Substances used to cope (count)				
0	178 (87.3)	74 (78.7)	252 (84.6)	χ^2 = 3.82 (P=.281)
1	19 (9.3)	14 (14.9)	33 (11.1)	
2+	7 (3.4)	6 (6.4)	13 (4.4)	
Anger outward expression (score)	27.30 (6.89)	30.82 (8.49)	28.41 (7.60)	t = -3.90 (P<.000)
Coparenting quality (score)	48.76 (5.77)	45.47 (6.80)	47.72 (6.29)	t = 4.30 (P<.000)

[a] Only includes participants who were also included in the regression model. Some were omitted due to missing data.
[b] Income level categories ranged from 0-12, including 6=$50000-$59999, 7 =$60000-$69999, and 8 =$70000-$79999. For UK participants, responses in British pounds were converted into comparable categories in US dollars.
[c] Refers to the participants own parent. Participants who lacked a parent or parent figure were not included in the regression analysis.
[d] We applied Bonferroni's correction for multiple testing to be conservative in our interpretation of these results. P values <.004 are considered statistically significant.

Hierarchical Linear Regression (Table 3.3)

Income and country of residence were the only demographic covariates to be statistically significant predictors of parenting stress at any step in the model. Initially, maltreatment ACE score a significant predictor of parenting stress (β=.209, P<.001), but it became nonsignificant when their positive caregiving experienced during their own upbringing was added to the model. Participants' fathers' positive caregiving score was not a significant predictor of parenting stress. However, a higher mothers' positive caregiving score predicted lower parenting stress when added to the model in step three (β=-.221, P<.001), and remained significant until coparenting was added to the model in step six.

Mental health diagnosis count (PTSD or MDD or both comorbidity of PTSD and MDD) significantly predicted parenting stress when added in step four with one diagnosis showing β=.145 (P<.001), and two diagnoses showing β=.239, (P<.001). However, when complex sequelae were added to the model, mental health diagnoses became nonsignificant. Dissociation and substance use to cope were not significant predictors of parenting stress. Interpersonal reactivity (β=.287, P<.001) and anger outward expression (β=-.258, P<.001) were significant predictors, and remained significant when coparenting was added to the model in step six. Coparenting quality was the strongest predictor of parenting stress at β=-.338, P<.001).

Table 3.3: Hierarchical linear regression of predictive factors on parenting stress (N=298)

	Step 1: Demographic Factors	**Step 2: Trauma Exposure**	**Step 3: Positive Upbringing**	**Step 4: Mental Health Status**	**Step 5: Complex Sequelae**	**Step 6: Coparenting Relationship**
	Prob > F: .002 r^2: .0611	Prob > F: .000 r^2: .1189	Prob > F: .000 r^2: .1656	Prob > F: .000 r^2: .2271	Prob > F: .000 r^2: .3530	Prob > F: .000 r^2: .4435
	Change in r2:	.0578**	.0467**	.0615**	.1259**	.0905**
Income Level	-.175*	-.134*	-.118*	-.088	-.095	-.085
US/UK country of residence [a]	.052	.124	.130*	.174*	.133*	.093
Maltreatment ACE score (count)		.209**	.118	.083	.065	.046
Adult trauma (y/n)		.103	.104	.076	.006	.002
Father's positive caregiving (score) [b]			-.051	-.025	.000	-.083
Mother's positive caregiving (score) [b]			-.221**	-.193**	-.152*	-.083
Mental health diagnoses (count)				-	-	-
1 (PTSD or MDD)				.145**	.032	-.024
2 (PTSD and MDD)				.239**	-.005	.006
Dissociation symptoms (count)					067	.089
Interpersonal reactivity (score)					.287**	.283**
Substances used to cope (count)					.060	.000
Anger outward expression (score)					.258**	.164*
Coparenting quality (score)						-.338**

*P<.05, **P<.001

[a] U.S. is the reference category
[b] Refers to the participants own parent. Participants who lacked a parent or parent figure were not included in the analysis.
Note. Model is adjusted by age of father (distance from the mean), race, and the age of the child. These were not independently statistically significant predictors.
Note. Results are reported as standardized coefficients

Discussion

Across many indicators of mental and emotional health, fathers who had a history of CMT showed poorer outcomes. On average, they also had significantly higher parenting stress than those who did not report a history of CMT. Probable PTSD and MDD diagnoses significantly predicted higher parenting stress with only one of the diagnoses, and the relationship became stronger for individuals with both probable diagnoses. When interpersonal reactivity and outward anger expression were added to the model, they significantly predicted parenting stress, while PTSD and depression became non-significant. In the final model with coparenting also added, coparenting became the most significant predictor of parenting stress, followed by interpersonal reactivity and outward anger expression.

Illustrations of Key Findings in Fathers' Own Words

This survey study led to a qualitative study in which we recruited a subset of 15 survey participants who had a history of CMT to individual interviews. We asked them about how their histories of CMT impacted their transition to parenthood, and what unmet needs they faced in the perinatal period. Their perspectives support and further illuminate the results of this study. One father shared his views on the importance of quality coparenting.

> I could have used a little better direction for what's going to actually be happening after the birth as far as the family life that the two of us are trying to build. If there's anything we're not on the same page on then, things that definitely need to be figured out and definitely need to be worked through. You're talking about relationship with the child and there are lots of things that have to be worked on together. It's not an individual experience at that point anymore.

Another participant shared his experience striving to form secure and supportive relationships as a father who had a history of CMT.

> I didn't feel the amount of love and affection and care from my father that I wanted or that could have bettered me. I just want to be able to show my son that, but I didn't do everything properly to be able to put myself in that position. It's like, this makes sense that I would want this, but my actions didn't add up with how my mental state tells me I want things to happen. It's still a little confusing, what did I do wrong? Where does it come from? How can I fix these problems in order to show the people around me, that I care about them, that I love them, that I want the best for them, that I'm here to support them?

A third father shared that his greatest struggle was with managing anger and controlling strong emotions when his baby cried and was not consolable.

> It's really scary to me just how frustrated I'll get…Last night I was just very angry. Now I understand why they tell you to not shake the baby. You've lived so much life before now, and you've overcome so much. Why are you so angry at a baby? It's like, what's wrong with me? How can a child this small bring me to my breaking point every day? I feel like he's a little dictator of our lives. Everything we do is on his timetable. Our schedule is based on how happy he is or isn't. It's frustrating because it's real, but I don't want it to be real. I'm ashamed and disappointed. Every time, it's like it's the first time.

Towards Intervention Development

This study supports that not only mental health, but complex trauma sequelae including anger expression and interpersonal reactivity are key predictors of parenting stress. These provide promising targets for perinatal intervention with new fathers to interrupt

intergenerational transmission of CMT and psychiatric vulnerability. The perinatal period presents a unique window of opportunity for connection between health systems and new parents when primary prevention of child maltreatment is still possible—before abuse or neglect has a chance to manifest. This is a timeframe when parents are already engaged with healthcare, although fathers are not often direct recipients. The perinatal period may also be a time of increased openness to change (Lindstedt et al., 2021), potentially increasing the effectiveness of perinatal interventions in changing attitudes and behaviors (Tolman & Walsh, 2020). Such interventions could be universally offered or offered after CMT screening to those who have a history of childhood trauma or family dysfunction. Such interventions have the potential to support new fathers in providing safe, stable and nurturing relationships for their children (CDC, 2019a), and breaking integrational cycles of trauma.

Promising Intervention Targets

This study provides some groundwork for determining useful intervention targets. CMT distally hints at increased risk for higher parenting stress. However, traumas that look the same on the ACEs screening tool can vary greatly in severity and effect on the individual. Some who have experienced CMT are largely unaffected as adults, while others experience debilitating physical and mental health sequelae. Thus, fathers who have experienced CMT and who currently experience mental health sequelae such as PTSD and MDD seem to have higher parenting stress and may benefit most from a trauma-specific perinatal intervention. Furthermore, maltreatment-related PTSD and MDD have some behavioral sequelae that are relational and externalizing, and those appear to be areas most strongly (and most worrisomely) associated with parenting stress, including interpersonal reactivity and anger expression. These relationship-based tendencies may manifest particularly in the coparenting relationship, which

may be usefully addressed through perinatal interventions. In addition, these non-clinical trauma sequelae may be present even when mental health diagnoses are not. Even very resilient individuals who have a CMT history may struggle more with secure relationship formation, and likely have poorer parenting role models.

Mental health disorders and non-clinical trauma sequelae seem to compound the normal stress of the transition to parenthood. Our results showed that other factors including income, education, pregnancy intention, and age did not seem to matter compared with these relational and self-regulation sequelae. In addition, the long-term effects of trauma can be nebulous, and do not always map onto our constructed clinical mental health diagnoses. Who, then, should we target with trauma-specific fathering interventions? The effects of trauma, not trauma itself, are greater risk factors for high parenting stress. However, trauma and its effects are so idiosyncratic that it may be more useful to screen for CMT itself and allow fathers to self-select if they believe their trauma affects them in such a way that a trauma-specific perinatal intervention would be useful.

Limitations

Our results should be interpreted in light of several limitations. The study sample contained about equal numbers of US and UK residents. Although we controlled for country of residence to account for unobserved differences between the two groups, the sample was not nationally representative or either the US or the UK. The proportion of participants who were White and earning a high level of income was higher than the average of either the US or the UK. In addition, the percentage of non-resident fathers in our sample (3.1%) was much lower than the national averages in the US (approximately 24-33%; Jones & Mosher, 2013; Lippold, 2017; Livingston, 2018) and the UK (approximately 5%; Poole et al., 2013). However, these

estimates of father residency examine how many fathers have one or more children they do not live with, or how many children have a father who does not live with them. Our sample included only first-time fathers of children under 30 months of age, a population which likely has higher rates of cohabitation than fathers in general. Still, the results of this study may not be generalizable to non-resident fathers, and additional research is needed specific to them. The number of ACEs endorsed by our participants was lower than the population of the U.S., which may have skewed our results conservatively, causing us to underestimate the effect of CMT and its sequelae on parenting stress.

Methodological limitations include that our data are cross-sectional. We were not able to follow fathers over time and examine how parenting stress changes throughout the childbearing year. Average levels of parenting stress may vary throughout pregnancy and early childhood, and that pattern may be different for fathers with and without a history of CMT. In addition, we were not able to collect data from mothers and children. Child outcomes or even parenting behavior outcomes would be useful to assess in future research, as parenting stress is distal to these when considering intergenerational transmission of CMT. This and other studies also emphasize the importance of the coparenting relationship, and gathering data from both fathers and their coparents would also be useful in future studies.

Strengths

The anonymous internet survey methodology may have aided our recruitment of fathers to this study of stigmatized topics. In our survey, we used gold standard instruments to measure each key construct. After each instrument, we provided resources for fathers to learn more about the topic if they found the questions relevant to them. Several fathers reached out to us to express strong appreciation for these resources, and the direct benefit they experiences from their

participation in the study. Several participants said that just taking the survey helped them to make connections between their childhood trauma, mental health, and experience of their transition to fatherhood. By using mixed methods and following the survey with interviews with a subsample of participants, we were able to glean exemplar stories of how the statistical findings may play out in the broader context of fathers' lives. This study points towards relationships between child maltreatment, perinatal mental health, relationships, and parenting stress that warrant further exploration with larger and more robust studies in the future.

Conclusion

Fathers who have a history of CMT are at risk for having higher levels of parenting stress, especially those who experience posttraumatic sequelae such as PTSD and MDD. CMT can also have non-clinical but still detrimental effects on relationships for new fathers, especially via increased interpersonal reactivity and anger expression. The perinatal period is a key window of intervention to prevent intergenerational transmission of CMT. This study suggests that interventions effective in reducing parenting stress in fathers who have a history of CMT will likely target both mental health and secure relationship formation. Trauma-specific interventions could have positive effects at the population level by interrupting intergenerational transmission of CMT. Because trauma affects everyone differently, trauma-specific interventions would be best offered universally in perinatal settings, or to all survivors of CMT identified by screening. Offering trauma-specific interventions broadly would allow fathers who have experienced CMT and experience effects noxious to their perinatal heath and relationships to self-select as those who would benefit from trauma-specific care.

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CHAPTER FOUR: Intervention Desires of New Fathers with a History of Child Maltreatment

Abstract

Title: Exploring the perinatal intervention desires of new fathers who have a history of child maltreatment trauma: A mixed methods study

Background: A history of child maltreatment trauma (CMT; i.e., verbal, physical, sexual, or emotional abuse, or neglect) can lead to poorer early parenting outcomes. There are few father-inclusive perinatal programs, and none are specific to fathers who have a history of CMT. Fathers who are survivors of CMT may have unique needs and should be engaged in perinatal intervention development efforts to increase the chance of the intervention being taken up.

Objective: The purpose of this study is to examine the perinatal intervention desires of fathers who have a history of CMT in terms of both content and format.

Participants and setting: We recruited first-time fathers of children under age two from Prolific, an online survey platform across the U.S. and the U.K. We received survey responses from 371 fathers of children under the age of two, 123 of whom had a history of CMT. We completed individual interviews with 15 fathers with a history of CMT.

Methods: Survey items asked about preferred fathering intervention format and content, and barriers to participation. With a subset of volunteers, we conducted semi-structured interviews, organized by an interview guide based in narrative storytelling methodology. Survey responses were analyzed with descriptive statistics. Two independent analysts conducted a content analysis

of interview transcripts to distill themes from survivor fathers' statements about their intervention desires, and extract key illustrative quotes.

Results: Survey participants with a history of CMT wanted a program that supported them in managing relationships to connect better, helping with sleep, and managing emotions (i.e., low mood, and anger or irritability), as well as teaching basic parenting skills. Most wanted a program in person (82.1%) though many were also interested in an online program (59%). Many wanted an intervention with a group of other dads (65.4%), or sometimes with the baby's mom, sometimes not (46.3%). Interview participants illustrated these findings, saying that they had few fathering role models and it would be helpful to be able to connect with other fathers who experienced CMT or family disfunction.

Conclusions: Given that there are intergenerational patterns of child maltreatment, there is an urgent need to develop trauma-specific perinatal interventions for fathers who have a history of CMT. Such interventions could prevent future maltreatment and have a population-level impact by interrupting the intergenerational transmission of violence.

Background

Evidence is mounting that child maltreatment trauma (CMT) and its mental health sequelae can lead to poorer early parenting outcomes, including less secure attachment and lower parenting confidence in fathers (Berthelot et al., 2020). Trauma can thus be passed from one generation to the next, leading to intergenerational patterns of CMT (Berlin et al., 2011; McKenzie et al., 2021). Interventions to support fathers have a history of CMT toward safe, stable, nurturing parenting may help break these patterns and serve as primary prevention for the infant (CDC, 2019a).

Although many health settings have begun screening for CMT and other adverse childhood experiences (ACEs), there is a dearth of interventions available for those who are identified as survivors (Stephenson et al., 2018). The perinatal period is an ideal time to intervene with individuals who have a history of CMT for several reasons. If survivors can be identified and supported during their transition to parenthood before ACEs can manifest for their children, the intergenerational transmission of CMT could be interrupted. In addition, when people who have experienced CMT become parents, there is a sudden increase in the number and variety of triggers in their environment related to their own experiences of trauma or family dysfunction (Price-Robertson, 2012). This can lead to worsening symptoms of posttraumatic stress disorder (PTSD) and greater need for support. Perinatal interventions may also be more effective because the major life transition affords an increased openness to change for new parents (Lindstedt et al., 2021).

During the childbearing year, new mothers are often more connected to the healthcare system. Fathers may also be easier to reach with interventions during the perinatal period, though this is hindered by the scarcity of offerings specific to them (Lee et al., 2018). Several

interventions for mothers who have a history of CMT have been developed (Salvador et al., 2020; Seng, Sperlich, et al., 2011), but to our knowledge there are no perinatal interventions specific to fathers who have a history of CMT (Chamberlain et al., 2019; Stephenson et al., 2018). Effective interventions for fathers likely need to target different factors for fathers than mothers (Dayton et al., 2019), and more research is needed to determine what is most relevant to new fathers who have a history of CMT.

Fatherhood programs often struggle to engage men (Stahlschmidt et al., 2013). In general, early engagement with the target population is a best practice for intervention development because it increases the chances that it will be taken up (Bellg et al., 2004; Israel et al., 2019). Fathers who have a history of CMT may self-identify with strong need for support, but in relation to a stigmatized problem—CMT history, mental health, and interrupting cycles of trauma. This stigmatization likely adds to the challenge of engaging survivor fathers. Furthermore, PTSD has avoidance of reminders of trauma as a diagnostic criterion (Blevins et al., 2015). Thus, survivor fathers may also experience avoidance of reminders of their past trauma as an element of PTSD, making engagement even more difficult. Therefore, engagement may be a particular challenge, making it is crucial to engage fathers who have a history of CMT early on in intervention design. The purpose of this study is to examine the perinatal intervention desires of fathers who have a history of CMT in terms of both content and format as a first step in creating programs or interventions to meet their needs.

Methods

Design

Our mixed methods study design used an anonymous quantitative internet survey with new fathers of children under age two, leading to purpose sampling of fathers who had a history

of CMT for individual interviews over online audio calls. The University of Michigan Health and Behavioral Sciences Institutional Review Board determined this study to be exempt from their oversight. The initial component, the survey, had two aims. The first (reported elsewhere) was to understand the extent to which CMT and its mental health sequelae contribute to parenting stress, a risk factor for child maltreatment. The second was to learn from the fathers who had a history of CMT to give input to intervention design by answering questions about their needs and preferences. A subset of men with CMT in their background were invited to amplify their input via a follow-up qualitative interview.

Sample

We recruited 371 fathers whose first child was under the age of two on Prolific, a web-based platform that connects survey researchers with eligible participants (*Prolific*, 2019). The internet was our chosen setting for this project to increase anonymity due to the stigma surrounding CMT, which is likely accentuated by societal norms of masculinity (Chamberlin, 2012). For individual interviews, we recruited a subset of 15 survey participants who had a history of CMT, using a sampling frame to include fathers diverse by PTSD status, depression status, and level of parenting stress (sampling frame available in Appendix Table B.1: Qualitative Sampling Frame [N=15]). Appendix Figure B.1: Mixed Methods Recruitment Flowchart displays our mixed-methods recruitment flowchart. Survey respondents were paid approximately $9 per hour for their time, and qualitative interview participants were offered an additional $20 after completing the interview, which had an average length of 53 minutes.

Measurement

The online survey assessed trauma exposure using the ACEs questionnaire (Felitti et al., 1998; Murphy et al., 2014). Fathers who endorsed any of the first five ACEs measuring physical,

emotional, or sexual abuse, and physical or emotional neglect were considered survivors of CMT in bivariate descriptive analyses (Tables 3.1 & 3.2) and were asked if interested in participating in an individual interview. The survey also contained study-specific items concerning perinatal program desires in terms of content and format. These items were investigator-generated based on elements of behavioral interventions found in the literature (e.g., type of intervener, group or individual, mode of delivery).

Data Collection

After the survey, we conducted individual interviews to explore the experiences and intervention desires of 15 first-time fathers regarding how they saw their traumatic experiences, mental health, and substance use affecting their early parenting. Participants were sent a link to join an online audio call and asked to turn off their camera and change their name to a pseudonym before joining. Interviews were semistructured and followed a guide based in narrative storytelling methodology. The interview guide was modeled after a similar study with mothers who had a history of CMT, conducted by the senior author, which yielded very rich data (Seng et al., 2002). All interviews were conducted by the first author. Interviews were audio recorded and transcribed.

Data Analysis

Survey responses are depicted with descriptive statistics for fathers with and without CMT history because the fathers without CMT history contribute useful information that may inform on-going attempts to make universal programming more acceptable and increase uptake. We also examined for any distinct differences between those with and without a CMT history. The interview transcripts were analyzed by two authors (Granner, a PhD candidate in nursing and Batshon, a family practice resident physician). Independently, the analysts conducted a

qualitative content analysis, extracting statements related to the a priori selected topics of intervention content and format (Morgan, 1993). We based our descriptive coding on the quantitative survey items related to intervention content and format. Each analyst created additional codes as necessary. We each selected exemplar quotes related to the codes, and then organized the codes into themes and subthemes. We then met and compared our selections of statements, and the structures and names we gave to the themes and subthemes. Consensus was reached easily with regard to describing and illustrating the findings. The draft research report was then reviewed by the senior author, who audited the report by comparing it to the raw transcripts to verify faithfulness to the experiences and utterances of participants.

Results

Participant Characteristics

Most survey participants (N=371) were White (82.9%), followed by Black (6.3%), Mixed (5%), Asian (4.4%) and Other (1.4%). Nearly half were from the US (47.1%) and half were from the UK (52.9%). Age ranged from 19-53 with a mean of 31.4 (SD=5.59). Two thirds of participants (66.9%) did not endorse any forms of CMT, 15.4% endorsed one form, 11.6% endorsed two, and 6.3% endorsed three or more. Most participants were living with (96.9%), and in a relationship with (93.2%) their baby's mom. Over two thirds (71.6%) of fathers reported that the pregnancy was intended, meaning both wanted and timed as desired.

Of the 371 participants who began the survey, 123 had a history of CMT, and thus were asked if interested in participating in an interview. Of those, 83 indicated interest, and 42 responded to the invitation to participate in the interview. Saturation was reached and we ended recruitment for interviews after the fifteenth participant. Interview participants (N=15) endorsed

an average of 2.1 types of maltreatment and had an average total ACE score of 3.1. They were diverse by PTSD status, depression status, and level of parenting stress (Table 4.3).

Survey Responses

When asked if interested in participating in a program for fathers who have experienced childhood trauma., 22.3% of CMT survivors responded yes, 42.2% said maybe, and 35.5% said no. Fathers with a history of CMT expressed similar interests in topics related to normative parenting and life transition to those without a history of CMT. These included parenting skills (80.8% of the whole sample of 361 indicated interest), learning about child development (80.3%), managing challenging child behaviors (67.2%), planning activities with your child (63.3%), nurturing parenting behaviors (61.4%), responding when your child gets sick or injured (61.4%), increasing financial security (58.6%), making your home environment safe (48.1%), improving family relationships (41.9%). Trauma-specific parenting topics desired by fathers who have a history of CMT are displayed in Figure 4.1.

Figure 4.1: Percentage of fathers with a history of child maltreatment trauma (CMT) interested in trauma-specific intervention topics

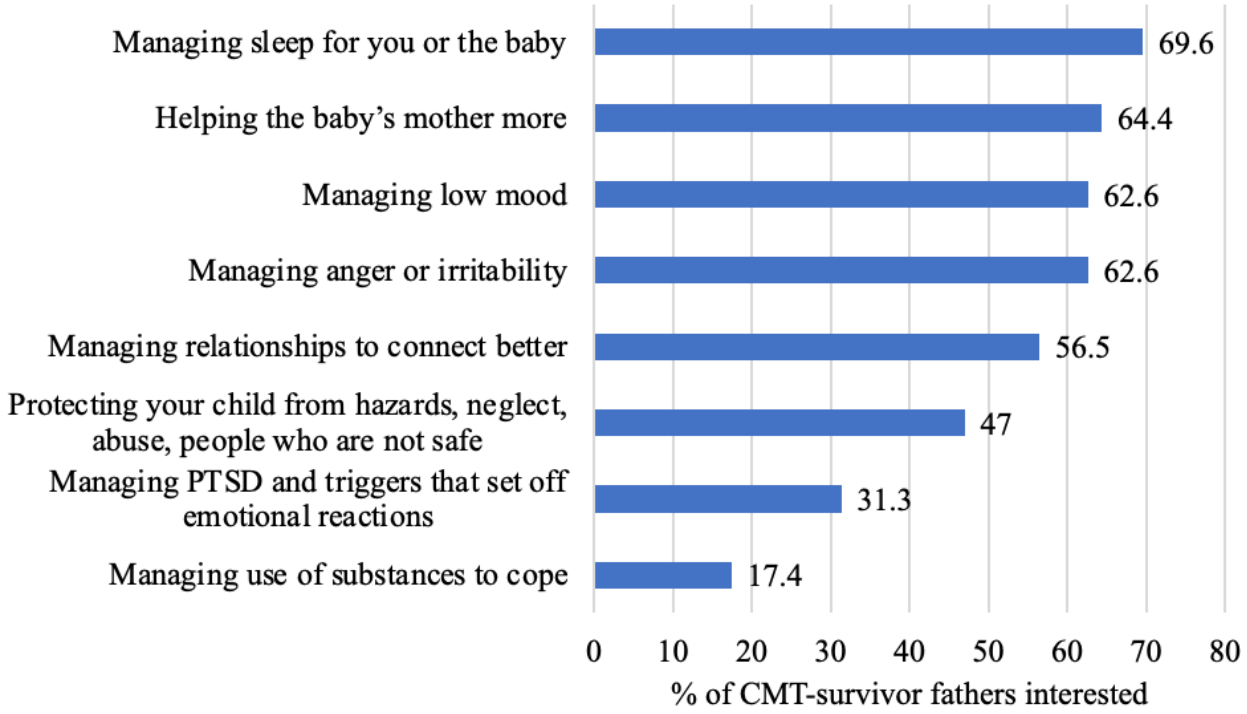

Table 4.1: Intervention format desired by new fathers who have a history of child maltreatment trauma (CMT)

	No CMT (N=110)	CMT+ (N=78)	Total (N=188) *
	%	%	%
Who should run the program? *(Select all that apply)*			
More experienced dad	80.9	69.2	76.1
Nurse	53.6	33.3	45.2
Social Worker	42.7	41	42
Community health worker	30.9	38.5	34
Home visitor/health visitor	20	18	19.2
Other	.9	11.5	5.3
'Other' responses included therapist, psychiatrist/psychologist, minister, a dad who had outlived trauma and its effects, and group-led.			
What gender of person should run the program? *(Select all that apply)*			
Doesn't matter	60	46.2	54.3

Man	30.9	44.9	36.7
Woman	8.2	9	8.5
Who would you like to do the program with? *(Select all that apply)*			
With a group of other dads	80.0	65.4	73.9
Sometimes with the baby's mom, sometime not	40.9	43.6	42
One-on-one with a 'tutor'	37.3	41	38.8
With the baby's mom	40.0	35.9	38.3
How would you like to participate in a program? *(Select all that apply)*			
In person	83.6	82.1	83
Online	50.9	59	54.3
Watching videos	35.5	32.1	34
Video calls	30	32.1	30.9
Using a workbook	8.2	7.7	8
On the phone	5.5	5.1	5.3
When would you have liked to do a program? *(Select all that apply)*			
Both during pregnancy and after the birth	63.6	73.1	67.6
During pregnancy	34.6	29.5	32.5
After the birth	20.9	19.2	20.2
Either during pregnancy or after the birth	12.7	21.8	16.5
How many meetings would you want to participate in?			
1-5	32.7	29.5	31.4
6-10	46.4	43.6	45.2
11-15	13.6	18	15.4
16-20	7.3	9	8
How often would you like meetings to be?			
Twice a week	10	14.1	11.7
Weekly	53.6	50	52.1
Monthly	28.2	28.2	28.2
Quarterly	4.6	3.9	4.3

Note. Some 'other' responses were not depicted due to small cell sizes.

*Questions were only asked to participants who responded "yes" or "maybe" interested in participating in a program for fathers who have a history of child maltreatment.

Fathers' preferences of intervention format were similar for fathers with and without a history of CMT (Table 4.1). Most fathers with a history of CMT preferred the program to be run by a more experienced dad (69.2%) followed by a professional such as a therapist, nurse, social worker, or community health worker. The majority would prefer a program in person with a group of other dads. However, 59% of CMT survivors also said that they would be interested in an online program. Most participants said they would prefer a weekly program that met a total of 6-10 times, both during pregnancy and after the birth. The most endorsed barriers to participation for fathers with a history of CMT (Table 4.2) were not having enough time (72.7%), not wanting to talk about trauma (44.6%), and not wanting to talk about emotions (43.8%).

Table 4.2: Barriers to program participation for new fathers who have a history of child maltreatment trauma (CMT)

What practical barriers would stop you from participating? *(Select all that apply)*	**No CMT (N=232)**	**CMT+ (N=117)**	**Total (N=349)**
	%	**%**	**%**
Not enough time	60.3	72.7	64.5
I just wouldn't want to	39.7	34.2	37.8
No transportation	16.0	21.4	17.8
No childcare	5.6	11.1	7.5
Other (see below)	10.3	6.0	8.9

Other practical barriers—exemplar responses

I haven't been a victim of serious trauma and wouldn't think this would be useful.	I feel my mental health is in a manageable state on my own.
Ability to take paid time off work	Embarrassment
Work hour conflict	COVID-19
Money/too expensive	Being busy with child
Custody	If baby's mom didn't want to

What emotional barriers would stop you from participating? (Select all that apply)	**No CMT (N=216)**	**CMT+ (N=112)**	**Total (N=328)**
	%	**%**	**%**
I don't want to talk about emotions	30.6	43.8	35.1
I don't need help managing mental health	40.3	23.2	34.5
I don't want to talk about trauma	28.2	44.6	33.8
I feel like I shouldn't need help with mental health	19.4	19.6	19.5
I feel like I shouldn't need help with parenting	14.8	15.2	14.9
I don't need help with parenting	7.9	9.8	8.5
Other (see below)	13.0	13.4	13.1

Other emotional barriers—exemplar responses

Didn't think of it as trauma	General embarrassment
Too tired after work	Feel there's worse off than me
No trauma that really still affects me	Not good at sharing feelings
I am quite an anxious person and avoid rather than face things head on.	Okay with talking about trauma depending on the environment and how it is done.
I struggle to meet new people outside of a setting I feel comfortable.	I have a hard time opening up to people, especially people I don't know.

Table 4.3: Qualitative interview participant characteristics

Participant # - pseudonym	Age (yr)	Baby age (mo)	Race/ ethnicity	Maltreatment types experienced	ACE score (1-10)†	Probable PTSD diagnosis‡	Depression§	Parenting stress¶
10 - John	27	21	White	VA, PA, EN	6	subthreshold	mild	moderate
2 - Vincent	36	18	Cambodian/ Chinese	VA, SA, EN, PN	5	yes	mod. severe	high
4 - Steve	33	7	American Asian	VA, EN, PN	5	subthreshold	mild	high
1 - Jose	31	6	Latino	VA, EN	5	subthreshold	minimal	moderate
3 - Jake	28	2	White	PA, EN	5	no	mild	high
13 - Henry	31	0	Latino & Hispanic	VA, PA, PN	4	no	mild	high
7 - Trevor	34	10	White	VA, PA	3	yes	severe	moderate
14 - Ben	34	24	White	VA, EN	3	yes	mod. severe	moderate
8 - Miles	29	10	White	VA	3	no	minimal	low
15 - Samuel	30	3	Hispanic	SA, EN	2	yes	minimal	low
5 - Alan	23	18	White	PA, EN	2	subthreshold	mod. severe	moderate
6 - Ethan	29	21	White	VA	1	no	mild	low
9 - Chris	36	19	Turkish/ White	VA	1	yes	mild	moderate
11 - Josh	30	23	White	EN	1	yes	moderate	moderate
12 - Jason	29	9	White	EN	1	yes	mod. severe	moderate

Major and Minor Qualitative Themes

Fathers described their desires in terms of intervention content, intervention format, barriers to participation, and considerations for programming specific to fathers who are survivors of CMT.

Intervention Content

Participants shared intervention content preferences in four main themes, 1) Managing emotions and mental health, 2) Relationships, 3) Parenting, and 4) General life needs.

Managing Emotions and Mental Health. Fathers described that *managing strong emotions* was a challenge for them, especially with the presence of many triggers during early parenting. As one father stated,

> It's really scary to me just how frustrated I'll get… last night I was just very angry. Now I understand why they tell you to not shake the baby…. You've lived so much life before now, and you've overcome so much. Why are you so angry at a baby? It's like, what's wrong with me? How can a child this small bring me to my breaking point every day? … I'm ashamed and disappointed. Every time, it's like it's the first time. (Henry)

Other fathers also described the challenge of *managing triggers that set off emotional reactions.* The baby crying was a common trigger for strong emotions that fathers reported, and *anger or irritability* was the most common reaction described. For instance,

> There was one time where I did end up yelling at my daughter… "Why wouldn't you just be quiet?" She got startled and then started crying and then it was just like, "All right. That's exactly what I don't want to be doing. That's great. Good job. Gold star." I think that's an important thing to address for any fathers. If you do make mistakes, own up to it.

> Be better. What can you do to prevent it, what are some coping mechanisms, things like that. (Alan)

Another father also said that he would appreciate if a program included content that would help fathers learn to cope with strong emotions and *recenter* when feeling frustrated.

> I would just say maybe practice something to help your patience, go ahead and have routines of breathing techniques, or meditation, or going for runs or jogs, or something that you can do, as corny as it sounds, to recenter yourself or just take a pause in case you are feeling really frustrated with the kid. (Trevor)

In addition to managing strong emotions in specific moments, some fathers said that *low mood* could be challenging, and they worried about not being present enough for their child due to their low mood. One father described this tension,

> I do get depressed…but when you're around a one-year-old, two-year-old, three-year-old, you need to be strong enough to show him that you're his hero, you're there for him, you'll always be there for him. (Alan)

Several fathers reported the *use of substances to cope*, and said that if substance use was an issue, it would be very important to address in a program. One father reflected on the effect substance misuse could have on a child.

> I had to learn how to care about myself and just really understand like, "Why am I doing this? What is the root of all of this? Why do I feel the need to have things in excess? Why do I have the need to drink myself into a blackout or get so high that I spend all my money? I can remember when I was younger, I would say that I'm escaping. I craved the escape. But like, with a baby, you can't escape. The baby's here now. If you escape, he escapes too. (Jose)

Another experience that several fathers described was feelings of *stress and anxiety about the baby* during early parenting, especially regarding the wellbeing of their child.

> I do think there's a lot of mental health triggers, specifically with stress and even anxiety. It's like, "Oh, my gosh, is the baby going to be okay?" I can see that with my wife sometimes when you're always thinking about the baby, and so you're ruminating and you're almost catastrophizing. (Jose)

Many of the participants emphasized the importance of *learning to care for themselves and improve themselves* while learning to care for their child.

> My childhood experiences serve as a reminder of how I need to find a balance between my own life and also the life that I have as a father. Myself the individual, and myself as the father, because I have to be able to do both. I have to be able to find a balance of taking care of them both equally, so I can provide for him. At the same time, I can be there for him and make time for him which I feel is the main priority. (Samuel)

Overall, many of the participants portrayed a desire to improve themselves during the perinatal period in order to be better fathers. *Many did not want to pass on their mental health problems to their children*, but did not always know how to act on their desire to improve. One father hoped that a program could help with this.

> Hopefully a part of the program is, if you do want to be a better father, you also have to work on yourself. If you're not working on yourself and your issues, they're probably going to ultimately bubble up and your kid's going to experience them…I would think that if those aren't addressed, it just becomes a self-perpetuating cycle. (Trevor)

Relationships. Many participants said that relationships were one of their greatest challenges, and that a program for fathers who have a history of trauma should address relationships with the baby, their partner or coparent, and their own parents.

Nearly every participant emphasized the importance of their *coparenting relationship* and wanted to support the baby's mother as much as possible. Some wanted tangible advice on how to help the mother breastfeed or to help with sleep for her and the baby. Other participants emphasized joint parenting decision-making and navigating family dynamics with the new baby.

> I could have used a little better direction for what's going to be happening after the birth as far as the family life that the two of us are trying to build… You're talking about relationship with the child and there are definitely lots of things that have to be worked on together. It's not an individual experience at that point anymore. I feel that…mother-father learning how to do it together is an important part. That's probably the route I would prefer to take. (John)

Several participants described wanting to *connect more* to those around them, especially their partner and their child. However, some found creating secure connections difficult because of their childhood trauma, and did not know what they could do to improve. For example,

> Thinking on it, I'm realizing I didn't feel the amount of love and affection and care from my father, that I feel I wanted or I feel could have bettered me. I just want to be able to show my son that …but I didn't do everything properly to be able to put myself in that position. It's like, well, this makes sense that I would want this, but my actions didn't add up with how my mental state tells me I want things to happen. It's still a little confusing, what did I do wrong? Where does it come from? How can I fix these problems in order to show the people around me that I care about them, that I love them, that I want the best

> for them, that I'm here to support them? Things that I feel I should have been shown a little more. I still don't have the specific answer of what I can do differently throughout my daily life. (John)

A very common theme fathers shared was wanting to *avoid making the mistakes their parents made* raising them. One father shared his journey learning to be different from his own father.

> My default is to act like my dad, and that's what makes it hard because every day it resets and every day you have to… go back and realign to not to be like that. It's like when you wake up in the morning, your back, "Oh, I got to get it realigned," because in the middle of night it went back to how it was before. But every day gets easier… you get used to doing it. It's like a routine in the morning. (Jose)

Some fathers described the *dilemma of how to manage the relationship between their child and their own parents*, who they may not see as safe. Several fathers decided to reduce contact with their parents to almost nothing. Others allowed their parents to interact freely and watch the child, some because they felt their parent had improved since raising them, and others not seeing restricting the grandparent relationship as a viable choice. One father described trying to maintain a relationship, saying,

> My parents do still love him and everything. We're not sure. We haven't decided as far as when he gets a little older if we'll let them really watch him too much by themselves…We want them to be involved and see him and everything still. For now, at least, in more of a supervised setting. (Jake)

Several fathers shared that *bonding with their baby* was difficult, made even harder by strong negative emotions in response to the baby crying.

> I understand that he's got discomfort, and you're trying to alleviate that discomfort, but they don't know. You're trying not to hold it against the baby. They're babies and you're an adult and you know this… Those [survey] questions were like, "Do you feel warmth and love towards your child?" It's like, "Not a lot of times." And I feel bad, it's not fair. (Henry)

Parenting. Many fathers wanted a program that helped with parenting. Nearly all participants felt it would have been useful to learn about *parenting basics* before the child was born, including feeding, changing diapers, holding the baby, putting the baby to bed, baby's schedule for sleeping and eating, soothing, car seat safety, and home safety. Other participants said they could use help *learning to be more nurturing* with their child. One father said,

> When I see kids, I almost freeze because I hear the kid talk, you're like, "Oh, hey." You're trying to talk to them very sweet and very kind, like baby talk, and I never do that. I still don't do that. (Jose)

Managing challenging child behaviors was another topic fathers wanted to learn more about. One father wondered if it was ok to spank his child, and what alternatives there are to manage tantrums or other challenging behaviors.

> Honestly, the whole topic of spanking your kids. Is it really acceptable, or is there a limit to when you should spank the child? Because that's also something that's also come up a lot… How about getting the child to actually listen or sit down to eat because that's also been a problem too. Sometimes, we just raise our voices at her, and we always end up feeling guilty afterwards that we raised our voice at the baby. (Vincent)

Another desired program topic was *child development*, in terms of developmental milestones, how to enrich one's child, and how to play with children of various ages.

General life needs. When asked what would be helpful in a perinatal program, many of the participants said they could use help learning to budget time and money. One participant said that guidance on balancing their partner relationship, job, child, and the rest of their life would be the most useful perinatal program topic for him.

Intervention Format

When asked who should run a perinatal program for fathers who have a history of CMT, some dads wanted a more experienced dad to lead the group, and others wanted a trained professional such as a social worker or a therapist. Most participants wanted to meet with a group of other fathers who have a history of trauma. One father said, “Just thinking that there's others like me as well helps in itself. Maybe just a safe meeting space together, I feel like would be beneficial for a lot of people.” (Steve). However, other fathers preferred participating in a program with their partner or coparent.

Opinions varied greatly between participants about mode of intervention delivery. One father said, “I would definitely like to meet up with someone, whether it's online or in person…. It doesn't even have to be face to face… Even being an introvert it would be important for me.” (Jason). However, another participant said, "It could be interactive… but as far as actual interaction with a different person, I don't think guys would buy into that” (Chris).

Several of the participants considered various options throughout the interview, and in the end decided that it would be best to have *options*. For example, “I like the idea of being able to have the individual [program] online but then have an option to meet up (John).

Although several of the participants were enthusiastic about an online program that offered the opportunity to meet up in person, some also saw the anonymity of the internet as attractive for discussing stigmatized topics. For example, “I think the anonymous option would be better

because I think it breaks down the barriers so people feel less ashamed or nervous about talking about those things" (Miles). All participants who were interested in a program would have wanted it to start during pregnancy, and most wanted it to continue into the postpartum period.

Barriers to participation

Fathers shared a number of barriers that would impede their participation. Several shared that although ideally, they would prefer an in-person program, they might not have time to participate unless it was online. One father said online would be more feasible for him, and he would like some synchronous and some asynchronous components, to facilitate both connection with others and schedule feasibility. A few participants initially said that they would not be interested in a program but changed their minds when the interviewer suggested that it could take place online. One father said that he probably wouldn't participate because he is a combination of lazy and busy.

Another barrier was not wanting to talk about trauma. For example, "[Guys] don't want to talk about things or acknowledge that they happen" (Jake). Several participants said that although they themselves didn't mind talking about emotions, most men wouldn't want to. However, another participant expressed frustration that people assume men don't want to talk about emotions, when they do.

One father shared a strong need to learn parenting basics but said that admitting that he needed help was a barrier. He said,

> From an ego-pride perspective, they just don't want to say, "Hey, I don't know how to do this," … They're not going to admit that their confidence levels are low and it's a scary time for them. Because you know how a guy's ego is. They don't want to admit that they don't know… but they don't know, and I didn't know. (Chris)

Considerations for Programming Specific to Fathers who Have a History of Child Maltreatment Trauma

Most fathers preferred a program specific to survivors of CMT, although they said there would certainly be overlap between that and a regular parenting program. One participant said he would prefer a program for fathers with difficult childhoods over a normative program for the same reason that he would choose to learn French cooking from a highly rated chef as opposed to learning from the Pizza Hut guy (Steve). He said that a trauma-specific program would be more authentic. Another participant thought that although a program should pay attention to trauma, it would be better not to have separate programs for fathers who have a history of CMT. He worried that fathers who have a history of CMT would feel ostracized and more stigmatized if separated from other fathers. He also said,

> I think the basics are universal. Just be a good person, be loving, be caring, be understanding, be patient…. Regardless of your level of trauma, you're still this person who is the most important person to someone in the world… You may be the least important person to yourself, but trying to understand that you're worthy of being that most important person to that child. (Trevor)

Many participants shared that a key part of a program should be the chance to *connect with other dads who have experienced childhood trauma.* One father said, "I feel like the trauma has left me scarred socially, so I'd like social aspects, and having discussions about how to deal with trauma is also important." (Alan) Another theme was the desire to meet others with similar experiences because they *understand what I'm going through*. One participant said "Just thinking that there's others like me helps in itself. Maybe just a safe meeting space together would be beneficial for a lot of people." (Jake).

Another reason fathers emphasized a group format, or the program being led by a more experienced dad, was to have fathering role models. Nearly all participants said that they could not think of a role model that showed them how to be a good father. One father said, “Very few people I knew growing up had their dad in their life and if they did, it wasn't a good example of a dad.” (Miles). However, other participants advocated for anonymity over the benefits of a group setting to make it easier to talk about stigmatized topics.

Discussion

Participants who were interested in a perinatal program for fathers who have a history of CMT mostly wanted an in-person program with a group of other dads who also have a history of CMT. However, many also indicated interest in an online program, and said that online participation would be more feasible for them. Participants wanted a program to focus on relationship building, coparenting, managing low mood, managing anger, avoiding repeating their parents’ mistakes, and coping with their past trauma, as well as normative parenting topics. In terms of both content and format, interview participants’ intervention desires varied greatly from person to person. Even within individuals, several fathers wanted a flexible program that could be individually tailored to suit their needs and bandwidth throughout the childbearing year. Preventing ACEs is a priority for the Center for Disease Control and Prevention (CDC, 2019b). They propose six strategies to do so, including teaching parenting skills and family relationship approaches. The CDC also acknowledges a history of CMT as a parental risk factor for perpetrating maltreatment (CDC, 2019c). However, their proposed strategies to prevent ACEs are universal, not sufficiently taking into account parents’ own possible histories of CMT, especially given that an estimated one in four people experience child abuse or neglect (CDC, 2019a). Fathers who have a history of CMT have unique needs in the perinatal period which are

often left unmet by current systems of health and social care. This study found that universal interventions may not be sufficient in the quest to prevent ACEs. Fathers who have a history of CMT could likely be more effectively supported during the perinatal period through targeted, trauma-specific interventions.

Our results should be interpreted in light of the COVID-19 pandemic, as we conducted the interviews in the Fall of 2020. Some participants said that the pandemic changed how they responded to the survey and interview questions. For example, several said that they were less likely to request an in-person program due to gathering restrictions and risk of infection. Others said that they now preferred meeting online because the pandemic showed them how effective videoconferencing and online platforms could be.

When we began the qualitative content analysis, we initially divided themes into general and trauma-specific topics. However, as the analysis progressed, both analysts faced the challenge that this distinction was nearly impossible to make without making undue assumptions. Some participants faced mental health challenges and relationships struggles which they did not explicitly connect to their past trauma. Several participants had significant anxiety surrounding parenting, and it was unclear whether this was related to their histories of CMT. We decided to create a theme called managing emotions and mental health with the understanding that all participants identified themselves as survivors of CMT, and our goal is not to generalize to all new fathers. We focused on mental health and the sequelae of trauma because these seem to matter more for parenting outcomes than trauma history in itself. We do know that fathers with a history of CMT are more likely to experience these mental health sequelae, and also may have poorer parenting role models. Thus, the survivor father construct is still useful, but we

found it less useful to guess which intervention needs are necessarily related to survivor father' histories of trauma.

Another question we hoped to answer through this study was what kind of person fathers who have a history of CMT would prefer to lead an intervention. Though we asked about what gender participants would prefer to lead, we found that this was not as important as other characteristics of the program leader. Specifically, most participants wanted a more experienced father to lead an intervention, especially one who had also experienced CMT and had overcome related parenting difficulties. Other fathers wanted a qualified professional to lead an intervention (i.e. a physician, psychologist, social worker, or nurse), and the gender of that qualified individual was less important. One type of leader that could potentially meet both of these preferences is community health workers. Fathers who are past the perinatal period could be trained as community health workers, meeting the preferences for a program leader to be an experienced father, a qualified professional, and a 'near-peer' role model. This would also align with SAMHSA's peer support principle of trauma-informed care (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014)

These results should be interpreted in light of several limitations. Although successful at including diverse men in the survey and Latino and Asian men in the interviews, no Black men were interviewed. We augmented post-survey invitation by additional recruitment via flyers and snowballing techniques. Ultimately, we were unsuccessful in recruiting any Black fathers. Before developing an intervention, we need to recruit Black fathers to do interviews in a culturally specific study to learn if their needs and desires and barriers are similar or different.

Another consideration when interpreting these results is that recovering from trauma can be a long and complex journey, especially when trauma occurred during early child

development. Some participants were very open and articulate about their trauma in terms of the events that occurred, their experience of the events, and the effects they had on them in the past and present (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). On the other hand, some participants did not identify that what they went through was trauma, preferring to refer to their childhood as difficult, or something they don't want to repeat with their own child. Like survivor mothers (Seng et al., 2002), survivor fathers at different places on their recovery journeys likely have different needs during the perinatal period. For example, at the time of the interview one participant was living with his parents who had perpetrated maltreatment in his childhood, in addition to his wife and his child. He described feeling out of control and uneasy about how his child was raised and did not see distancing from his parents as an option. His intervention needs likely differ from another participant who had been in therapy for nine years and had not spoken to his parents for five years. Implications of this are that interventions may need to be modular and flexible to be tailored to individual needs. In addition, it may be helpful for screening and programs materials contain behavioral wording instead of labeling trauma and maltreatment, as those terms may be off-putting to some.

Conclusion

Many new fathers who have a history of child maltreatment trauma were interested in a perinatal intervention that takes into account their trauma-related needs. There are too few father-inclusive perinatal interventions in general. Existing fathering interventions are universal, likely leaving the trauma-specific needs unmet for the approximately one in four fathers who have a history of child maltreatment. Survivor fathers in this study expressed desire for an in-person or online program during pregnancy and the postpartum period. In addition to parenting basics, an ideal program would support them in coparenting, navigating relationships to connect better,

managing strong emotions and triggers, managing low mood, and coping with their past trauma. Many also sought peer support from other fathers who have a history of CMT, as well as fathering role models, which they so far lacked. There is an urgent need for the development of targeted, trauma-specific interventions for fathers, as these have the potential for improving population-level health by preventing adverse childhood experiences and breaking intergenerational cycles of trauma.

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CHAPTER FIVE: Conclusion and Next Steps

Summary

This three-paper dissertation included the development of a theory and a mixed-methods online survey project exploring predictors of parenting stress in new first-time fathers, and the intervention needs of those who have a history of child maltreatment trauma (CMT). Paper 1 proposed the Trauma-Informed Behavioral Ecology (TrIBE) Theory of Fatherhood, which takes into account the potential impact of a father's history of CMT on his transition to parenthood. Central to TrIBE theory is that both fathering quantity (responsibility, accessibility, and engagement) and quality (sensitivity, mental health, and self-regulation) contribute to secure father-infant attachments. When a father has a history of CMT, his parenting quality can be impacted via mental health problems, poorer self-regulation, and poor role modeling of sensitive parenting. Thus, both intergenerational and intragenerational factors contribute to the overall well-being of the family system, and a fathers' attitudes and behaviors in his role.

Paper 2 reported on a quantitative analysis of survey data from first-time fathers of children under the age of 2. Our purpose was to explore the relationships among fathers' histories of CMT, their perinatal mental health and complex trauma sequelae, and their level of parenting stress. First, we used a bivariate comparison of fathers who had a history of CMT and those who did not by key variables. Then we conducted a hierarchical linear regression of maltreatment and mental health variables on parenting stress. Bivariate analyses demonstrated that on average, new fathers who had a history of CMT had higher parenting stress than those

who did not. Significantly more CMT survivors had probable PTSD and major depressive disorder (MDD) diagnoses than those who did not report a history of CMT. On average, fathers who had a history of CMT also had higher scores on interpersonal reactivity, anger expression, and dissociation. In addition, new fathers who have a history of CMT reported lower coparenting relationship quality on average. In the hierarchical linear regression, probable PTSD and depression diagnoses were initially significant predictors of parenting stress. However, when interpersonal reactivity and quality of coparenting were added to the model, those became the most significant predictors of parenting stress, while probable PTSD and MDD diagnoses become non-significant.

Paper 3 reported on a mixed-methods analysis of survivor fathers' intervention needs in the perinatal period. For quantitative data, we used the same online survey data from Chapter Three, querying first-time fathers of children under age two. Survey participants were asked about their unmet perinatal needs, interest in an intervention, and desired intervention characteristics in terms of content and format. From the survey sample, we recruited a subset of 15 fathers who endorsed a history of CMT to individual interviews over Zoom audio. The majority of survey participants wanted an in-person intervention, and the second most wanted format was an online intervention. Qualitative participants were also split, and many wanted to have options between online and in person offerings that would suit their evolving needs throughout the childbearing year. Many interview participants liked the idea of an initially online intervention with opportunities to engage in person if desired. Most fathers in both the survey and interviews wanted to learn normative parenting topics or 'parenting basics.' Many participants who had a history of CMT additionally desired attention to how trauma impacts their perinatal experiences and parenting. Specifically, they were interested in a focus on

strengthening relationships including coparenting and bonding/attachment with the baby. Most survivor fathers wanted an intervention to involve connection with other fathers who had also experienced child maltreatment, and/or one that was led by more experienced survivor fathers.

Overarching Conclusions

Overall, this dissertation work supports the immense importance of relationships in both trauma recovery and early parenting. TrIBE theory was named such because the literature upon which is rests consistently demonstrated the importance of relationships. Relationships within nuclear families strongly impact fatherhood, as do relationships and factors that span generations and surpass family ties to encompass a fathers' larger community. This dissertation work focused in on how trauma can be passed from one generation to the next through a variety of posttraumatic sequalae that can increase perinatal parenting stress. These include increased mental health problems, potential for impaired attachment systems, and poorer parenting role models. In Paper 2, we were surprised to find that coparenting, interpersonal reactivity, and anger expression were the strongest predictors of parenting stress and that probable MDD and PTSD became non-significant when the relationship factors were added to the model. In the qualitative interviews as well, fathers talked much more about their coparenting relationship, their struggles with sensitive parenting, and their efforts to protect others from their strong emotions than they did about mental health problems themselves.

Looking ahead towards intervention development, a key takeaway from this dissertation work is that fathers' parenting experiences and behaviors seem to be strongly shaped by their relationships. Thus, perinatal interventions for fathers who have a history of CMT should address mental health, but should also extend beyond the 'classic' posttraumatic diagnoses (i.e. PTSD

and MDD), to support fathers in building and maintaining secure relationships with their coparent, their child(ren), and their broader community.

Fathers we interviewed also emphasized relationships. They hoped an intervention would help them find fathering role models and be able to connect with other fathers at their parenting stage who also had histories of CMT. Some also wanted their partner or coparent to be part of the intervention. Their emphasis on relationships supports TrIBE theory's focus on community support. The word 'tribe' is defined as 1a: a social group composed chiefly of numerous families, clans, or generations having a shared ancestry and language, or 2: a group of persons having a common character, occupation, or interest (Merriam-Webster). In the age of the internet and globalization, historical notions of tribe bound by geography are outdated. Virtual connectivity makes kinship and shared experience possible across distance and diaspora. Fathers who are survivors of CMT may seek membership and belonging in such groups, and may benefit greatly in terms of both trauma recovery (Junger, 2016) and parenting (Plesko et al., 2021).

Limitations

This dissertation research should be interpreted in light of several limitations. Although the TrIBE theory (Chapter 2) provided the background and theoretical underpinnings for the project reported by Chapters 3 and 4, the theory in its entirety was not tested. The data from this project were only suited to test the relationships between CMT, mental health and relationship sequelae, and parenting stress as a loose proxy for parenting quality and eventually child outcomes. Although based in the literature, the rest of the theory requires additional testing with fathers who have a history of CMT. In addition, though prior research does support the assumption that parenting stress predicts child abuse risk and child outcomes (Fredriksen et al., 2019; Magill-Evans & Harrison, 2001; Rodriguez & Richardson, 2007), this should be tested

more robustly in survivor fathers with longitudinal research following child outcomes. A study to test TrIBE theory in its entirety would require elements beyond what is permitted by an online survey, including measurement of maternal data and child outcomes.

There were also several limitations to the measurement methods used, made necessary by the anonymous internet survey design. For example, we were not able to confirm PTSD or MDD diagnoses, instead using validated cut-points in symptom counts to predict probable diagnoses. All survey data was self-reported and not assessed by a diagnostician. In addition, the statistical analyses conducted did not take into account the root cause of participants' PTSD or MDD. In general, it can be difficult to determine the cause of these disorders. It was not known whether participants' PTSD was more directly related to their childhood trauma or about a more recent adult trauma. Participants with MDD may have had endogenous or chemical depression, or the depression may have been related to a trauma either in childhood or more recently (Flory & Yehuda, 2015; Rytwinski et al., 2013). More in-depth and person-centered analyses and measurement methods could help future analyses be more robust to these distinctions.

The cross-sectional design of this study is another limitation that prevented us from testing the predictive validity of the presence and severity of a CMT history on early parenting outcomes, and of those outcomes on child wellbeing. We also assumed that participants remembered and reported accurately on their childhood experiences such as attachments to their parents and experiences of CMT (or lack thereof). Data from other sources besides the father were not available, including data from coparents or children.

Because the population of new first-time fathers is hard to reach, we needed to expand our inclusion criteria to include fathers in the UK as well as the US in order to attain the sample size suggested by our power analysis (estimating from a similar study with women, (Seng et al.,

2009). This raises questions of generalizability to the populations in either country, though we did control for country of residence to mitigate this limitation. However, the sample was not representative of either country's population. Survey participants were on average wealthier than the national average in either the US or the UK. Racial and ethnic identities of participants were approximately nationally representative of the populations of both countries combined. For example, the US population is approximately 13% Black (United States Census Bureau, 2021), and the UK population is approximately 3.4% Black (Institute of Race Relations, 2014), and our sample was 6.3% Black. In addition, racial and ethnic identities may carry different meanings and implications in the US versus the UK, one explanation for why race was non-significant in our analyses in contrast to similar studies in the literature.

Considerations for Survivor Father Engagement in Research and Interventions

In research and intervention development with fathers who have a history of CMT, engagement can be challenging for a variety of reasons. Firstly, avoidance is a diagnostic criterion of PTSD. Because avoidance is a common defense mechanism for individuals who have experienced trauma to employ, it may be more difficult to recruit fathers who have a history of CMT to participate in trauma-specific research and interventions. In addition, many survivor fathers may not be aware of how their trauma continues to affect them and their families—another barrier to engagement. Societal norms around masculinity and manhood can discourage emotional vulnerability and disclosure of child maltreatment (Price-Robertson, 2012), which may present another challenge to research on this topic.

Because of the barriers to participation that fathers who have a history of CMT may experience, it is essential for researchers and intervention developers to maintain careful attention to designing projects in an attractive way that lowers barriers to participation. For this

dissertation research, we decided to recruit participants online, and allow them to maintain total anonymity as they took the survey, and anonymity except through voice recording for the interview portion. We did not collect any personally identifying information at any time during the study, which may have bolstered engagement in spite of the stigmatized topic. Anonymity may not always be feasible for more in-depth observational studies and intervention testing. However, allowing for anonymity is a promising way to initially engage men, allowing them to explore the topic without committing to immediately identifying themselves as survivors. Several of the interview participants said that anonymity made them feel comfortable participating and helped them be vulnerable and honest in sharing their stories.

It may also be important to allow ample time for fathers who have a history of CMT to explore whether they identify with being a survivor whose traumatic experiences affect them as they become a father, and may thus benefit from additional participation. For example, throughout the survey and before inviting participants to interview, we included links to lay-friendly resources at the end of each instrument within the composite survey for participants to explore if they found them interesting and relevant. Several of the interview participants said that just taking the survey and exploring the linked resources made them realize for the first time how much their trauma was affecting them as a new father, and made them want to give an interview.

Safety is a key value to uphold in trauma-specific research and intervention development. Although anonymity may lower barriers to engagement, it also limits the type of data that can be collected by clinicians. For example, we were not able to ask the entire PHQ-9 depression screener including the question about suicidality. Neither could we assess ongoing potential or actual perpetration of child maltreatment, because participant anonymity would prevent us from following the reporting and referral protocols required by our clinical licenses. This project was

done with a community sample, but with at risk or clinical samples, trauma history and maltreatment risk could more safely be assessed at greater depths. Clinical samples with very severe posttraumatic impairments would likely have different intervention needs than community samples of fathers with histories of CMT. With trauma-specific intervention projects targeting either clinical or community populations, maintaining safety is of the utmost importance, and may prohibit anonymity. With research that digs deeper into participants' trauma than our research design allowed, thoughtful and robust referral pathways should be in place for the safety and wellbeing of the participants.

Future Research Directions

Observational research

This dissertation research provides a promising launching point for more in-depth studies. In particular, longitudinal studies that begin in early pregnancy or pre-pregnancy and continue until child outcomes can be measured would be a useful next step. Longitudinal research would greatly increase robustness to changes over time, and illuminate the delicate interactions between mental health, complex relationship trauma sequelae, and ongoing relationships with coparents and infants. In addition, our project highlights the immense importance of the coparenting relationship for new fathers. Thus, in future research, data from both mothers and fathers would add valuable richness to untangling key underlying constructs. Future studies could the impacts of both mothers' and fathers' histories of CMT on parenting stress in a dyadic analyses of both coparents in relationship.

We chose parenting stress as the primary outcome for this project because it hints at the potentially compounding stress responses of posttraumatic stress and the transition to

parenthood. In addition, parenting stress is associated with parenting quality and child maltreatment potential (Rodriguez & Richardson, 2007) and a fathers' engagement with their child (Halme et al., 2006). Parenting stress may be at the intersection between a fathers' wellbeing and the child's wellbeing in the context of their early father-child relationship. However, parenting stress is somewhat distal to child wellbeing outcomes, as we rely on the assumptions that parenting stress decreases parenting quality, which in turn decreases child wellbeing. Future research could remove the need for these assumptions by assessing both parenting behavioral outcomes and child wellbeing outcomes. Other fatherhood outcomes that may be useful to examine include parenting sense of competence, father-infant bonding, father engagement, and attitudes about the role of the father. These constructs were measured in this project but were beyond the scope of this analysis. We plan to examine them in secondary analyses using the data from this project.

The TrIBE theory of fatherhood is the first theory of fatherhood that takes into account intergenerational transmission of child maltreatment and psychiatric vulnerability, and acknowledges the profound effect that CMT can have on new fathers. This project tested only a small part of TriBE theory, and other components their interactions require further testing. As presented in this dissertation, TrIBE theory loosely relates key concepts without operationalizing their interactions computationally. These approaches could be a useful next step in the theory development which would allow us to model how these factors of interest relate with much greater accuracy and specificity. For example, future projects could seek a sample size sufficiently powered to detect small to medium effect sizes using structural equation modeling robust to several latent factors and potential mediation relationships (i.e., mental health outcomes as mediators between CMT and parenting behaviors).

Intervention Development

Though there is still much to be learned through observational research, enough evidence has mounted that child maltreatment and its sequelae matter to early parenting that intervention development is arguably more urgent. Many of survivor fathers' trauma sequelae are amenable to intervention, but there are few resources and supports available to new fathers who have a history of CMT. Thus, intervention development and testing are sorely needed. For intervention with fathers who have a history of CMT and who may have wounded attachment systems, relationships are one of the most important things to focus on during the perinatal period. Relationships are both an area of difficulty for many fathers who experienced CMT, and a key mechanism for how trauma is passed on to the next generation, making them a promising intervention target.

Fittingly, many fathers who participated in the qualitative interviews said that an ideal perinatal intervention would bring them together with other fathers who also experienced CMT, because relationship-related topics and skills would be more effectively taught in a group. When asked about role models for being a good father, almost none of our 15 participants said that they had even one good role model. They thus expressed much interest in meeting fathering role models who also experienced CMT as part of a program, and hoped that such fathers would be involved in the program leadership. These data align with the principle of peer support from SAMHSA's framework for trauma-informed care (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). As Judith Herman said,

> Recovery can take place only within the context of relationships; it cannot occur in isolation. In [their] renewed connection with other people, the survivor re-creates the psychological facilities that were damaged or deformed by the traumatic experience.

> These faculties include the basic operations of trust, autonomy, initiative, competence, identity, and intimacy (Herman, 1992, p. 133).

Experiences of trauma and recovery are nearly idiosyncratic to the individual who experiences them. Although there are certainly parallels that can be drawn across groups of survivors, we found that there was huge variation in the desires of different fathers who had histories of CMT. Their desires seemed to be influenced by the particularities of their traumatic experiences, the place they were in their recovery journey, their current context and relationships, and their individual personality characteristics. Because of the wide variety of desires, an ideal intervention for fathers who have a history of CMT would likely be highly flexible, able to be tailored to an individual's needs in terms of both content and format. An example of an individually tailorable intervention format is an online intervention that is asynchronous, but has options for synchronous online group meetings and in-person group meetings. For individualizing content, a participant could begin an intervention with assessment and determination of their needs and goals. Different modules could be available and completed in order of greatest interest and need. An intervention could include modules on normative parenting as well as trauma-specific modules (e.g., coping with low mood, coping with anger, coping with triggers of strong emotions, connecting with coparents, sensitivity, father-infant attachment, etc.).

The three aims of this dissertation were met, and the project reported by Chapters Three and Four inspired a promising new direction—gaming as a mode of intervention with new fathers who have a history of CMT. Although there is still much to learn about how trauma may be transmitted intergenerationally, we know enough to be confident that trauma-specific interventions for survivor fathers could be helpful. Researchers seeking to create such an

intervention that is both attractive and effective face significant barriers. In summary, these barriers include 1) the complexity and individuality of the trauma, recovery, and early parenting journeys, 2) the difficulty researchers and clinicians have found engaging fathers in interventions, 3) the many various preferences and desires expressed by fathers in this study for what an attractive intervention would look like in terms of content and format, 4) the evolving needs that fathers have across the childbearing year, and 5) the stigmatization of the topics of child maltreatment trauma, mental health, and having negative feelings about parenting. Attempting to address these barriers brought us and our participants down the pathway of exploring gaming as a mode of intervention for new fathers with a history of CMT.

Initial Exploration of Gaming

Although not a formal part of the dissertation as proposed, the qualitative interview component lent itself to beginning the co-creation of an intervention in broad strokes. We used continuous analysis of the interview transcripts, including debriefing between myself (Granner) and my faculty advisor (Seng) after each interview. This allowed us to update the interview guide with more detailed questions as the interview period progressed. Participants expressed, and we know from prior research, that any intervention would need to be very attractive to overcome the challenge of engaging fathers in research and interventions. Participants also expressed a desire for social connection, mutual support with their partner or coparent and other fathers, and having evolving, tailorable options throughout the childbearing year. Some shared that they thought a trauma-specific intervention for men would only be feasible and acceptable if participants had the option to remain anonymous. To meet these needs and desires, an attractive intervention will likely require significant innovation.

"Serious games" refer to video games designed for a primary purpose other than pure entertainment. They provide a way to increase engagement and make health-related learning and habit formation more fun. Through a gamified approach, elements of play, simulation, challenge, transparency, and reward can be harnessed to promote changes in participant attitudes and behaviors regarding real-world problems (Pereira et al., 2014). Serious games have been demonstrated to be effective in mental health spaces, notably including several games effective in improving and preventing symptoms of depression (Fleming et al., 2017).

As our interviews progressed, the idea of a serious game for fathers who have a history of CMT emerged as a way to actualize many of the intervention characteristics that participants requested. We updated the interview guide at interview 7, asking the last 8 participants more detailed questions about a gamified intervention design. The affective responses that could be gleaned from the audio-only exchange suggested a very positive response to the idea of a serious game. One father who throughout the interview said that he would *not* be interested in a trauma-specific perinatal intervention changed his mind, saying, "It sounds interesting. I like it. …People can connect with each other pretty easily on them, too... Personally, if it was already developed, I would definitely give it a try for a while." During another interview, the interviewer described a serious game designed to help fathers who have a history of CMT with mental health, relationships, and early parenting. One participant responded,

> I love that…I think in terms of educating people in general, so much of it is done in a way that's very antiquated…. I think it's not engaging enough for people. [Gaming] is just such a good way for people to absorb this information. It's a way for it to be a lot more of an interactive experience and get people engaged, so I think that's awesome."

The research on gaming for therapeutic purposes is small but growing. The characteristics desired by these fathers—and the issues they want to tackle—may be able to be met with a combination of gaming and moderation or facilitation or debriefing by a "near-peer" role model. Simulation seems a particularly apt form of gaming with flexibility akin to a modular intervention, and is already a well-established method in PTSD treatment (Smys & Raj, 2019), along with several other kind of games (Butler et al., 2020; Holmes et al., 2010; Macleod & Sloan, 2017). Role playing games (RPGs) are one of the most well-known and popular game types already, including World of Warcraft, The Sims, Animal Crossing, and Stardew Valley. To begin down the path of creating a serious game for new fathers who have a history of CMT, I have accepted a post-doc position at Yale in the Play2Prevent lab in the Department of Psychiatry. I am particularly excited to learn methods in game development for mental health promotion, and how gaming can be used both as an interactive learning tool and also as a way to therapeutically connect people going through parallel life challenges.

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APPENDICES

Appendix A: Chapter Three Appendix

Table A.1: Measures Used on the Prolific Internet Survey

Concept	Measure	α	Variable
Outcome			
Parenting Stress	Parenting Stress Index (PSI) short form (Abidin, 2012; Haskett et al., 2006)	.91	Score (36-180)
Trauma Exposure & Positive Upbringing (Steps 2 and 3)			
Maltreatment ACE Count	Adverse Childhood Experiences Questionnaire (ACEs) (Felitti et al., 1998; Murphy et al., 2014)	.58	Count (0-5)
Father's Positive Caregiving	Descriptions of Parental Caregiving Style—Father (DPSC-F; modified) (Dalton III et al., 2006)	.92	Score (0-36)
Mother's Positive Caregiving	Descriptions of Parental Caregiving Style—Mother (DPSC-M; modified) (Dalton III et al., 2006)	.89	Score (0-36)
Mental Health Status and Complex Sequelae (Steps 4 and 5)			
PTSD	PTSD Checklist-5 (PCL-5; Blevins et al., 2015; Weathers et al., 2013)	.94	Probable Diagnosis (yes/no)
Major Depressive Disorder	Patient Health Questionnaire-8 (Kroenke et al., 2009)	.90	Probable Diagnosis (yes/no)
Interpersonal Reactivity	SCL-90-R: Interpersonal Sensitivity Subscale (Derogatis & Cleary, 1977a, 1977b)	.91	Score (0-36)
Dissociation Symptoms	The Dissociative Subtype of PTSD Scale (DSPS) depersonalization and derealization items (Wolf et al., 2017)	.88	Count (1-7)
Anger Affect Dysregulation	State Trait Anger Expression Inventory (STAXI) Outward Expression Subscale (Spielberger et al., 1999)	.88	Score (16-64)
Trauma-related Substance Use	Substance use stated as way to cope with difficult emotions (alcohol, tobacco, marijuana, illicit/street, other)	n/a	Count (0-3+)
Coparenting (Step 6)			
Coparenting relationship quality	The Coparenting Relationship Scale – Brief version (CRSB) (Feinberg et al., 2012)	0.83	Score (0-56)

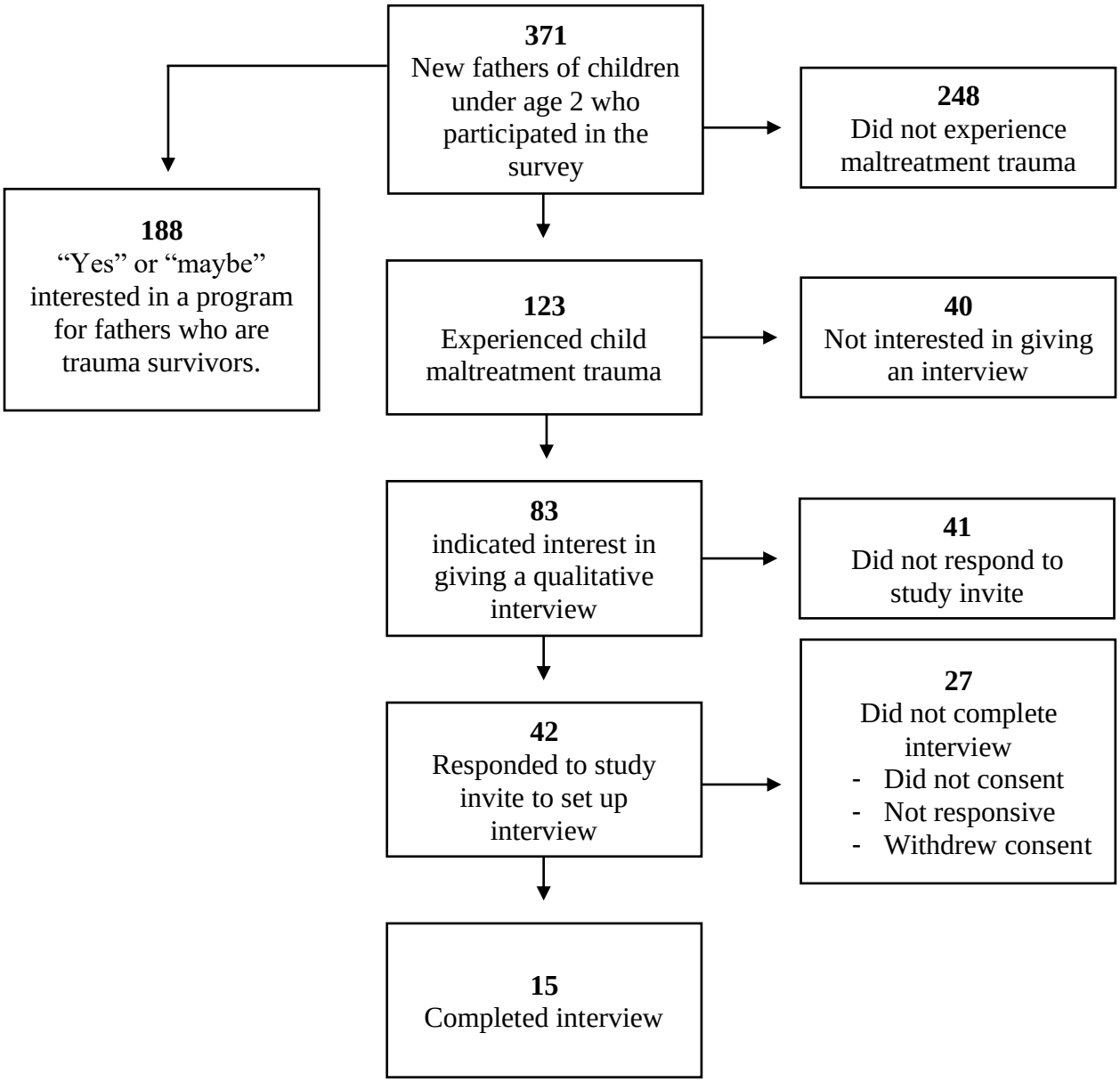
Appendix B: Chapter Four Appendix

Table B.1: Qualitative Sampling Frame (N=15)

	Resilient (No PTSD)		**Subclinical PTSD Symptoms**		**Probable PTSD**	
High Parenting Stress	**Jake** (White)	White	**Alan** (White)	**John** (White)	**Trevor** (White)	**Josh** (White)
	Henry (Hispanic)	BIPOC [a]	**Jose** (Latino)	**Steve** (Asian)	**Jason** (White)	**Ben** (White)
			Chris (Turkish/ White)		**Vincent** (Cambodian)	
Low Parenting Stress	**Miles** (White)	**Ethan** (White)	White	White	White	White
	BIPOC	BIPOC	BIPOC	BIPOC	**Samuel** (Hispanic)	BIPOC

[a] Black, Indigenous, or Person of Color

Figure B.1: Mixed methods recruitment flowchart



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