The effect of parental trauma on child well-being in Trinidad and Tobago: A mixed-methods study

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Abstract

Background

Evidence from a number of countries suggests that the majority of adults have experienced a traumatic event in their lifetime. Trauma's effects are pervasive and can significantly alter the trajectory of a person's life, even making an impact on future generations.

Methods

Firstly, I performed a systematic review of the global literature assessing mediators between parental trauma and child well-being. Next, I used a population-based survey conducted in Trinidad and Tobago to investigate the impact of maternal intimate partner violence (IPV) exposure on children's behavioural outcomes, as mediated by maternal mental health. Finally, my qualitative study explored Trinidadian parents' perspectives on how adversity has shaped their parenting.

Results

My systematic review identified a range of mediating factors, with parental mental health and parenting behaviours featuring most prominently. The review also highlighted key areas of parental trauma research that have been neglected; namely, studies assessing aspects of paternal trauma, physical health measures, and research focused in low- and middle-income countries. In my quantitative study, the association between maternal IPV and child behavioural problems was partially mediated by symptoms of both maternal anxiety and maternal depression. Finally, my qualitative study explained the significant toll that adverse conditions have taken on parents' well-being. Despite the challenges involved with keeping their families afloat, parents described several adaptive mechanisms they used to cope with their parenting responsibilities during times of distress.

Conclusion

Parents are often willing to make significant changes to their lifestyle to protect their children. Regardless of their intentions however, a parent's experience of trauma can negatively impact children's well-being in numerous ways, particularly through diminished parental well-being and compromised parenting behaviours. In order to improve both parent and child well-being in the context of adversity, public health interventions should target parental constraints on the individual, interpersonal, social and structural levels.

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List of Abbreviations

LSHTM	London School of Hygiene and Tropical Medicine
PTSD	Post-traumatic stress disorder
DSM-5	The Diagnostic and Statistical Manual of Mental Disorders (version 5)
UNICEF	United Nations International Children Emergency Fund
PhD	Doctor of Philosophy
LMIC	Low- and Middle-income countries (as per World Bank classifications)
IPV	Intimate partner violence
CHE	Complex humanitarian emergencies
CMD	Common mental disorders
CAN	Child abuse and neglect
EBD	Ecobiodevelopmental (framework)
SOM	State of mind
SEM	Structural equation modelling
ED	Enumeration District
CSP	Citizens Security Programme
ACE	Adverse childhood experience
OR	Odds ratio
CI	Confidence interval
GSEM	Generalized structural equation modelling
SD	Standard Deviation
IDB	The Inter-American Development Bank
GSHS	Global School-based Student Health Survey
NGO	Non-governmental Organisation
UWI	University of the West Indies
RHA	Regional Health Authority
PPS	Probability proportionate sampling
PSU	Primary sampling unit
SSU	Secondary sampling units
USU	Ultimate sampling unit

Chapter 1: Introduction

1.1 Overview of chapter

This thesis addresses the concept of parental trauma with respect to its impact on child well-being. Presently, the consequences of trauma have been understudied in non-clinical populations,[1] particularly when it comes to intergenerational effects. In this chapter, I first provide an overview of the global prevalence of traumatic events and their known sequelae. Next, I introduce the study setting, citing numerous potential sources of parental trauma and providing statistics on the present state of child well-being outcomes in Trinidad and Tobago. Following this contextual background, I provide a theoretical backdrop for the effects of parental trauma on child well-being. Here I include my proposed conceptual framework linking factors between a parent's experience of a traumatic event, their parenting behaviours and aspects of their children's mental, physical and social well-being. In this section, I also consider the potential differences between a mother and father's experience of trauma and its resulting impact on their children. Finally, I provide a depiction of an ecological framework that embeds a parent's experience of trauma into a network of systems relevant to a child's development. This framework is helpful in understanding the complex, and sometimes indirect ways in which parental trauma may be linked to child well-being, depending on both the source of trauma and the specific context in which it occurs. It should be noted that while this thesis seeks to move away from the typical biomedical model for defining trauma-related disorders as mental illnesses, the framing of much of the currently available literature precludes my ability to avoid citing and employing commonly used terminology such as post-traumatic stress disorder (PTSD).

1.2. The global prevalence and sequelae of trauma

1.2.1 Defining trauma

The *Diagnostic and Statistical Manual of Mental Disorders version 5* (DSM-5) defines trauma as "actual or threatened death, serious injury, or sexual violence" as part of its diagnostic criteria for post-traumatic stress disorder (PTSD).[2] By this definition, most adults in the world have experienced at least one traumatic event in their lifetime.[3] A recent review also noted the high prevalence of trauma exposure among young people, citing the associated large health burden.[4] Despite its pervasiveness, trauma is unequally distributed across populations. For instance, the prevalence of collective violence and disasters is significantly higher (10 times) in low- and middle- income countries (LMIC) as compared to the rest of the globe.[5] Still, no nation is impervious to trauma and the significance of its impact on population health is becoming increasingly apparent in the public health field.

For my systematic review, I use the aforementioned DSM-5 definition to define traumatic events, limiting their scope to those events classified by the psychological community as meeting exposure criteria for a PTSD diagnosis. By doing so, I hope to gain a clear sense of the mediators operating in the context of parental trauma in its most extreme forms in a way that lines up with the current paradigm for traumatic events as defined by much of the world's medical community. For the quantitative analysis, I use a dataset that looked specifically at the prevalence of lifetime sexual and physical intimate partner violence (IPV) among women in Trinidad and Tobago. This exposure choice also met the DSM-5 criteria, but focused on a specific form of trauma: IPV. For my qualitative study however, I allow study participants to determine what constitutes a 'traumatic event' from their perspective. My intention in adopting this approach is to broaden our understanding of what parents may constitute as 'trauma', by exploring some of the more nuanced determinants of traumatic distress. This broader characterization aligns with the Cambridge dictionary definition of trauma as, "severe and lasting emotional shock and pain caused by an extremely upsetting experience, or a case of such shock happening." From this perspective, events which the DSM-5 does not currently identify as a 'traumatic event,' might still cause a parent 'severe and lasting emotional shock and pain' in ways that are important to understand when considering resulting effects on child well-being.

1.2.2 Defining Child well-being

The United Nations International Children Emergency Fund (UNICEF) describes child well-being as children's "health and safety, their material security, their education and socialization, and their sense of being loved, valued, and included in the families and societies in which they are born." They suggest six different domains for measuring a child's well-being: material well-being, health and safety, educational well-being, family and peer relationships, behaviours and risks, and subjective well-being. For this Doctor of Philosophy (PhD) project, I limit child well-being outcomes to the following domains: a child's emotional, psychological, social, and physical health measures. Though other aspects of UNICEF's child well-being definition (such as material security) are mentioned as contextual factors, I restrict child well-being outcomes in this thesis to these four categories of measurable endpoints. By doing this, I attempt to capture the extent to which children's well-being with specific respect to their physiological and behavioural responses, are influenced by parental trauma.

1.2.3 Trauma's diverse effects

Since traumatic events often reshape a person's worldview, trauma-related sequelae have the potential to endure for a lifetime. Exposure to these types of events can result in a significant disruption in an individual's beliefs and expectations; persons are subjected to feelings of intense powerlessness as

they experience circumstances outside of their control.[6] Presently, a lot of trauma-related research uses Post Traumatic Stress Disorder (PTSD) as a way to assess an individual's development of posttraumatic sequelae. While psychology provides an important framework for thinking about the impact of trauma, the use of this term and diagnostic method in the context of public health research may result in an oversimplification of trauma-related sequelae.[7]

For instance, an individual may not meet the full diagnostic criteria for PTSD but may suffer extreme emotional distress following a traumatic event, significantly impacting their functioning and interpersonal interactions. In fact, research suggests that even if a person does not develop PTSD after a traumatic event, their initial exposure increases their risk of developing PTSD, anxiety or depression if they experience subsequent trauma. This suggests that there are lasting psychophysiological consequences to traumatic exposures, even when they do not result in explicit mental health disorders.[8] Additionally, the DSM-5 criteria limit an individual's diagnosis of PTSD to having experienced a specific list of events considered as 'traumatic.' These limiting criteria may prove unconstructive when quantifying the impact of trauma in diverse contexts. For example, in a qualitative study of refugees and asylum seekers in Switzerland, participants did not attribute their symptoms of trauma-related mental and physical distress to a single traumatic experience, but pointed to persistent adverse living conditions as the source of their suffering, suggesting that the concept of PTSD (which is limited to the discrete occurrence of specific types of stressors) might have limited utility in such populations.[9]

We can surmise from all of this evidence that how we define 'trauma' should take into account both the context in which a distressing experience occurs and the accumulation/duration of these experiences. In that regard, trauma's effects on an individual may be best understood through a biopsychosocial approach that incorporates individual and community factors related to resilience and stress in the face of trauma.[10] For example, one qualitative study observed that, "an individual's way of coping with traumatic experiences is shaped by personal, social, and cultural factors. As soon as an individual's coping capacities are over-strained, pathological symptoms emerge."[9] Another qualitative study among indigenous groups in Brazil suggests that despite some universal similarities, the expression of traumatic distress differs based on cultural and historical settings which influence persons 'cognitions, behaviours, and values.'[11]

Furthermore, the impact of trauma on an individual is best understood in the context of their community and in the case of collective traumas, communities can also be significantly affected by a traumatic event. Natural disasters, terrorism and conflict for example, may destroy public health infrastructure and social networks in communities, which may further disrupt an individual's chances of displaying resilience in the face of trauma.[12] Alternatively, certain shared traumas like natural

disasters have been shown to promote community bonding and group cohesion,[13] which may influence how individuals cope with the traumatic experience, potentially improving their chances of resilience.

1.2.4 Trauma in disaster-affected populations

Disasters can cause significant trauma to individuals and communities. The recent Covid-19 pandemic inflicted various types of traumatic stress on the global population including: grief due to Covid-19 related deaths, the economic trauma of job losses, and the secondary trauma and intense pressures experienced by healthcare professionals.[14] On the natural disaster front, the most catastrophic recent disasters include: the Indian Ocean tsunami in 2004, the Haiti earthquake in 2010, and the Japanese tsunami in 2011.[15] These events resulted in significant psychological, social and economic damage to populations. For instance, the Haiti earthquake was reported to have resulted in 222,750 deaths, 300,000 injuries and 1.5 million persons displaced, costing about $4.5 billion in relief. In terms of personal sequelae, post-disaster studies have revealed a high prevalence of psychiatric manifestations a few months after a natural disaster. For example, PTSD has been observed as the most frequently diagnosed illness among flood-affected populations.[16] Regarding long-term effects of natural disasters, one year after a super-cyclone in Orissa, India, adolescents still exhibited symptoms of PTSD (26.9%), major depression (17.6%) and generalized anxiety disorder (12.0%).[17] Additionally, a study of 3,044 people reported significant long-term mental health effects in persons from regions exposed to the Chernobyl chemical explosion as compared to unexposed regions. Interestingly however, this psychological distress manifested at a sub-clinical level for most respondents.[18] With respect to physical health, residents in communities exposed to disasters such as chemical spills have been shown to display higher levels of somatic symptoms, high blood pressure and impaired cortisol reactivity as compared to unexposed communities.[19]

Moving beyond health sequelae, disasters often result in sociological disorganisation, with many disruptive consequences for family's normal social and community support systems. For instance, a survey of adolescents and adults in Chernobyl reported increased social isolation, substance use and job and relational instability even 5-7 years after the Chernobyl accident; disasters like this often result in evacuations, economic disruptions, government distrust, and an uptick in the risk of crime and violence in a community.[18] All of these factors then work together to create a chaotic environment for individuals recovering from their exposure to an unpredictable and often devastating event.

1.2.5 Trauma in war-zones and refugee populations

Armed conflicts are responsible not just for their significant associated mortality, but are the cause for substantial disability among those who survive them, their families and their communities. A meta-

analysis estimated that 1.45 billion persons (1 billion of them adults) had been exposed to war between 1989 and 2015, and 25% of them were estimated to be suffering from PTSD or major depression in 2015.[20] Additionally, a study of veterans found that 4.5% of male veterans and 6.1% of female veterans were still experiencing PTSD symptoms 40 years after their participation in the Vietnam War.[6] What is more, conflicts may destroy the health infrastructure in war-zones, with an even greater impact in LMIC where health systems are often already strained.[21]

Also, many of the world's nations have recently experienced or are currently in the midst of complex humanitarian emergencies (CHE), the most threatening form of disaster in terms of disability and death. The effects of CHE are far-reaching, ranging from increased violence exposure to greater risk of disease and malnutrition, with mortality rates increasing by 60 times their normal rate.[22] Such devastating contexts take a high psychological toll on populations. For example, the PTSD rate has been documented as high as 88.3% among torture survivors from the Middle East, Central Africa, South Asia and Southeast Europe. Similarly, depression was recorded as high as 94.7% among African torture survivors and anxiety as high as 91% among South African torture survivors.[23]

1.2.6 Trauma in populations exposed to crime and interpersonal violence

Violence is a pervasive global issue. An analysis of global data revealed that African and Latin American countries have the highest rates of crime, with some Asian countries ranking next on the global scale.[24] The risk of crime for a person living in a LMIC in one of these regions is therefore significantly higher than persons living in Europe, North American or Australia. Still, even within higher-income continents, living in certain subregions poses a serious crime risk to individuals, particularly for poorer subpopulations and minority groups; notably, males and young persons within such deprived areas are at highest risk for physical violence.[25] [26] [27]

Worldwide, females are at higher risk for certain forms of interpersonal violence like Intimate Partner Violence (IPV) and sexual abuse,[28] though males are also frequently victims as well. For instance, IPV is estimated to affect 1 out of 3 women aged 15 years and older during their lifetime,[29] and non-partner sexual violence is estimated to affect 7.2% of women globally.[30] For both genders, global prevalence rates for childhood abuse are 12.7% for sexual abuse, 22.6% for physical abuse and 36.3% for emotional abuse.[31] No country is immune to these forms of violence and their significant health impact has becoming increasingly apparent in the past decade. Violence-related sequelae can include biological effects on brain function, as well as the immune and neuroendocrine systems.[32] Furthermore, persons who experience violent acts are at increased risk for mental health complaints, suicide, cardiovascular disease and early death.[33]

1.3 Parental trauma and child well-being

Though research on the intergenerational health effects of trauma is limited, some interesting trends have been previously observed in this regard. For instance, a study of Holocaust survivors found that parental trauma exposure (without parental PTSD) was significantly associated with lifetime depressive disorder in offspring of Holocaust survivors as compared to controls.[34] Additionally, a study of Vietnam war veterans found that a father's exposure to war (though not their PTSD status) increased their children's risk of psychological suffering (somatization, phobic anxiety, and psychological suffering).[35] These findings point to pathways between a parent's trauma and their children's psychopathology operating independently of a parent's PTSD status.

One way in which intergenerational risk for psychopathology may transfer is through a parent's acquisition of epigenetic changes to their DNA after a traumatic event. In this way, a parent may pass a trauma-induced, biological predisposition to psychopathology on to their children (through epigenetic inheritance), even if the parent does not have a mental health condition themselves.[36] Epigenetic factors altered during a parent's traumatic experience can also reasonably be considered to influence other aspects of child well-being beyond their psychopathological risk (like physical, cognitive and social outcomes).

Another important consideration for understanding the intergenerational health effects of trauma focuses on the impact of trauma on parent's overall physiological and psychosocial well-being (not limited to a specific mental health diagnosis). Specifically, a traumatic event may disrupt a parent's life in ways that subsequently affect their parenting behaviours, or cause changes to other important influences on the parent-child dynamic. Some potential theories related to such changes are explored below, drawing from various aspects of what is currently known about trauma, parenting and child development to derive an overall conceptual framework for the intergenerational effects of trauma on child well-being.

1.4 Mechanisms between parental trauma and child well-being

My project focuses on identifying specific mechanisms operating between parental trauma and child well-being. This emphasis on mechanisms is useful for thinking about both prevention and intervention efforts for families where one or more parent has been exposed to a traumatic event. Previous research has indicated that an understanding of mediating factors (mechanisms) can help motivate persons working with trauma survivors; by giving them practical information regarding points of intervention, they may better assist parents who may be engaging in harmful parenting

behaviours as a result of trauma.[37] Mediation analysis is a popular method for testing hypothesized mechanisms of action in the field of psychology. However statistical mediation analyses can be employed in other domains since it essentially helps explain how a stimulus leads to a response, or how the effect of one variable is transferred to another variable.[38]

I engage with mediating factors in two separate stages of my PhD project: firstly, my systematic review and quantitative study explore statistical mediation effects on the overall pathway between a parent's experience of trauma and their child's well-being. Secondly, my qualitative study explores how parents in Trinidad respond to traumatic stimuli in ways that specifically impact their parenting behaviours and their family's dynamics. This is intended to add a more nuanced understanding of the mediating factors identified in my systematic review and quantitative study, elucidating the mental, emotional and behavioural processes that parents might adopt when faced with adversity or crisis situations, and which may ultimately impact child well-being.

1.4.1 Conceptual framework for mediators between parental trauma and child well-being

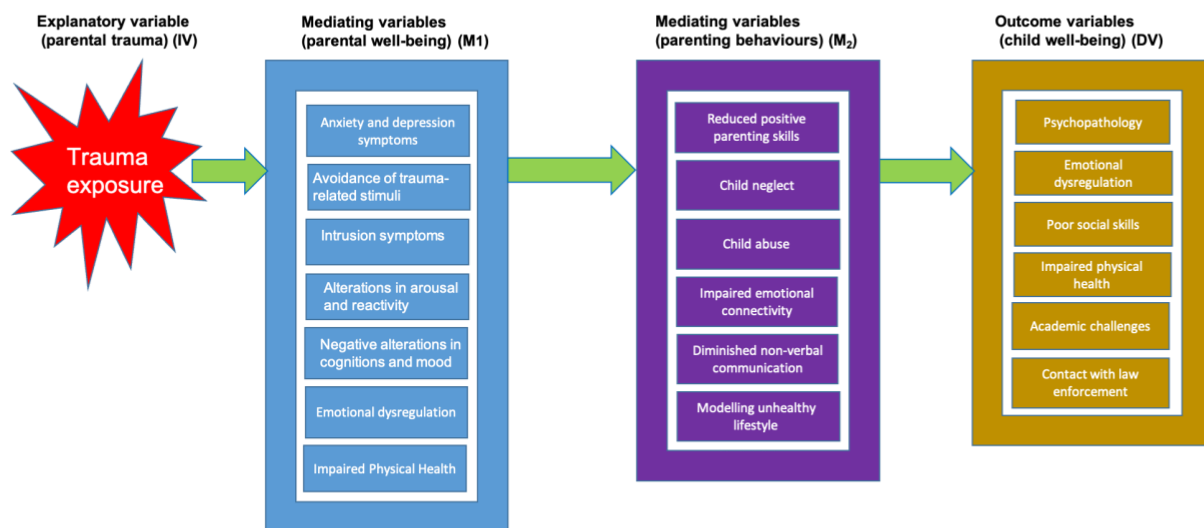


Fig.1.1 Conceptual framework: The effects of parental trauma exposure on parent and child well-being with hypothesized points of transmission between parent and child

1.4.2 Trauma, common mental disorders (CMD), and parenting

Trauma exposure increases an individual's risk of developing common mental disorders (CMD) such as anxiety, depression and PTSD.[39] Since mental illness has been previously shown to transfer intergenerationally, a parent's exposure to trauma has important implications for their children's mental health. For instance, mental health researchers have long observed the tendency of depression to run in families.[40] More recently, parental depression has been found to correlate with higher levels of psychopathology and negative affect in offspring.[41 42] Additionally, maternal anxiety disorder has

been shown to predict the presence of anxiety disorders and temperamental disorders in children.[43] Evidence also suggests that a parent's PTSD diagnosis increases their children's risk of developing PTSD themselves.[34]

A parent's experience of trauma therefore, not only affects their own risk for common mental disorders, but ultimately increases their children's vulnerability to psychopathology. Still, more robust research is needed to illuminate the specific mechanisms at work between these two parties and their mental health. For instance, there have not been many well-designed studies assessing the role of mediators in the relationship between parent and child psychopathology. A 1999 article identified theory-based mediators for the relationship between parental depression and child health, namely: parenting, genetics, prenatal factors (if the mother had experienced depression during pregnancy), and stress.[46] However, a 2009 review by the US National Research Council noted that most of the studies linking parental depression with child health outcomes did not employ research designs to identify moderating or mediating factors, nor is there currently a model available to explain how these factors operate interrelatedly or in the context of specific stages of child development.[47]

As it stands, more work is needed to identify pathways operating between common mental health disorders in parents and their children's well-being. Given the available evidence however, I hypothesize that parenting behaviours are an important mediator between parental mental health and child well-being in the context of parental trauma. For instance, in a meta-analytic review, mothers with depression reported that their parenting was characterized by "diminished emotional involvement, impaired communication, disaffection, [and] increased hostility and resentment," as well as less responsiveness to child behaviour, lower synchrony with infants, and fewer positive interactions with their children.[48] [49] Additionally, parents with anxiety have been noted to have less positive interactions with their children.[50] [51] Lastly, though available evidence is limited, some studies report that mothers with PTSD have been shown to engage in more physical discipline and psychological aggression than mothers without PTSD.[52] [53] Specifically, I propose the following sequential mediation pathway operating between a parent's trauma and their child's well-being: a parent's experience of trauma increases their risk of developing common mental health disorders, which then goes on to influence their parenting behaviours, ultimately impacting child well-being.

1.4.3 Trauma, individual CMD symptoms, and parenting

Even if a parent does not officially develop a common mental health disorder (anxiety, depression or PTSD) following their traumatic exposure, they may experience individual symptoms of these conditions which impact their parenting behaviours. A focus on individual symptoms of these conditions helps us to more narrowly consider how the parenting experience might be disrupted by

trauma.[54] I propose a model for how this may occur in my conceptual framework for mediators between parental trauma and child well-being (Fig.1.1 in the beginning of this section). There I have included symptoms of common mental disorders (CMD) to form a group of potential mediators (M_1 in Fig. 1.1) related to parental well-being post-trauma. My intention in proposing individual symptoms of CMD as mediators in this parent-child association is to illustrate that the DSM diagnostic categories for common mental health disorders currently associated with traumatic experiences have arbitrary boundaries. Accordingly, I hope to illustrate the pervasive and complex effects of trauma on an individual's emotions, cognitions, behaviours and physiology, which are likely subject to variations in individual factors like genetics, personality and upbringing, as well as the type and number of traumatic experiences that a person has experienced.

When thinking about individual symptoms of CMD and their impact on parenting behaviours, it is instructive to also consider the similar biological correlates and precursors of these often comorbid disorders, since these may differ from person to person.[55] For instance, emotional dysregulation is often mentioned as a precursor for anxiety, depression and PTSD alike,[56] [57] [58] Relatedly, the 'irritability' symptom sometimes seen in both PTSD and anxiety might be associated with personal difficulties in emotional regulation, highlighting the potential importance of emotional regulation as a risk factor (on its own) for compromised parenting following trauma. The 'guilt', 'self-blame,' and 'negative thoughts about self' features of both depression and PTSD might all reasonably be considered to relate to a person's self-efficacy and/or their cognitive processing biases, two potentially important determinants of parenting behaviours post-trauma. Lastly, the 'difficulty concentrating,' and 'decreased interest in activities' symptoms seen in both depression and PTSD might be associated with a person's executive function and psychological flexibility, respectively.[59] [60] These are two known, important aspects of competent parenting.

By breaking down CMD into individual symptoms and correlates, the potential impact of compromised parental mental health on parenting behaviours becomes more readily apparent. I have tried to further illustrate this in Fig. 1.2 below by depicting the shared determinants between a parent's ability to provide competent care to their child in difficult circumstances (parental resilience) and a parent's ability to maintain their own mental well-being in adverse situations (mental resilience). As indicated in Fig. 1.2, some of the same resources a parent needs to preserve their own mental well-being are important determinants of their ability to provide competent care for their children during adversity (according to relevant literature related to both concepts).[61] It is not a stretch to hypothesize therefore, that along with known challenges to an individual's mental resilience post-trauma, a person's ability to exhibit parental resilience might also be affected.

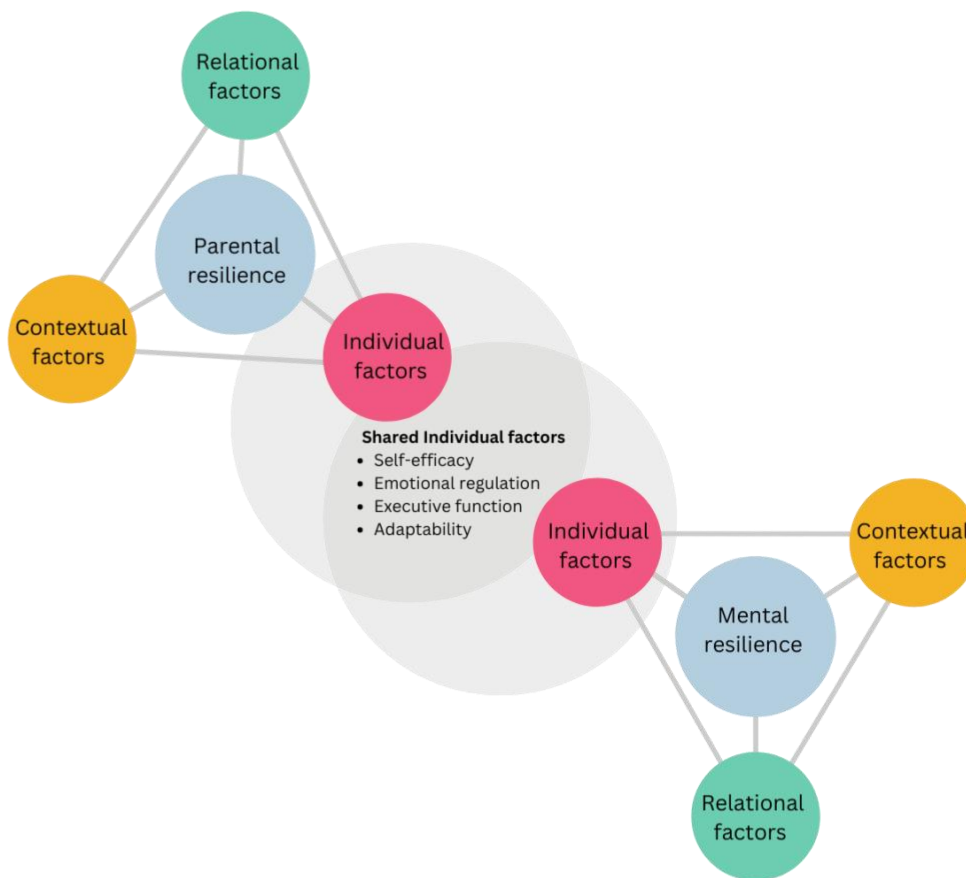


Fig. 1.2 Shared individual factors between parental resilience and mental resilience[61]

1.4.4 Trauma, individual PTSD symptoms, and parenting

By looking at trauma's effects in a broader sense, my PhD project seeks to understand how trauma acts as a catalyst for certain behavioural changes in parents outside of its ability to trigger specific mental illnesses. A growing understanding of neural correlates of mental states is assisting this shift in the paradigm for thinking about mental and emotional distress following trauma. In the following subsections (1.4.4.1 – 1.4.4.4), I will list individual PTSD symptoms and briefly explore how each may affect parenting behaviours given what we know about both trauma, neurology and parenting. These PTSD symptoms are also listed individually in the M_1 category in my conceptual framework for mediators between parental trauma and child well-being seen in Fig. 1.1.

1.4.4.1 Trauma, 'avoidance of trauma-related stimuli', and parenting

Research indicates that trauma may reduce a parent's ability to tolerate children's negative mental states, limiting their capacity to respond appropriately to children's distress.[62 63] Instead of helping

their child to regulate his/her emotions, a parent who has experienced trauma might enter into a fight or flight response when their child exhibits symptoms of strong distress, due to impaired pre-cortical functioning. Essentially, the child's distress triggers an elevated stress response in the parent who may be unable to soothe the child because of a reduced capacity to 'mentalize,' or understand the mental state and intentions of their child due to impaired reflective functioning.[64] This may have important implications for the development of a child's own emotional regulation capabilities and their social skills. At present, literature on parental trauma and reflective functioning is highly skewed toward mothers, with limited research available regarding how fathers' reflective functioning impacts their parenting behaviours.[63]

1.4.4.2 Trauma, 'intrusion symptoms', and parenting

In his book, "The Body Keeps the Score," Von der Kolk writes, *"Almost every brain imaging study of trauma patients finds abnormal activation of the insula. This part of the brain integrates and interprets the input from the internal organs – including our muscles, joints, and balance (proprioceptive) system – to generate a sense of being embodied. The insula can transmit signals to the amygdala that trigger fight/flight responses. This does not require any cognitive input or any conscious recognition that something has gone awry - you just feel on edge and unable to focus or, at worst, have a sense of imminent doom. These powerful feelings are generated deep inside of the brain and cannot be eliminated by reason or understanding. Being constantly assaulted by, but unconsciously cut off from, the origin of bodily sensations produces alexithymia: not being able to sense and communicate what is going on with you."*[54]

Even therefore, if a parent is intentional about implementing positive parenting techniques after a traumatic experience, trauma's effect on their brain function could potentially impact their sensorimotor memory in ways that bypass their cognitive processes. In simple terms, a stimulus might cause an individual to feel a certain emotion and initiate a series of physiological responses without them even being conscious of why or how this came about. Since the sensations and resulting actions are stored in the non-verbal memory, the person cannot easily identify (through verbal reasoning) or control these responses. One can easily imagine how this might impact how a parent bonds with their children through non-verbal communication, an important aspect of effective parenting.[65]

Additionally, the abnormal activity of the insula may explain why the mind-body connection is hindered in persons who have experienced trauma. If a person has intrusive, somatic responses to stimuli but cannot integrate these bodily reactions into their conscious understanding, they may feel disembodied to some degree, losing their sense of being a 'body' in the human race. This will likely have a significant impact on a parent's identity or sense of self, which might reasonably impact their

interpersonal interactions; in particular their children may be affected since they depend on parental attachment for developing a sense of identity and belonging themselves, especially with regard to connecting with others.[66]

1.4.4.3 Trauma, 'alterations in arousal and reactivity', and parenting

Trauma survivors may display symptoms of peritraumatic arousal following a traumatic experience. In fact, a meta-analysis has emphasised the role of peritraumatic arousal as an important predictor of PTSD,[67] above and beyond other known predictors such as the severity of the trauma experienced and prior exposure to traumatic events. Some researchers postulate that a persons' level of peritraumatic arousal is linked to their cortisol production and mood state, suggesting that a person's level of arousal is what ultimately determines their level of post-traumatic stress.[8]

Our understanding of the neurological basis for hyper-aroused states is expanding. For instance, we now know that during a traumatic event, the brain may store input from the trauma in the right side of the brain, separate from the conscious, logical processes of the left brain. When memories are encoded in this form, they may elicit automatic physical and emotional responses which were part of the initial adaptive fight or flight reaction to the traumatic stimulus by the autonomic nervous system. Even subtle reminders of the conditions surrounding a traumatic event may therefore activate a somatic sense of danger which a person may not be able to cognitively recognize, but might result in symptoms of irritability and hypervigilance.[54] If everyday stimuli elicit distressing internal signals in someone who has experienced trauma, their ability to perform normal tasks or engage in healthy social interactions may be significantly affected.

Without the language to explain such reactions to themselves, far less others, a parent may be significantly hindered in their ability to enjoy normal aspects of the parent-child relationship despite their parent's conscious attitudes toward their child. In fact, a recent study of trauma-exposed parents in the United States suggests that parents with alterations in their arousal and reactivity post-trauma may have negative interpretations of their parenting abilities as a result of these symptoms, resulting in further detrimental parenting due to this low self-perception.[68] Additionally, these hyper-aroused states may compromise a parent's ability to provide a feeling of safety for their children, an important factor for children's healthy development. For example, attachment to a parent who is often in a state of hyperarousal might affect a child's ability to manage their own autonomic arousal when faced with threats or even minor stressors, like academic and social pressures.[54]

1.4.4.4 Trauma, 'negative alterations in cognitions', and parenting

Negative thoughts and feelings are part of the diagnostic criteria for PTSD and are explained in the DSM-5 as, "inability to recall key features of the trauma, overly negative thoughts and assumptions about oneself or the world, exaggerated blame of self or others for causing the trauma, negative affect, decreased interest in activities, feeling isolated and difficulty experiencing positive affect."[2] These symptoms are reflective of the nature of trauma in that it impacts how persons conceive themselves and their place in the world. Many persons express a loss of their sense of self following a traumatic experience, something that cannot be captured by a psychological diagnosis. One of the world's leading experts on traumatic stress explains, *"Trauma by nature drives us to the edge of comprehension, cutting us off from language based on common experience or an imaginable past."*[69] In other words, a traumatic event by nature, does not fit into an individual's previous life narrative; additionally, because trauma alters how a brain stores the memory of the traumatic event, the individual has a reduced capacity to begin integrating the experience into a new life narrative.[70] Another leading psychologist elucidates this further by explaining the way that people form memories: *"Traumatic experiences are often stored as nondeclarative memory. When an event becomes so overwhelming that we lose our words, we cannot accurately record or 'declare' the memory in story form, which requires language to do so…without words, we no longer have full access to our memory of the event. Fragments of the experience go unnamed and out of sight. Lost and undeclared, they become part of our unconscious...likely to be stored as fragments of memory, bodily sensations, images, and emotions."*[36]

An individual's cognitive processing biases may also be important in understanding their post-traumatic stress response. We know, for instance, that "repetitive negative thinking patterns or selective attention to negative stimuli" may make persons vulnerable to the development of depression after trauma since these biases make them less resilient to stress.[71] The onset of traumatic stress may therefore trigger an underlying vulnerability to negative thinking in a parent, based on their personal predisposition to certain cognitive processes. This is turn might detrimentally impact their children's self-esteem if their negativity is directed toward their children through abusive behaviours and detrimental parenting practices.

1.4.5 Trauma, emotional dysregulation, and parenting

Brain scans have shown that persons who experience trauma have different levels of localized electrical activity in their brains which may be responsible for lack of emotional control or difficulty focusing.[69] Some neuroscientists have noted an overactive fear centre of the brain (right temporal lobe) in trauma survivors due to a failure of the prefrontal cortex to limit amygdala reactivity, causing the emotional brain to dominate persons' mental activity.[72] Upon electrical stimulation, this may

activate neural networks involved in consolidating past experiences, so that persons involuntarily re-experience distressing events when triggered.[73] After a traumatic experience, parents may therefore suffer reduced executive function, confusion and overreactions to minor irritations due to changes in their brain's reactivity. This has important implications for the parent-child dynamic.

The ability of a child to develop appropriate self-regulation (emotional and behavioural) processes is an essential part of many aspects of healthy child development. In fact, the rapid development of neural connections observed in the first three years of life is largely associated with self-regulatory processes involved in early childhood.[74] If a parent is unable to soothe their child appropriately during this critical period, it may have lasting effects on children's risk for psychopathology, physical health, academic performance, or healthy attachment patterns. In fact, above and beyond the impact of deprivation, a parent's difficulty with their own emotional regulation is predictive of children's capacity to self-regulate under stress.[75] Because of its theorized significance, I list emotional dysregulation as an important, distinct mediator between parental trauma and parenting in my conceptual framework for mediators between parental trauma and child well-being (Fig. 1.1), distinct from the PTSD symptoms listed in this section.

1.4.6 Trauma, physical health, and parenting

Trauma has been associated with numerous physical complaints and unhealthy lifestyle factors. These can impact health in areas as diverse as: "gastrointestinal functioning, the cardiovascular system, immunological functioning, the reproductive system, the musculoskeletal system, neuroendocrine functioning, and finally, brain structure and functioning."[76] Impaired parental physical health might then either on its own accord, or in tandem with impaired mental health, impact a child's well-being in several important and diverse ways.

For example, some studies indicate that children of parents with a chronic physical health condition or chronic pain are at increased risk for internalising and externalising problem behaviours such as anxiety, depression and somatization, as well as social and physical health problems.[77] [78] [79] Additionally, we know from studies related to parenting with cancer,[80] [81] that issues like fatigue and/or a diminished capacity to engage in quality time with children may detrimentally impact child well-being when parents' physical health is compromised. Another important mechanism operating between parental and child well-being might be parents' modelling of unhealthy behaviours related to poor physical health, following their experience of trauma. We know, for instance, that lifestyle factors such as smoking can be a form of stress relief and that these habits are often transferred intergenerationally.[82] Social learning theory has been used to explain the development of smoking habits amongst youth who adopt this behaviour through social interaction with role models who

smoke.[83] In fact, both parental drinking and smoking habits have been shown to predict children's heavy drinking and smoking through a blend of parental modelling and parenting practices.[84] These habits are both significant risk factors for physical health complaints and chronic illness. I explore some of these potential parent-child transmission points between parental and child well-being (M_2) in my conceptual framework for mediators between parental trauma and child well-being (Fig.1.1).

1.5 Gender differential in parents' experience of trauma on child well-being

There is a paucity of literature surrounding the effect of fathers' traumatic exposure or fathers' well-being on child outcomes, with most available research concentrating on veteran populations. The mother-child dyad is just one piece of a multi-faceted and complex interaction that occurs within families exposed to parental trauma. In this PhD project, I attempt to redress this gender imbalance by including fathers, in addition to mothers, as research participants in my qualitative study.

Within the limited available research among trauma-exposed fathers, there is empirical evidence to suggest that fathers' trauma-related sequelae can impact their children's risk of psychopathology and behavioural problems, sometimes uniquely so. For instance, a 2017 study of Vietnam veterans in Australia found an increased risk of PTSD among children of fathers with PTSD.[85] They also reported that veteran's alcohol abuse was linked to alcohol dependence in veterans' sons and PTSD in their daughters. Paternal alcohol abuse has been previously shown to have different effects than maternal alcohol abuse on the age of onset of alcohol dependence in their children, highlighting an important difference in the way that mothers and fathers influence their children's well-being.[86] In that regard, a later article referencing the same Vietnam War cohort revealed that "veteran PTSD and depression negatively impacted the family emotional climate, while mothers' mental health was not related."[85] Furthermore, results from a longitudinal study of families in the Netherlands indicate that historical child abuse and neglect (CAN) of mothers but not fathers, is related to current IPV between parents as well as their children's own experience of CAN and PTSD.[87] They also reported that maternal experience of IPV was related to PTSD in their children, while paternal experience of IPV was not. All of these preliminary findings indicate an important gender differential for the intergenerational effects of parental trauma.

At this point, further research is needed to explain how men and women are uniquely impacted by exposure to trauma. A recent review suggests gender differences in the emotional, cognitive, and neurobiological correlates of risk for PTSD and its comorbid conditions.[88] Additionally, in a follow-up study conducted six years after the 2004 tsunami in Sri Lanka, women who lived through the disaster were twice as likely as their male counterparts to develop PTSD symptoms. Researchers also observed increased depression and suicidal attempts in women compared to men, following Hurricane

Katrina's devastation.[89] Though the role of gender in PTSD is complex and not yet fully understood, it is critical that we continue to explore the ways in which trauma exposure may uniquely impact fathers and their parenting. In doing so, we may find that fathers' experience of trauma influences child outcomes in ways that are different to a mother's traumatic exposure and its effect on her parenting behaviours.

In general, women are disproportionately affected by anxiety and mood disorders (including PTSD) while men are more likely to display externalising disorders such as substance abuse and antisocial behaviours. Some theories identify the role of sex hormones and different stress responses mediated by the hypothalamic-pituitary-adrenal axis in creating the gender gap in depression.[90] While these gender differences may be partially explained by biological variances, they might also be a product of socialization tendencies. Men, for example might be trained by social influences to 'act out' while women may be socialized to respond to stress with dysphoric behaviours.[91] In fact, a national cohort study looking at lifetime mental disorders in men and women in the United States found that over a period of two decades, gender differences in major depression contracted. They also observed that this narrowing was associated with changes in female gender roles, suggesting that social factors play a significant role in the observed gender disparity in major depression.[92] [93] The impact that these socialization differences have on both parenting behaviours and children's well-being is currently a neglected area of research.

In addition to differential impacts of trauma on psychological sequelae, gender differences also exist with respect to the types of trauma exposure frequently experienced by men and women. For instance, worldwide, men experience more violent crime than females, though women are more likely to be victims of intimate partner violence or abuse by family members and people they know.[94] [95] [96] Since women experience higher rates of prolonged interpersonal stress, are more likely to experience violence during their childhood or from their intimate partners in adulthood, and are often subject to forms of systemic gender inequality, the gender gap in anxiety and mood disorders may largely be an artefact of women experiencing more cumulative abusive events on balance than men. For females in particular, many of these forms of abuse occur at critical periods for development, or by persons that they intimately trust and expect to care for them. All of this evidence points to a differential impact of trauma on men and women, an important consideration for parental trauma research.

1.6 Parental trauma disrupts children's ecological systems

1.6.1 Existing models for child development

In this introduction chapter, I have outlined a number of individual-level factors which may affect a parent's well-being and their parenting behaviours following a traumatic event. In this final section, I hypothesize that ecological factors such as cultural and sociological influences likely interact with these individual factors to further determine the impact of parental trauma on a parent and their child. Essentially, the experience of trauma itself cannot be fully confined to the biomedical model, so it follows that its intergenerational effects should be considered in a similarly multi-layered context. In Fig. 1.5 below, I have tried to summarize the aforementioned ways in which a parent's experience of trauma might impact both a parent and child's well-being, showing the interrelatedness between their respective ecological contexts, as well as specific interactions between the parent-child dyad. I have used concepts from the Ecobiodevelopmental (EBD) framework,[97] (Fig. 1.3) and Bronfenbrenner's ecological model of child development (Fig. 1.4),[98] as well as my own review of trauma literature to derive an overall framework for how parental trauma may impact a child's well-being; I indicate direct parent to child transmission points (depicted through the parent-child dyadic system enclosed by green dashed rectangle) as well as indirect pathways (visualized by arrows outside of this parent-child dyadic system), since a parent's trauma disrupts the various systems tied to a child's development.

Bronfenbrenner's ecological model of child development provides an illustrative landscape for thinking about the various systems connected to a child, depicting how these embedded systems interrelate at different levels to affect child development.[98] Namely, Bronfenbrenner contends that the 'mesosystem' which directly influences a child's well-being is made up of three microsystems: their families, peer groups and schools. These mesosystems operate within larger macrosystems. A child navigates these influential environments though adaptive processes which are closely linked to each subsystem. When a parent experiences a traumatic event, a child might be directly affected as the parent's trauma impacts the parent-child relationship. Depending on the nature of the trauma affecting a parent, other systems important to child development may also be disrupted, resulting in indirect effects on the child through these embedded systems. All of these disruptive effects may then work together to impair children's adaptive processes, including their attachment to caregivers.[99]

For example, a traumatic event such as a natural disaster may directly influence parental well-being, causing disruptions to parent-child dyadic interactions. However, a natural disaster might also introduce household stressors that disrupt the family system in other ways, such as housing stability and economic challenges. These stressors then impact parent well-being, further influencing parent-child dyadic interactions. Though my project is focused on parent-related pathways from parental trauma to child well-being, children's direct exposure to trauma (and its effects on their ecological systems) is an important confounder to consider in this research. In many instances such as collective traumas (war, natural disaster, community violence, etc.) children are directly exposed to the same

traumatic stimuli as their parents. Additionally, collective traumas like community violence may disrupt the entire macrosystem in which a family is embedded. This has knock-on effects on a parent's social environment and the mesosystems in which a child develops (school, family, peer group), impacting both parental and child well-being and potentially influencing the parent-child dyad as a result.

I also incorporate the EBD framework into the design of my conceptual model. The EBD framework acknowledges the positive impact of caregiver's comfort on children's healthy neural development. In families where a parent experiences trauma, caregivers may suffer mental, emotional and even cognitive distress, limiting their ability to endorse secure attachment with their children. This lack of attention to children's needs and distress signals may trigger stress hormones and negatively impact children's neural development and their interpersonal skills. The EBD model also acknowledges the direct impact of environmental stress on children's developing brains. If a parent's traumatic experience also significantly alters a child's environment (as in the case of a natural disaster for example), the resulting stress can directly impact a child's biology and neurophysiology. This in turn, might impact the child's ability to navigate their various ecological systems. As discussed previously, indirect effects of collective trauma may be an important confounder to consider when examining parent-related mediators of parental trauma on child well-being. Importantly also in these instances, parent-child interactions may be influenced by children's direct response to trauma stimuli. For instance, if a child's neurobiology is impacted by environmental stress, this may strain the parent-child dynamic, leading to compromised parenting behaviours. Essentially, a child's direct exposure to trauma may create a negative feedback loop between trauma-exposed parents and trauma-exposed children.

The model depicted by Fig. 1.5 below highlights the greater ecological system in which a parent's experience of trauma is embedded. In order to develop this model, I combined aspects of the EBD framework and Bronfenbrenner's ecological model of child development. I then incorporated known trauma-related sequelae (derived from currently available literature) into this synthesised diagram to further develop my conceptual framework. As depicted in Fig.1.5, different types of traumatic events may disrupt various levels of a child's ecological system, impacting both a parent and a child in direct and/or indirect ways. This then shapes parenting behaviours and the parent-child dynamic in ways that ultimately impact child well-being.

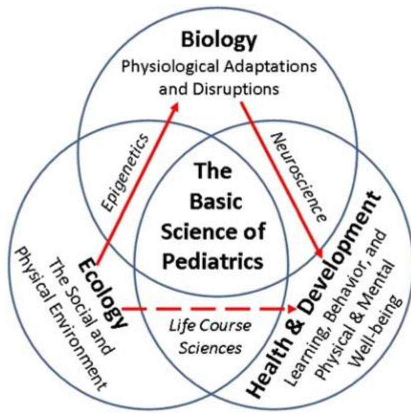


Fig. 1.3. The Ecobiodevelopmental (EBD)[97] framework, showing the associations between childhood ecology and biology and how these interact to determine life course health and development trajectories

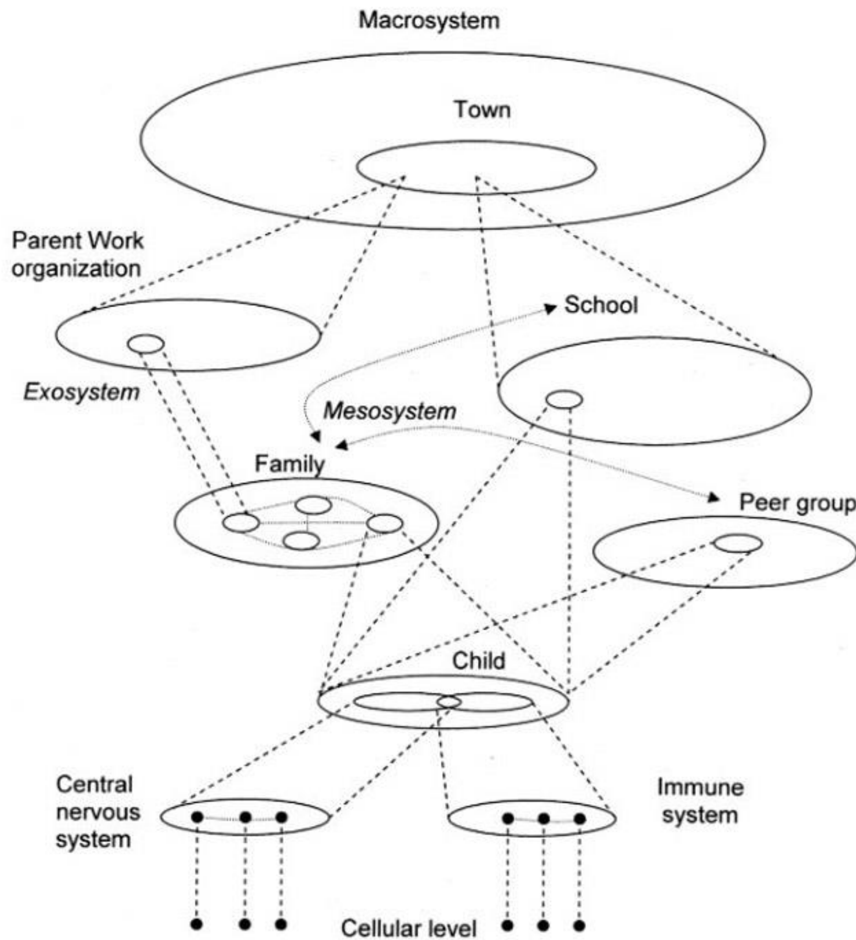


Fig. 1.4. Model depicting aspects of Bronfenbrenner's ecological child development model[100]

1.6.2 Conceptual framework for ecological systems linked to parental trauma and child development

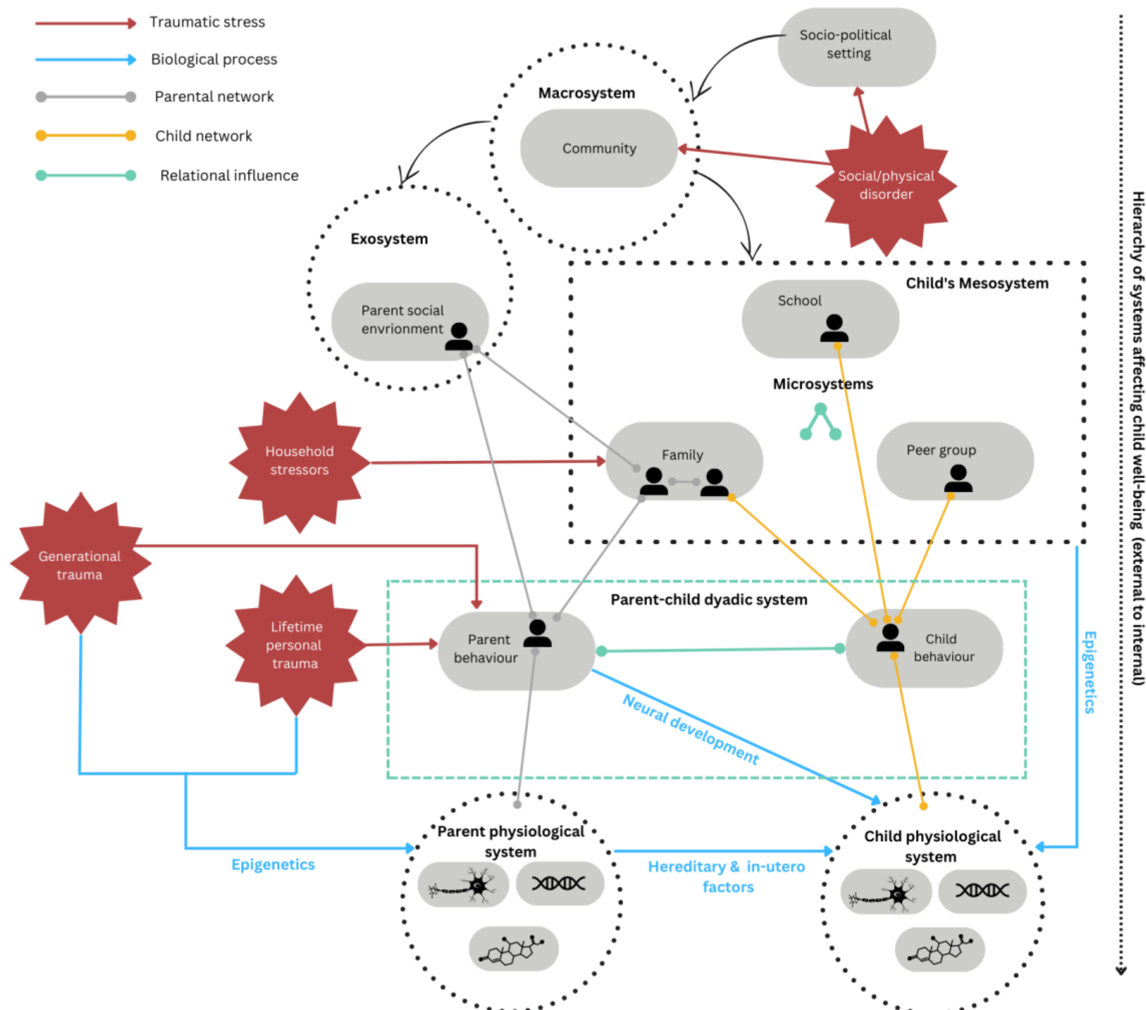


Fig. 1.5. Conceptual framework showing the ecological contexts in which a parent's experience of trauma is embedded, identifying various pathways through which a parent and a child can be directly and indirectly affected thereby influencing the parent child dynamic

1.7 Study Setting: Trinidad and Tobago (T&T)

1.7.1 Crime and violence in T&T

From 1994 to present, crime has become an increasing threat to public safety in Trinidad and Tobago.[101] For example the Inter-American Development Bank (IDB) reported a 69.9% increase in wounds and shootings between 2008 and 2013.[102] Since the time of the IDB report in 2013, the Trinidad and Tobago Police Service has recorded sustained, high levels of various types of criminal offences (burglaries and breakings, kidnapping, murders, rapes, incest and sexual offences, robberies and woundings and shootings) (see Fig.1.6 below). A 2012 victimization survey issued by UNDP reported that 23.9% of the 1,595 persons sampled had been victims of violent crime in the past 10

years.[103] More recently, a 2017 Women's Health Survey of 1,079 women across Trinidad and Tobago showed that 30% of ever-partnered women had experienced lifetime physical and/or sexual partner violence.[104] With no sign of decline in these statistics for crime and violence in Trinidad and Tobago, exposure to traumatic events is increasingly becoming a phenomenon worthy of national concern.

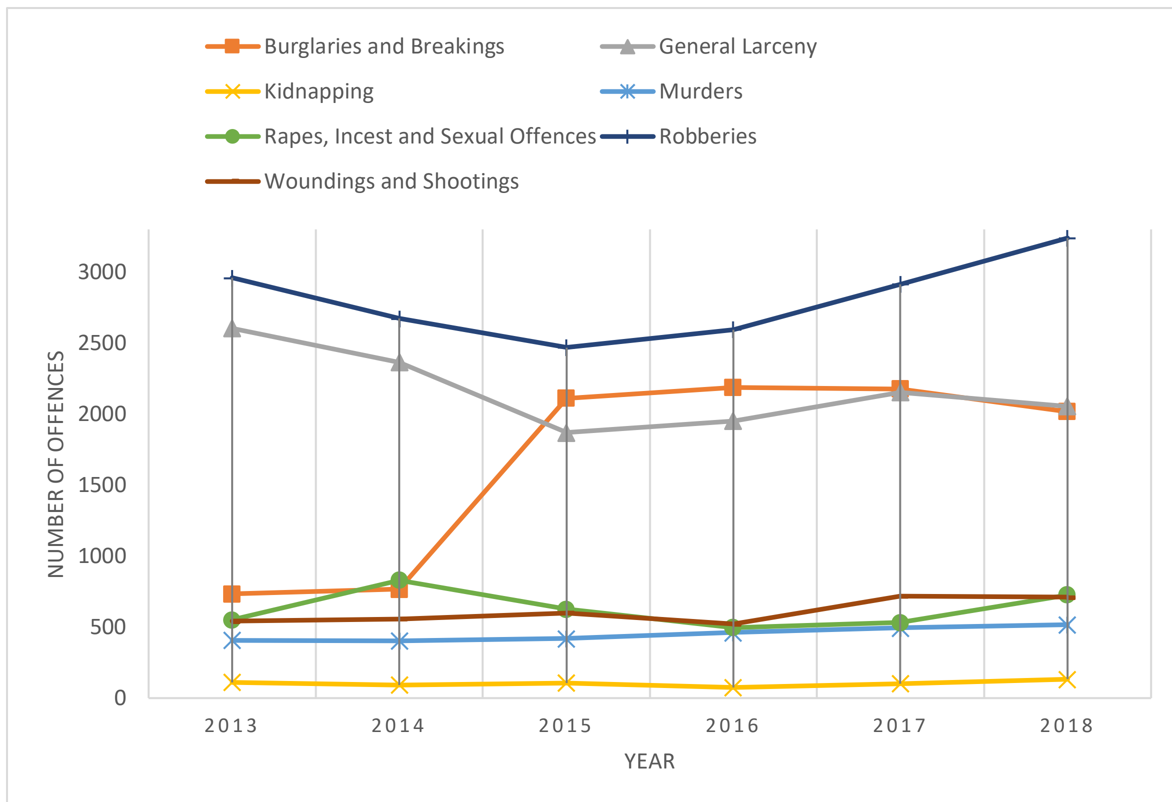


Fig.1.6 Criminal offences in Trinidad and Tobago from 2013 to 2018[1]

1.7.2 Natural Disasters in T&T

Due to its geographical position and landscape, the nation of Trinidad and Tobago is susceptible to geological and hydro-meteorological hazards. For instance, because of the phenomena of the Inter-Tropical Convergence Zone, tropical waves and convectional rainfall, Trinidad and Tobago experiences perennial flood events of significant magnitude. Additionally, the twin islands are located near active plate tectonic boundaries "leaving them vulnerable to earthquakes and their secondary hazards such as mud volcanic eruptions, landslides (mainly associated rainfall events) and tsunamis."[105] In fact, the country experienced one of its highest magnitude earthquakes to date (6.9) in August 2018.

In 2018, Trinidad and Tobago also experienced torrential rainfall equivalent to a full month's worth of rain during just two days. This was the worst recorded flooding in the history of the nation, and it is estimated that 80% of the country was affected, with over 800 persons displaced from their homes and

looting reported in the evacuated areas.[106] [107] Recent weather events in October 2022 also caused significant damage to roadways and homes through flooding, wind damage and landslides. The frequency of these natural disasters and the resulting risk of displacement and/or injury present a significant breeding ground for traumatic exposure in Trinidad and Tobago.

1.7.3 Economic Decline in T&T

Following a deep recession in 2015 and already depressed energy prices, the Covid-19 pandemic initiated a further economic crisis in Trinidad and Tobago. The period from 2020 until present has been marked by job loss and income reduction, particularly among the lowest income groups.[109] In addition to the impact of the pandemic on international energy activity and prices, domestic energy production was affected by unexpected maintenance requirements and even the closure of several petrochemical plants. Due to both global and domestic market factors, the inflation rate in Trinidad and Tobago rose to 2.2% in July 2020, posing a serious threat to families already suffering from financial hardship.[110] [111] Altogether, these factors resulted in a national economic contraction of 7.8% and a fiscal deficit of 11.8% of GDP as of 2022.[112]

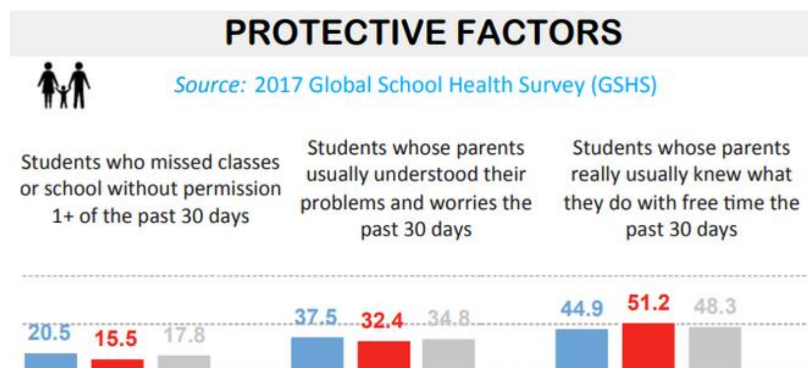
1.7.4 Child well-being in Trinidad and Tobago

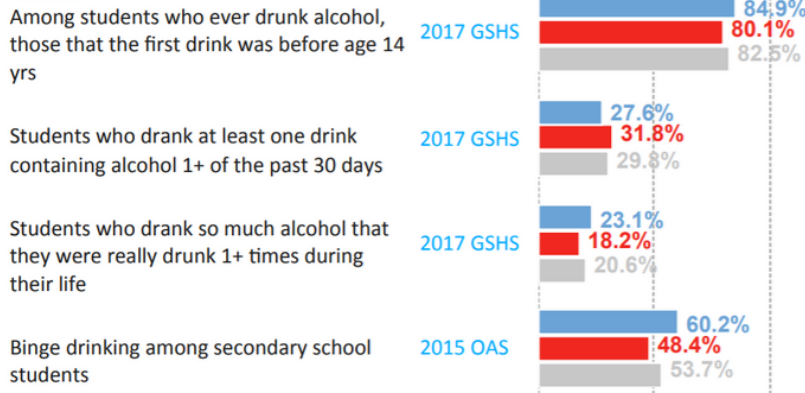
There are many indications of increasing mental health concerns among youth in Trinidad and Tobago. For instance, the 2017 Global School-based Student Health Survey (GSHS) found that 24.1% of adolescents sampled in Trinidad and Tobago reported having suicidal ideation in the past 12 months (up from 15.0% in the 2012 GSHS), a figure consistent with other smaller-scale studies in the nation.[113] [114] Additionally, a 2016 study revealed that 14% of adolescents sampled exhibited depression symptoms; specifically, those adolescents living in a family with alcohol abuse were 1.8 times more likely to exhibit depression symptoms than those without abuse. These figures reveal the impaired mental state of the nation's youth, one of the key outcomes of interest in this project.

Relatedly, other studies have identified a significant increase in delinquent behaviours that may reflect this impaired emotional well-being among youth. These behaviours include: bullying, truancy, fighting and disrespect of teachers in secondary schools in Trinidad and Tobago, all of which have increased over the past ten years.[115] [116] For instance, a 2017 country profile of adolescent health in Trinidad reported that 17.8% of adolescents sampled had missed school without permission in the past 30 days.[114] Relevantly, a 2016 study suggests that the high rates of juvenile delinquency in adolescent boys in Trinidad and Tobago is associated with poor living environments and family arrests, an indication that parental trauma might be an important risk factor for these behaviours.[117]

As this project posits, youth in Trinidad and Tobago may be experiencing heightened levels of emotional and mental dysfunction due to parental trauma and its effects on parenting behaviours. For instance, a 2011 study revealed alarmingly high statistics for child abuse in Trinidad and Tobago, with 65.8% of children between the ages of 2 and 14 years reporting exposure to emotional abuse, 46.9% reportedly exposed to moderate physical abuse, and 23.3% subjected to severe physical abuse from their parents or guardians.[118] Such high levels of detrimental parenting practices are undoubtedly impacting the well-being of many children in the nation. My research will help identify whether parental trauma is an important consideration for mitigation efforts aimed at improving national well-being amongst Trinbagonian parents and youth.

Male
Female
Total





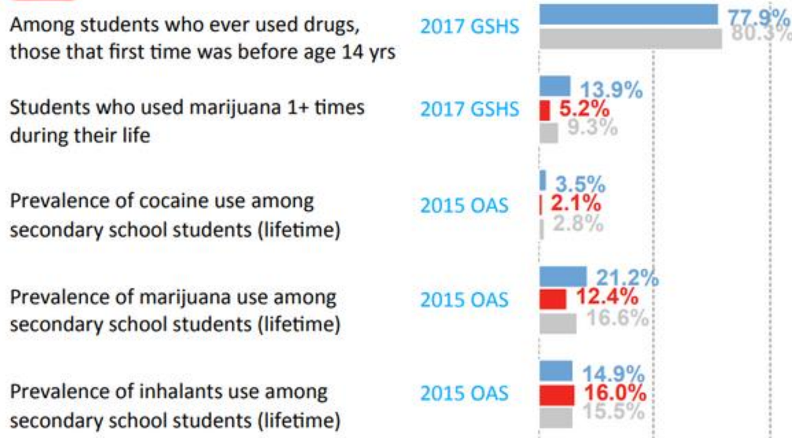


Fig. 1.7. Statistics representing child well-being in Trinidad and Tobago as reported by a 2017 Global School Health Survey issued by the Pan American Health Organization[114]

1.8 Aims and objectives and overview of methods

Table 1.1 summarizes the aims, objectives and methodology used in this project. First, I reviewed the global evidence testing mediators between parental experiences of trauma (as defined by the DSM-5) and child well-being, specifically identifying studies which used longitudinal datasets and performed quantitative analyses. Second, I conducted a quantitative analysis of a secondary dataset looking at the prevalence of IPV among women in Trinidad and Tobago. I specifically tested the mediation effects of maternal depression and anxiety symptoms in the relationship between maternal IPV and child behavioural problems in this sample. Third, I performed a series of focus group discussions with parents recruited from communities with high levels of adversity in Trinidad. I used this qualitative data to perform a narrative analysis of parents' perceptions of parenting and their children's well-being under adversity, allowing participants to deem what they consider to be 'traumatic' experiences.

Table 1.1 Aims and Objectives of PhD project with brief description of methodology and dissemination plans

Aim	Objective	Methodology	Dissemination
Aim 1: To evaluate the peer-reviewed literature on mediators between parental trauma on child well-being.	**Objective 1:** Conduct a systematic review to identify and characterize mediators in this literature **Objective 2:** Summarise the key theoretical frameworks used to inform analyses in this literature **Objective 3:** Summarise and critique the empirical evidence investigating mediators in this literature	Systematic Review using: MEDLINE, EMBASE, EBSCO, PsycINFO, PsycExtra, Global Health, Global Index Medicus, and Web of Science	Submit to a peer-reviewed journal, e.g. *PLOS One.*
Aim 2: -2.1: To estimate the impact of maternal IPV in Trinidad and Tobago and its effects on child well-being. -2.2: To assess mediation effects of maternal mental health symptoms in the relationship between maternal IPV and child well-being.	**Objective 4:** To establish a prevalence figure for IPV among mothers of children between 5 to 12 in Trinidad and Tobago. **Objective 5:** To test the association between maternal exposure to IPV and child behavioural problems in Trinidad and Tobago. **Objective 6:** To test maternal depression symptoms and maternal anxiety symptoms as potential mediators of the relationship between maternal IPV and child behavioural problems.	Secondary analysis of a population-based women's health survey conducted in 2017 in Trinidad and Tobago.	Study results will be integrated into a journal article (e.g. *Social Science and Medicine* or *International Journal of Public Health*). Study findings were presented at the *International Society for the Prevention of Child Abuse and Neglect*'s 2022 Congress.
Aim 3: To understand how parents perceive the effects of adversity on their parenting experience.	**Objective 7:** To conduct qualitative research exploring parents' perspectives of parenting under adversity in Trinidad.	Focus groups discussions facilitated by Jihana Mottley, PhD researcher. Parents recruited from NGOs providing relief services for persons experiencing adverse life circumstances.	An in-depth qualitative analysis will be published in a social science or public health academic journal, e.g. *Journal of Traumatic stress* or *Social Science and Medicine.* Results will also be shared at the 67th *Caribbean Public Health Agency*'s Annual Conference.

1.9 Ethics approval

I received ethics approval to conduct the research and analyses included in this thesis from the London School of Hygiene & Tropical Medicine Observational Ethics Committee and the Ministry of Health, Trinidad and Tobago Ethics Committee. Ethics approval letters can be found in Appendix 7.

1.10 International collaborations

This project was a collaboration between the London School of Hygiene and Tropical Medicine (LSHTM) and several local partners in Trinidad and Tobago. The University of the West Indies (UWI) and several local non-governmental organisations (NGOs) assisted with recruitment efforts and provided a UWI criminology graduate student, Kristin Hart, as a research assistant for the qualitative study. The initial thesis topic was developed following several key informant interviews with Dr. Hutchinson, a professor of Psychiatry at UWI and Jan Branford, a local clinical psychologist in Trinidad. These informants acknowledged that many of their patients were dealing with unprocessed trauma that was manifesting itself in unique ways, outside of the typical DSM-5 diagnostic criteria. The initial input from these informants shaped my first study proposal. Further study proposals were shaped by a well-rounded supervisory and advisory team at LSHTM with a skillset covering a breadth of topics: statistics, global mental health, social epidemiology, violence research and child development. My quantitative study data was collected in 2017 as part of an International Development Bank (IDB) project to provide national estimates of women's experiences of IPV and non-partner violence in Trinidad and Tobago. The study was approved by both LSHTM's Institutional Review Board and the Ministry of Health Ethics Board in Trinidad and Tobago. My PhD project was able to provide a more in-depth analysis of study variables collected in this initial IDB dataset by adjusting for confounding factors and employing complex statistical mediation analyses; such analyses were beyond the initial scope of the IDB report, but provides important insight for Trinidad and Tobago's policy development and research landscape.

Chapter 2: Mediators of the association between a parent's experience of trauma and their children's well-being: A systematic review

2.1 Abstract

Background

Traumatic experiences are a worldwide phenomenon, leaving no population immune to their effects. At present, our understanding of trauma's complexity is underdeveloped, particularly with regard to intergenerational effects. In this paper, we review the peer-reviewed literature on parental trauma and child well-being, focusing on mediating factors of this association. The results of our review will assist persons working in the fields of psychology, parenting, and public health to navigate the complex effects of trauma and establish interventions to mitigate its effects on parents and their children.

Methods

We conducted a global systematic review of longitudinal, observational studies assessing mediators between a parent's traumatic exposure and their children's well-being. There were no restrictions placed on mediator types. The primary outcome of the review was quantitative measures of child well-being (physical and psycho-social) assessed when the child was 18 years of age or under. The following experiences were considered as instances of traumatic exposure: Intimate partner violence (IPV), rape, sexual assault, victimization during violent crime, childhood abuse, and exposure to direct, immediate threats to personal survival during war, political unrest, natural disasters and sudden, critical injury/illness.

Results

20 studies met the inclusion criteria for our review. The two mediator categories most frequently featured by this review's studies were caregiver mental health (n=7) and parenting behaviours (n=7). Other studies measured aspects of the parent-child relationship (n=5), maternal stress factors (n=3) and parental physical health (n=2) as mediators. Only a few studies in the review looked at child-level factors (n=3) as mediators. Almost all of the included studies (n=19) detected a mediation effect when testing their proposed mediators using statistical analyses. However, only one study reported a full mediation effect. The majority of studies (n=14) cited robust theoretical frameworks to support their mediator and outcome choices. Studies varied in quality; most used appropriate, formal mediation analyses. However, several study designs could improve accuracy with more attention to avoiding forms of bias and precision.

Conclusion

Our review identified a range of factors which appear to mediate the relationship between parental trauma and child well-being, with parental mental health and parenting behaviours featuring most prominently as mediators among included studies. At present however, there is little consistency in how similar constructs are measured between mediation studies. Additionally, research in this area to date has overlooked low- and middle-income countries and has neglected aspects of physical health, family dynamics and paternal factors as potential mediators. Future studies can focus on filling some of the gaps in research identified by this review, further elucidating the ways in which biology, behaviour and family dynamics interrelate on the pathways between a parent's experience of trauma and their children's well-being.

RESEARCH PAPER COVER SHEET

Please note that a cover sheet must be completed for each research paper included within a thesis.

SECTION A – Student Details

Student ID Number	lsh1800852	**Title**	Miss
First Name(s)	Jihana		
Surname/Family Name	Mottley		
Thesis Title	The Effect of Parental Trauma on Child Well-being in Trinidad and Tobago: a mixed-methods study		
Primary Supervisor	Dr. Sujit Rathod		

If the Research Paper has previously been published please complete Section B, if not please move to Section C.

SECTION B – Paper already published

Where was the work published?			
When was the work published?			
If the work was published prior to registration for your research degree, give a brief rationale for its inclusion			
Have you retained the copyright for the work?*	Choose an item.	Was the work subject to academic peer review?	Choose an item.

*If yes, please attach evidence of retention. If no, or if the work is being included in its published format, please attach evidence of permission from the copyright holder (publisher or other author) to include this work.

SECTION C – Prepared for publication, but not yet published

Where is the work intended to be published?	PLOS One
Please list the paper's authors in the intended authorship order:	Jihana Mottley, Karen Devries, Tessa Roberts, Georgina Miguel Esponda, June Larrieta, Phil Edwards, Sujit Rathod
Stage of publication	**Not yet submitted**

SECTION D – Multi-authored work

For multi-authored work, give full details of your role in the research included in the paper and in the preparation of the paper. (Attach a further sheet if necessary)	I was primarily responsible for all stages of the review process. I developed the search strategy, employed the searches, downloaded the abstracts for screening, and screened the majority of abstracts (with help from Tessa Roberts and Rayyan A.I. technology). I screened all full texts for eligibility alongside the third reviewer. I coordinated data extraction and performed this alongside three other reviewers. I will be responsible for communication with the journal of choice during the manuscript submission, peer review, and publication process.

SECTION E

Student Signature	
Date	6 Jan 2023

Supervisor Signature	
Date	10 Jan 2023

2.2 Background

Evidence from a number of countries suggests that the majority of adults (70%) have experienced a traumatic event in their lifetime.[119] Despite this pervasiveness, the public health implications of traumatic experiences are currently underestimated. However, emerging evidence points to the intergenerational effects of trauma on a range of health and well-being outcomes.

For example, a parents' adverse childhood experience (ACE) has been found to correlate with poor emotional and physical health outcomes in their children.[120] In a population-based household survey conducted in the United States, authors noted that the odds of poor overall health (OR=1.19; 95% CI: [1.07–1.32]) and asthma (OR = 1.17; 95% CI: [1.05–1.30]) among children increased for each additional ACE experienced by their parents.[121] Similarly, a large cohort study in Norway found that a mother's experience of child abuse positively predicted toddlers' externalising problems (emotional abuse: B = 0.6, 95% CI [0.4-0.7]; physical/sexual abuse: B = 0.4, 95% CI [0.3-0.6]).[122]

Furthermore, parental experiences of refugee and war-related trauma have been found to correlate with child behavioural and psychosocial problems. A systematic review of traumatic experiences among refugee families noted that offspring of Holocaust survivors had greater lifetime prevalence of post-traumatic stress disorder (PTSD) as well as other mental health complaints involving low mood and anxiety as compared to controls.[123] Similarly, a study among Vietnam veterans in Australia observed an increased risk of PTSD in children of veterans diagnosed with PTSD.[35]

As indicated by this emerging evidence, the intergenerational effects of trauma on child well-being outcomes are wide-ranging. However, it remains unclear how these effects occur. Evidence to identify and characterize the mediating factors on the causal pathway between parental trauma and child well-being has not yet been investigated systematically. By addressing this gap in the literature, our systematic review will serve as an important step in identifying the aspects of a parent's traumatic experience that can be targeted for improvement of specific child well-being outcomes.

Our current knowledge of trauma's effects suggests the importance of parental health as a potential mediator between parental trauma and child well-being. For instance, the most well-characterized proximal effects of trauma are on common mental disorders such as anxiety and depression, as well as the trauma-specific condition known as post-traumatic stress disorder (PTSD).[6, 124] Additionally, trauma has been linked to the development of many physical health complaints, including both psychosomatic and chronic illnesses.[76]

Many of these proximal effects of trauma likely also affect parents in ways that ultimately shape their parenting. For instance, a systematic review found that a parent's intimate partner violence (IPV) victimization was negatively associated with their use of positive parenting practices ($r = -0.08$; 95% CI: [-0.12, -0.04]); they also found a positive correlation between IPV and parents' physical aggression toward children ($r = .17$; 95% CI: [0.11, 0.23]). Additionally, a meta-analysis found that parents with higher levels of war exposure (with respect to both frequency and severity) exhibited lower levels of warmth and higher levels of harshness toward children.[125]

Research has repeatedly pointed to the importance of a parent's role in children's lifelong development.[126] [127] For instance, positive parenting aspects such as the mother-child relationship quality and positive discipline are associated with child prosocial behaviours. Conversely, negative parenting traits such as harsh parenting and neglect have been implicated in poor child well-being.[128] By identifying mechanisms operating between a parent's experience of trauma and their children's well-being, we can isolate aspects of a parent's traumatic experience that can be targeted for improvement of specific child well-being outcomes.

In this paper, we review the peer-reviewed literature on the effect of parental trauma on child well-being. Objectives are to: 1) Identify and characterize the mediators in this literature; 2) Summarise and critique the empirical evidence investigating mediators in this literature; 3) Summarize the key theoretical frameworks used to inform analyses in this literature. This knowledge will assist persons working in the fields of psychology, parenting, and public health as they navigate the complex effects of trauma and establish interventions to mitigate its effects on parents and their children.

2.3 Methods

We conducted a systematic review. We registered the protocol for this study with PROSPERO (registration number: CRD42020207598).[129] We present results according to PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines.[130]

2.3.1 Search Strategy

In February 2021, we conducted a search for English-language studies in the following databases: MEDLINE, EMBASE, EBSCO, PsycINFO, PsycExtra, Global Health, Global Index Medicus, and Web of Science. We used the following search terms for children's well-being and parental traumatic exposure to narrow down studies that included both variables. We derived these search terms following a scoping review of the relevant literature and included synonyms for 'trauma,' 'abuse,' 'violence,' 'crime,' 'adverse events,' 'crisis,' 'war,' 'natural disasters,' and 'toxic stress.' Our search strategy can be found in Table A1 in Appendix 1. We adapted these terms for use with other

bibliographic databases. We did not employ any database-specific filters other than those limiting the language of publication to English. We did not limit studies by date of publication.

2.3.2 Inclusion and Exclusion Criteria

In our review, we included longitudinal, observational studies with prospective or historic reports of trauma exposure status. We only included studies that quantitatively assessed the impact of a parent's traumatic exposure on their children's well-being while considering potential mediators between these factors. We did not apply any restrictions on the types of mediators included or the type of mediation analyses employed.

Our primary outcome was quantitative measures of child well-being (physical and psycho-social). We also included proxy or third-party reports for child outcome measures. We included any type of author-defined measure of physical health for physical measures of child well-being. With respect to psycho-social well-being, we included measures like behavioural problems, juvenile delinquency, academic progress, emotional health, peer relationships, etc. In order to be included, measures of child well-being must have been assessed when the child was 18 years of age or under (we excluded neonatal outcomes measured between birth to 4 weeks old unless they were part of a series of longitudinal outcome measures extending past this age range).

We excluded reviews and data syntheses. We considered the following experiences as instances of traumatic exposure: IPV (emotional, physical and sexual), rape, sexual assault, victimization during violent crime, childhood abuse (emotional, physical and sexual), and exposure to direct, immediate threats to personal survival during war, political unrest, natural disasters and sudden, critical injury/illness. In the case of crime exposure, we only included measures where parents directly answered questions regarding their personal exposure to neighbourhood crime or violence. We did not include chronic illness as a form of traumatic exposure.

2.3.3 Database search and screening

Once the search strategy was executed, we identified 44,208 articles generated through the databases. After excluding duplicates, two reviewers independently screened the titles and abstracts using the inclusion criteria, but did not limit studies to mediation analyses at this point. The first reviewer screened the majority of abstracts. The second reviewer screened an enriched sample of 1% of the total abstracts (a subset of abstracts containing a higher percentage of included studies than in the overall sample: 50% excluded studies and 50% included studies, as determined and compiled by the first author) to calibrate the agreeance rate between reviewers (98% agreeance was achieved). We

used this enriched sample to test the second reviewer's ability to accurately identify study inclusion criteria. The first author and the second reviewer resolved any inconsistencies during this calibration process via discussion, with the first reviewer making appropriate changes to our screening methodology. After abstract screening, the first author and third reviewer completed full-text screening for the remaining 579 included studies. During this full text screening, reviewers used the same inclusion criteria to determine study eligibility, but now added an additional inclusion criterion by filtering studies to include only those which assessed mediating factors. We tested agreeance between the first and third review by comparing their assessment of a random sample of 10 full text articles retained from the abstract screening process (100% agreeance was achieved after comparing decisions for excluded studies and extraction notes for included studies from this sample).

2.3.4 Data Extraction

The first author and third reviewer, as well as two other research associates extracted relevant study data from all included full-texts (n=20). They extracted the relevant data using a Google form developed based on the CEBMA critical appraisal tool.[131] This included information on study design, details of the exposure, mediator and outcome measures, results of overall effect measures, mediation results and study strengths and limitations.

2.3.5 Quality Scoring

The first author assessed all 20 included studies to determine their quality level. The quality scoring system was based off of a combination of the CEBMA critical appraisal tool and an adaptation of a mediation checklist tool originally developed by Lubans, Foster, and Biddle,[132] and later adapted by Rhodes and Pfaeffli,[133] and Texeira.[134] We rated studies using 12 questions with yes (1) and no responses (0) which were combined to compute a global score. Some studies either made no mention of adjusting for confounding variables, or did not control for all reasonable confounders of the exposure-outcome relationship in their analyses. This determination of 'reasonable confounders' was based off of an expectation that studies control for variables related to parent's age, socioeconomic status and education level in their analyses.

2.3.6 Data Synthesis

The first author collated relevant study information. Studies were deemed cohort studies if authors self-defined their research as following a cohort of participants over time. Longitudinal studies that used cohort data across populations were labelled as panel studies. The first author explored the theoretical frameworks put forward amongst included studies (where they were mentioned) and presented them in a table format grouped by their similarity, with a short summary explaining how

these theories have been employed to design mediation research for parental trauma and child well-being. The first author then performed a synthesis where the 27 different mediator variables identified in the 20 studies were grouped by similarity into 6 broader categories of mediator types. She then reviewed these categories to identify and list gaps in the existing literature around exposure, mediator and outcome variables. Finally, she completed the narrative analysis by presenting relevant aspects of the quality assessment results, and summarizing the results of studies' mediation analyses with any other important findings.

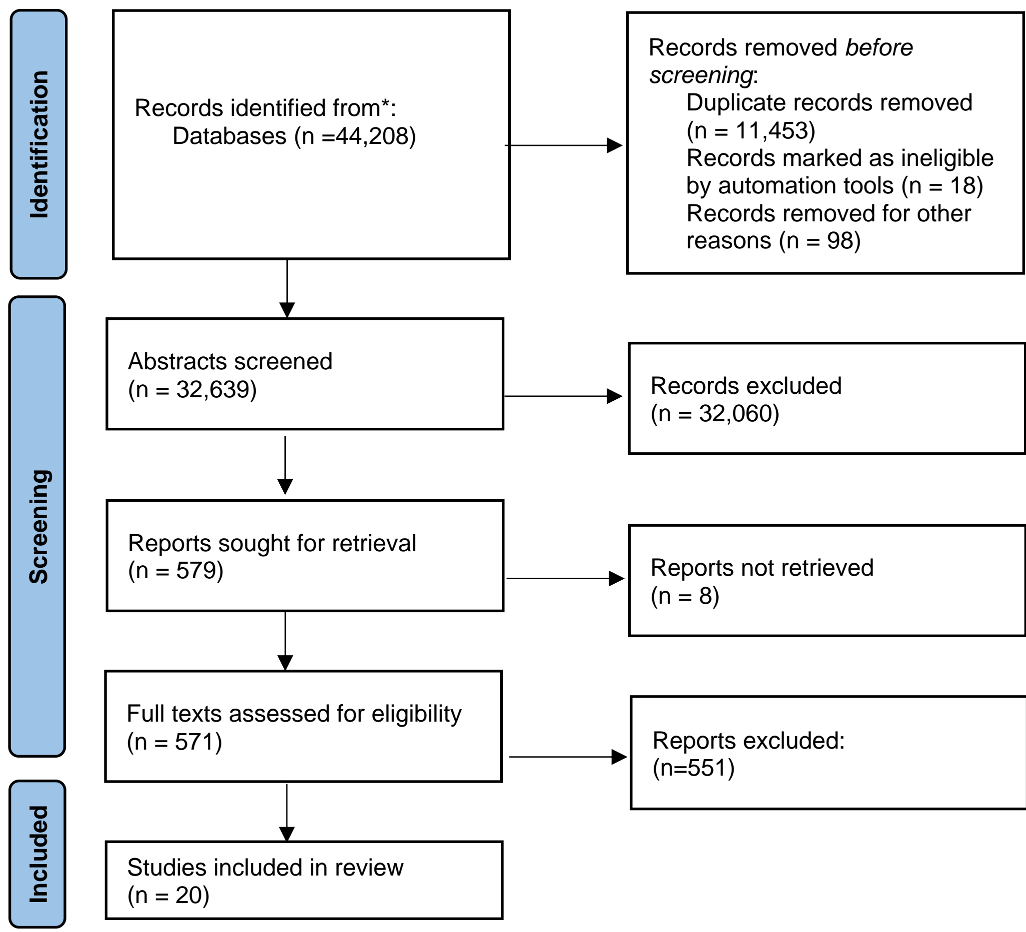


Fig. 2.1 PRISMA flow diagram for systematic review of mediators between a parent's experience of trauma and their children's well-being

2.4 Results

2.4.1 Theoretical Framework for Mediation Analyses

Below is a compilation of the key theoretical frameworks mentioned by this review's studies. This includes a brief summary of frameworks and their relevance in the context of parental trauma exposure and subsequent child effects as described by this review's studies.

Interpersonal Relationships		
Family Stress Model Financial stress leads to parental distress and interpersonal conflicts within families, negatively affecting parenting behaviours. Disrupted parenting then negatively influences child well-being.	**Spillover Hypothesis** Marital conflict creates parenting stress and emotional dysregulation, reducing parents' emotional capacity to cope with their children's needs and resulting in their utilisation of harsher parenting techniques. As a result, child behaviour is impacted.	**Ecobiodevelopmental Model** When caregivers experience marital conflict, they may be less attentive to children's needs and distress signals. This can negatively impact children's epigenetics and neural development. These biological effects then interact with ecological factors over their life course to determine physical and mental well-being.

135 136,137 138 97 139 140

Environmental	
Family Systems Theory Each relationship within a family is part of a larger, interdependent system of other familial relationships. Adversity experienced by one family member affects other members of this deeply interconnected system. A violent relationship between parents may adversely impact parenting behaviours, resulting in child conduct problems.	**Bronfenbrenner's ecological model of child development** A child's well-being is influenced by multiple environmental systems. The most influential level is the microsystem (family, peer groups and school). Child development is complexly related to the interactions of individuals or groups within these microsystems (mesosystems). Disasters may interrupt these systems and their interactions, impacting child well-being at various levels.

136,141 99 98,142

Bonding

Attachment Theory

Secure parent-child attachment occurs when caregivers are readily and regularly responsive to children's needs. Children's direct exposure to partner violence may impact their ability to form secure attachment with parents. Additionally, parents experiencing partner violence may display harsh and unpredictable parenting behaviours, potentially resulting in insecure parent-child attachment and child behavioural problems.

Emotional Security Theory

When children witness parental violence, it can disrupt their sense of emotional security, resulting in dysregulation of emotions and beliefs that their family security is threatened. Additionally, parents in conflict will have reduced capacity to respond to their children's needs, resulting in harsher parenting. These factors may result in children's emotional insecurity and conduct problems.

143 144 145 146 136 66 147

Biological Links

Cortisol Linkage Theory

A mother's hypothalamic-pituitary-adrenal axis (HPA) functioning impacts her cortisol production and stress response, which then goes on to influence her child's own cortisol baseline and reactivity levels during a stress response. In war settings, children may have limited healthy social interactions. Mothers may display insensitive parenting amidst the strains of war trauma, causing children to withdraw from the parent-child relationship. This could lead to a decrease in maternal synchrony and increase in child psychopathology.

Mother-child neural synchrony

The development of mother-child resonance through nonverbal and verbal bonding wires a child's brain for social interactions involving empathy. The continuous trauma exposure in war zones may significantly impact a mother's neural networking. This may result in a reduction of mother-child synchronous parenting, subsequently affecting a child's empathic response.

148 149 150 151 152

Fig. 2.2. Theoretical Frameworks linking parental trauma and child well-being as proposed by studies in review

Several studies in our review used theoretical frameworks to describe compromised interpersonal interactions within families in the context of parental IPV. For instance, Awada et. al used the spillover hypothesis in a novel way, to explain the association between parental IPV and juvenile delinquency outcomes.[135] Chung et. al also applied this theory innovatively in their assessment of the effect of maternal IPV on child behavioural outcomes among older children (10-14), an age group that

has been neglected in previous related studies.[137]Awada et. al also referenced the Family Stress Model to explain the relationships between maternal IPV, strained family dynamics and compromised parenting behaviours.[135] Lastly, Huang et. al referred to the Ecobiodevelopmental framework to advance their study rationale, postulating that maternal exposure to IPV impacts children's future risk of depression through mothers' use of physical punishment.[139]

On another front, biological links between parent and child are a growing area of mediation research. Three studies in our review explored biological theories linking war trauma to negative child outcomes. Halevi et. al used cortisol linkage theory to test maternal stress response (as measured by her salivary/hair cortisol levels) as a mediator between war exposure and child psychopathology.[153] Two other studies, Levy et. al, and Levy, Goldstein et. al, mention the importance of mother-child synchrony with respect to mothers and children's neural bases for empathy in the context of war trauma.[154] [150]

With respect to parent-child bonding, two studies used attachment theory to explain the relationship between parental trauma and children's behavioural problems. Juan et. al used this framework to describe the impact of maternal IPV exposure on children's aggressive behaviours, testing this association among younger children than previously explored (ages 5 and 9).[143] Linde-Krieger et. al also mentioned attachment theory in their conceptualization of the role of mother's helpless state of mind (SOM) in mediating the relationship between maternal childhood abuse and child behaviour problems.[155] They propose that a mother's insecure attachment to her own caregivers might endow her with a helpless SOM regarding her relationship with her children; such intergenerational attachment patterns are a underexplored area of parental trauma research. Only one study cited Emotional Security Theory, using it to explain their choice of parenting behaviour as a mediator between maternal exposure to IPV and child conduct problems.[136]

Lastly, a few studies mentioned theories related to family's ecological systems. Two separate studies written by a research team in University of North Carolina Chapel Hill used Family Systems Theory to explain the role of parent's depressive symptoms and parenting behaviours between IPV and child conduct problems.[136] [141] They note the complexity of the parenting process and comment on the potential of familial relationships to influence each other. However, they did not actually measure any aspects of family environmental stress in their study. One study by Abramson et. al mentioned Bronfenbrenner's ecological model of child development to explain the role of parental constraints and household stressors in the relationship between families' disaster exposure (Hurricane Katrina) and children's serious emotional disturbance; this was the only study to measure a mediating factor related to family environmental stress. However, this mediating factor was not considered in our results section since the concept was not well-defined, including too many separate constructs in one

overarching ‘household stressors’ variable. Instead, this study was included for its robust analysis of maternal mental health as a mediator.[99]

The frameworks identified by these studies highlight the complexity of the parenting process and also allude to the potential of familial relationships to influence each other in multi-layered and diverse ways. As seen, none of these theoretical frameworks are mutually exclusive, and therefore in some cases their proposed mechanisms may be working in tandem to create a complex assortment of influences on child well-being in the context of parental trauma.

2.4.2 Description of Mediation Studies

Table 2.1. Characteristics of Studies included in 'Mediators of the association between a parent's experience of trauma and their children's well-being: A systematic review'

Study ID	Dataset Used	Study Setting	Study Population	Sampling method	Sample size	Sex of caregiver assessed	Type of parental trauma exposure	Mechanisms assessed	Age of child at outcome report	Child well-being outcome
Abel 2019	Avon Longitudinal Study of Parents and Children (ALSPAC)	UK: Avon health districts	Mother-child dyads	All women pregnant with due-dates between April 1st 1991 and December 31st 1992 were eligible to take part.	3997	Mothers	IPV	Maternal depression	8 years	Offspring IQ
Awada 2020	Fragile Families and Child Wellbeing Study	USA; 20 cities	Families with newborns	Stratified random sample of all US cities with 200k or more people; single parents oversampled	4898	Mothers	IPV	Maternal parenting stress; harsh parenting	15 years	Adolescent delinquency
Brunst 2017	Asthma Coalition on Community Environment and Social Stress (ACCESS) project	USA; Boston, MA	English- or Spanish-speaking Pregnant women (≥18 years old)	Sample of women receiving prenatal care from specified clinics	857	Mothers	Maternal Lifetime Interpersonal Trauma	Maternal active asthma during pregnancy	Birth to 6 years.	Child clinician-diagnosed asthma
Chung 2021	Welfare, Children, and Families: A Three-City Study (TCS)	USA; San Antonio, TX, Chicago, IL and Boston, MA	Low-income families with child ages 10-14 years	Stratified random sample of low-income families (household survey)	965	Mothers	IPV	Mother-child relationship quality	M=12.09 years over 3 waves	Child externalising behaviours
Gustafsson 2012	The Family Life Project (FLP)	USA; North Carolina and Central Pennsylvania	Families with newborns	Families sampled from local hospitals; oversampled African-American and low-income families	1292	Mothers	IPV	Maternal sensitive parenting	58 months old.	Child effortful control
Huang 2020	Fragile Families and Child Wellbeing Study	USA; 20 cities	Families with newborns	Stratified random sample of all US cities with 200k or more people; single parents oversampled	1690	Mothers	IPV	Maternal physical punishment	9 years and 15 years	Child Bullying Victimization (Year 9); Teenage

										Depression Symptoms (Year 15)
Juan 2020	Fragile Families and Child Wellbeing Study	USA; 20 cities	Families with newborns	Stratified random sample of all US cities with 200k or more people; single parents oversampled	2986	Mothers and fathers	Partner Violence (both parents)	Child-parent attachment	5 and 9 years	Child aggressive behaviour
Manning 2014	NA	USA; Northeastern City	Mother-toddler dyads from racially diverse, socially-disadvantaged families	Convenience & purposive sampling from multiple agencies serving disadvantaged children and families	201 dyads	Mothers	Interparental Violence	Sensitive parenting	Wave 1 (M=26 months); Wave 3 (Wave 1 + 2 years)	Child externalising problems; Child prosocial behaviour
Zvara 2016	The Family Life Project (FLP)	USA; North Carolina and Central Pennsylvania	Families with newborns	Families sampled from local hospitals; oversampled African-American and low-income families	395	Mothers and fathers	Maternal IPV (reported by mothers & fathers)	Parenting behaviour	First grade	Child conduct problems
Hairston 2011	Maternal Anxiety during Childbearing Years (MACY)	USA; Detroit, MI and Ann Arbor, MI	Mother-child dyads	Convenience sample from childcare centres and paediatric clinics	184 dyads	Mothers	Maternal childhood trauma history	Maternal mental health	18 months	Toddler behaviour problems
Leonard 2017	The National Longitudinal Survey of Youth 1979 (NLSY79)	USA; National Study	Mother-child dyads	Mothers recruited into cohort from birth in 1979. Children recruited and followed from 1986 to 2012.	1979 mothers; 1986 children	Mothers	Maternal childhood adversity	Maternal pregnancy weight	2–5 years	Children's risk of obesity
Linde-Krieger 2018	NA	USA: Southern California	Mother-child dyads	Caregivers were recruited in convenience sample via community-based childcare centres	225 dyads	Mothers and fathers	Maternal history of child sexual abuse	Mother's helpless state of mind	4 and 6 years	Child internalising and externalising behaviour problems
Plant 2013	South London Child Development Study	UK: South London	Mother-child dyads	Pregnant women recruited from clinics	125 women	Mothers	Maternal childhood maltreatment	Offspring childhood maltreatment	11 and 16 years	Offspring adolescent antisocial behaviour and adolescent depression
Zvara 2017	The Family Life Project (FLP)	USA; North Carolina and	Mother-child dyads	Complex sampling procedure to obtain representative sample; Mothers recruited from	1292 dyads	Mothers	Maternal childhood sexual trauma	Maternal depressive symptoms; sensitive	Grade 1	Child conduct problems

		Central Pennsylvania		hospital the day after giving birth.				parenting; Maternal IPV		
Abramson 2010	GCAFH=Gulf Coast Child & Family Health Study; NHIS=National Health Interview Study	USA: Louisiana and Mississippi	Households in areas greatly affected by Hurricane Katrina	Random sample of households; Kish sampling strategy to recruit 1 child from each eligible household.	427 households	Parents	Hurricane Katrina damage	Maternal mental health	4-17 years old	Child serious emotional disturbance
Kroska 2018	The Iowa Flood Study	USA: Iowa	Pregnant women in Iowa flood-affected regions in mid-June 2008	Pregnant women were recruited through community and clinics in areas affected by the flood.	268 mother-child dyads	Mothers	Prenatal maternal flood stress	Offspring birthweight	30 months	Offspring BMI
Halevi 2017	NA	Israel: Sderot	Mother-child dyads	War-exposed families recruited from frontline neighbourhoods. Controls from comparable towns were matched by age, gender, birth-order, maternal and paternal age/education, and maternal employment/marital status.	232 dyads	Mothers	War-related trauma history	Maternal psychopathology; maternal stress physiology; maternal synchronous parenting	5-8 years; 9-11 years	Child psychopathology
Levy 2019	NA	Israel: Sderot and Tel Aviv	Mother-child dyads	148 families living near the Gaza border; matched control group of 84 non-exposed families in the greater Tel-Aviv area.	232 dyads	Mothers	Terror or war-related violence	Mother-child synchrony	M=11.81 years	Child prosocial skills
Levy 2019_2	NA	Israel: Sderot and Tel Aviv	Mother-child dyads	148 families living near the Gaza border; matched control group of 84 non-exposed families in the greater Tel-Aviv area.	232 dyads	Mothers	Terror or war-related violence	Mother-child synchrony	T3: 9.14 ± 1.30; T4: 11.81 ± 1.24 years	Child anxiety behaviours (T3). Child neural empathic response (T4).
Bryant 2018	Building a New Life in Australia (BNLA) study	Australia: 11 sites (major cities and regional areas)	Refugee families	Refugee families were selected using convenience sampling of refugee applicants in migrating units	394 caregivers; 639 children	Caregivers	Refugee caregiver's trauma history	Caregiver PTSD; caregiver harsh parenting	11-17 years	Child psychological difficulties

2.4.3 Design and characteristics of included studies

In total, 20 studies were identified as eligible for this review. Table 2.1 gives an overview of the study context, research design and results for each of the included studies. Publication dates ranged from 2010 to 2021. Studies were based in the United States (n=16), the United Kingdom (n=1), Israel (n=4) and Australia (n=1). There were no studies included from developing nations or low- or middle-income countries (LMIC). Eight of the studies recruited participants via hospital catchment or clinic populations, while the other fourteen studies used household or community-based samples.

Most studies in our review used either cohort samples (n=9) or cohort subsamples (n=8), with just a few panel studies included (n=3). Sample sizes ranged from 250 to 4,898 child participants (median=533). For parental trauma exposure, 15 studies measured trauma exposure in mothers, while the other five studies assessed trauma exposure in both fathers and mothers. The most frequently occurring parental trauma exposure was intimate partner violence (n=9), followed by childhood trauma (n=5). Other studies evaluated the effects of parent's exposure to lifetime interpersonal trauma (n=1), natural disaster (n=2), terrorism/war (n=3) and refugee trauma history (n=1). Measures of child well-being were assessed throughout a wide range of ages, from birth to 17 years old (neonatal outcomes were excluded unless part of a series of longitudinal measurements). Child well-being outcomes fell into five different groups: physical health (n=2), intelligence measures (n=1), mental health (n=6), behavioural problems (n=9) and social difficulties (n=4).

2.4.4 Quality Assessment

The quality of included studies is reported in Table A2 (Appendix 2). 62% of studies gave adequate descriptions of their cohort selections with clearly defined and objective criteria. 67% used objective methods to measure exposures and 38% used objective methods to measure outcomes and mediators of interest. Only half of included studies (48%) provided estimates of precision for measures of effect (confidence intervals or standard errors). A sizeable portion of the studies (40%) did not control for all reasonable confounders. The majority of studies (95%) performed formal mediation analyses to test their hypotheses regarding mechanisms of action between parental trauma and child well-being. 81% of studies ensured that observed changes in the mediator of interest preceded their measurements of child well-being, an important requirement for temporality of the exposure, mediator, outcome sequence.

2.4.5 Mediators Identified by Review

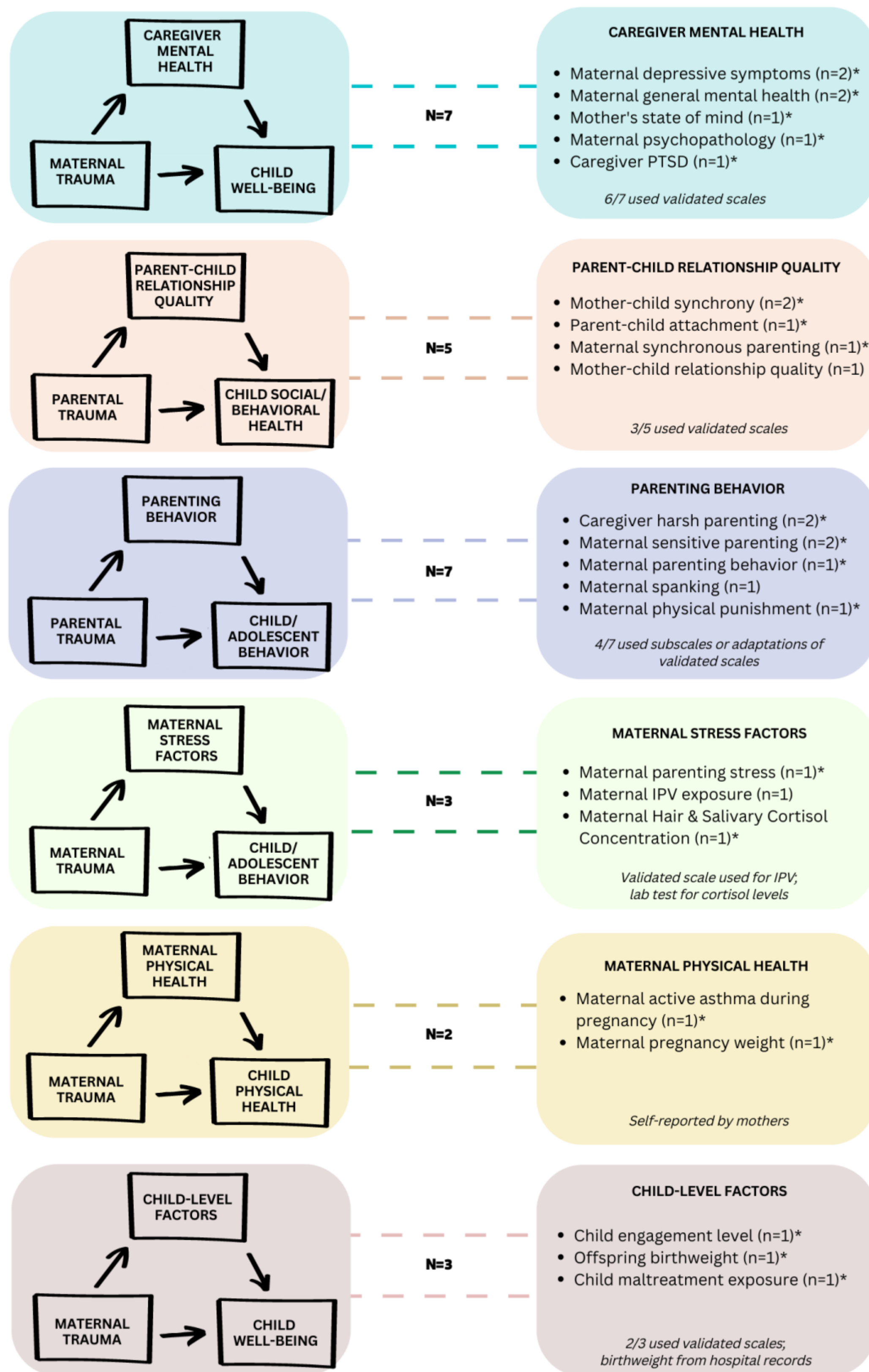


Fig. 2.3. Summary of mediators assessed between parental trauma and child well-being among studies identified by this review (classified into seven different domains)
Significant mediation results indicated by *

2.4.6 Effect Measures and Mediation Analysis Results

A detailed description of study results can be found in Table A3 in Appendix 3. Most studies detected an effect of parental trauma exposure on child well-being (n=18). Additionally, 19 studies detected a mediation effect using statistical analyses. Out of the 19 studies with significant mediation analysis results, only one study reported a full mediation effect.[156] Of note however, is the fact that most studies did not distinguish between partial and full mediation in their analysis, precluding any conclusions about the extent of mediation observed.

Caregiver mental health featured frequently as a mediator of interest among studies (n=7) and all such analyses detected a statistical mediation effect. Only one of these studies included a measure of paternal mental health.[157] Almost all studies testing effects of caregiver mental health as a mediator focused on emotional or behavioural aspects of child well-being in their outcome measures; only one study incorporated another aspect of well-being by measuring child IQ.[158] Some studies (n=5) measured aspects of the parent-child relationship as mediators, though only one looked at the father-child dynamic. Three of these studies reported a mediation effect; however, in Levy 2019, the mediation analysis revealed a surprising result: war exposure led to lower maternal-child synchrony, which predicted higher maternal gamma activity and higher levels of child prosocial behaviour: a counterintuitive correlation. One study went a step further in its investigation of the mediating role of the parent-child relationship by assessing sequential mediation; they found that the association between maternal war exposure and children's externalising behaviour was sequentially mediated by maternal synchronous parenting and child engagement level.[153] Parenting behaviour was frequently assessed as a mediator, with studies (n=7) assessing both positive and negative aspects of parenting, but only one study assessed father's behaviour. These studies all examined behavioural aspects of child or adolescent well-being as outcome measures. Most studies testing parenting behaviours as a mediator detected a mediation effect, apart from Chung 2021.[137] A few studies (n=3) assessed maternal stress factors as mediators. Two of these presented positive mediation effects; contrary to their hypothesis, one study observed that maternal IPV did not mediate the effect of a mother's experience of childhood sexual abuse on her child's conduct problems.[141] Studies assessing physical aspects of parental well-being (n=2) and child-level factors (n=3) as mediators between parental trauma and child well-being also reported mediation effects.

2.5 Discussion

2.5.1 Current State of Mediation Research

Our review has identified a wide range of factors appearing to mediate the effect of parental trauma on children's well-being. Nearly all studies included in our review found evidence for either partial or

full mediation of this relationship through their proposed mediating variables. These included six main categories of mediators: caregiver mental health, parent-child relationship quality, parenting behaviour, maternal stress factors, maternal physical health and child-level factors. Since it was the first review of its kind, we used an expansive definition of parental trauma, including many different types of traumatic experiences that met the DSM-5 definition of “actual or threatened death, serious injury, or sexual violence.” Similarly, we cast a broad net in terms of the types of child well-being outcomes we included, considering all measures of physical and psycho-social well-being in children under the age of 18. Finally, we included all types of mediators; the only limiting criteria being that authors measured the mediator at a time point after the exposure and before the outcome measurements. Due to the intentionally heterogenous nature of our study variables, we are able to comment on a diverse group of mediators linking various types of parental trauma to child well-being.

Parental mental health (n=7) and parenting behaviour (n=7) were the most commonly investigated mediator types in our review. The prominence of parental mental health amongst mediation studies was unsurprising given the extent to which trauma has been previously linked to psychological distress, as well as the known impact of parental mental health on child well-being. Though parenting behaviour is clearly an important grouping to consider also, we identified a need for more consistency in the way parenting behaviour is conceptualized and measured as a mediator between parental trauma and child well-being. For example, five different aspects of parenting behaviour were explored using five different measures amongst the seven studies in this category, with the rationale for many of these selections lacking a clear theoretical underpinning. Additionally, all seven studies assessing parenting behaviour as a mediator focused on child or adolescent behavioural outcomes. Since parenting behaviours have been repeatedly recognised as important determinants of a child’s overall ability to thrive however,[159] [160] [161] it is unlikely that behavioural health is the only area of a child’s overall well-being impacted by a parent’s traumatic experience. The effects of parenting behaviours on physical and social aspects of child well-being should therefore be a priority moving forward in this area of intergenerational trauma research.

All five studies looking at parent-child relationship quality were assessed as high-quality studies, promoting confidence in their findings. Four out of these five studies found evidence for a mediation effect between parental exposure to either IPV or war and child outcomes. Given the high quality of these studies and their robust findings, parent-child relationship quality should be given high priority in future research as a potential mediator between other types of parental trauma exposure and child well-being. Four different theoretical frameworks (Fig. 2.2) were used by this review’s studies to support parent-child relationship quality as a mediator between parental exposure to IPV/war and child well-being: attachment theory, emotional security theory, cortisol-linkage and mother-child neural synchrony. Other forms of trauma such as a parent’s adverse childhood experience, forced

displacement, natural disasters and community violence all have the potential to impact parent-child relationship quality through the pathways described by these same theoretical frameworks and should be explored thusly.

It is important to note that the above factors might also be relevant with respect to the father-child relationship. However, only three studies in our review explored the role of paternal mediators.[143] [157] [136] The neglect of such research is a noteworthy discovery given the growing consensus that fathers' have unique and considerable influences on their children's development.[162] This paucity of research related to fathers is reflective of psychological and parenting literature which has historically emphasised a mother's role in influencing her children, with fathers largely neglected as key players in child development. However, many of the trauma types in this review are experienced in equal if not greater measure by males (crime, violence, war, natural disasters and injury). Additionally, the theories put forward in this review suggest that even in instances where traumatic events have been experienced by a mother specifically, the entire functioning of the family (and its members) may be compromised. Given the distinct role that fathers play in their children's development, research should therefore not neglect fathers with respect to either their own experience of trauma, or paternal mediating factors that influence children in the context of parental trauma.

Many of our review's studies focused on IPV exposure, with theories linking this form of trauma to strained relationships, and ultimately affecting child well-being. Beyond the experience of intimate partner violence however, a broad range of other trauma exposures have been implicated in the degradation of interpersonal relationships.[163] With the potential for compromised social networks and unhealthy interactions, caregivers (both mothers *and* fathers) might reasonably have difficulty in forming secure attachments with their children after experiencing any type of traumatic event. If the parent-child relationship quality is found to be relevant for other parental trauma types, it will prove a key area for intervention among caregivers living with trauma of any kind.

2.5.2 Strengths and Limitations of our Review

By limiting eligibility to longitudinal studies, we decreased the risk of reverse temporality as an explanation for exposure-mediator-outcome associations. However, this meant excluding novel cross-sectional studies such as those studies using functional magnetic resonance imaging to assess neural effects of parental trauma. Additionally, some studies may have been excluded from our review if they did not mention the association between parental trauma and child well-being in their title or abstract, potentially resulting in some selection bias. Studies were not screened for mediation analyses until the full-text stage where studies were read in their entirety, so it is unlikely that our search

strategy missed studies which performed a mediation analysis, if they were otherwise eligible for the review.

Overall, there was a wide range in study quality. Generally, studies employed robust methodologies and were focused in their research questions, but we noted that the measurement of mediator and outcome variables could be significantly improved with increased use of validated or objective tools. We also identified the need for more precise effect measures and for confounding factors to be more consistently considered in study designs.

Many studies did not perform sensitivity analyses or did not use the gold standard for formal mediation analyses (SEM or path analyses). These studies were therefore unable to report indirect effects and confidence intervals. In these cases, the conclusions made about mediators may be biased since we cannot account for the magnitude and precision of the mediation effect. Most exposures were retrospectively assessed and many were not longitudinal measures, so our ability to rule out recall bias and to understand the temporality of the exposure's effect on the outcome is limited. This limitation cannot be avoided since ethical constraints restrict our ability make longitudinal, prospective measurements of trauma exposure without intervening.

2.5.3 Future Directions for Mediation Research

We identified five major gaps in this review. First, all included studies were based in high-income, developed countries, precluding our ability to assess the relevance of mediators between parental trauma and child well-being in LMIC or developing nations. Such settings should be prioritised in future research, particularly given the higher burden of traumatic experiences in LMIC. Second, there were very few studies that considered the role of paternal trauma in shaping child well-being (n=3).[143] [157] [99] The effects of paternal trauma and paternal aspects of parenting should be prioritised going forward due to a current lack of evidence in this area. Third, few studies examined physical aspects of well-being. We therefore endorse a push toward analysing physical aspects of well-being for both mediators and outcomes, since our review's findings suggest that trauma can have an impact on mother's physical health despite its limited sample of studies addressing this phenomenon.[164] [165] [166] Theories supporting biological links between parental trauma and child well-being are limited at present, though our review indicates that they play an important role in children's outcomes following parental trauma. Fourth, the review contained few studies (n=2) on natural disasters and non-partner violence (n=1) and no studies assessing parental injury/illness or neighbourhood crime and violence, despite employing an exhaustive list of search terms to target these types of exposures. As indicated by our theoretical framework analysis, this may be due to a lack of strong theory currently available to support linkages between parental experiences of collective traumatic events and child well-being.

Future studies should prioritise these types of exposures using longitudinal designs. Lastly, despite a range of child ages covered, most of the studies (70%) collected outcome data when children were over the age of five. Furthermore, four out of the five studies that did look at child well-being outcomes in children at or under the age of 5 measured interpersonal forms of parental trauma; this suggests a paucity of research on the effects of other types of parental trauma (beyond interpersonal forms) on early child well-being outcomes. Future studies should focus on outcomes in young children, particularly with longitudinal research from birth until adolescence, in order to develop a life course perspective for potential mechanisms operating between various forms of parental trauma and child well-being.

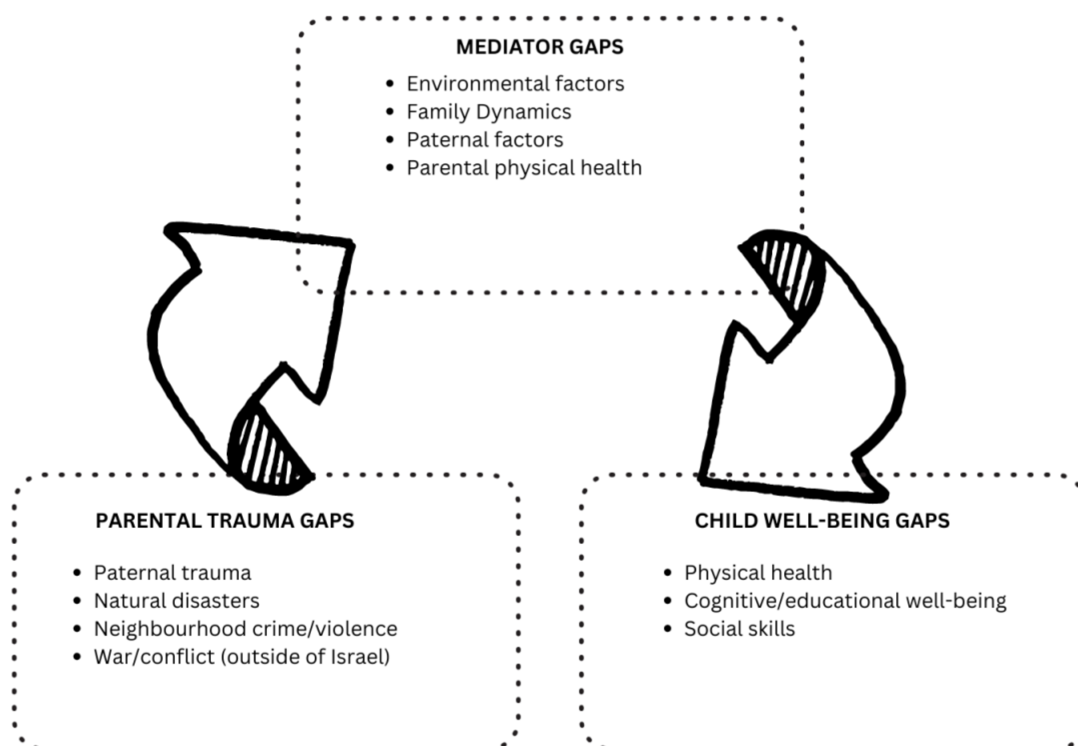


Fig. 2.4. Summary of the gaps in exposure, mediator, and outcome variables among studies looking at the effect of parental trauma on child well-being in this review

2.6 Conclusion

In conclusion, we have identified a range of factors which appear to mediate the relationship between parental trauma and child well-being. Researchers to date have been eclectic in their selection of potential mediators, but with little consistency in how similar constructs are measured. Specifically, our findings highlight the paucity of mediation analyses employing rigorous methods to promote precision and accuracy. We therefore propose the use of specific, well-defined mediators using validated measures where available, to enhance our understanding of their importance. With respect to mediation analyses of parental trauma and child well-being, researchers have overlooked LMIC and

developing nations, and have neglected aspects of family dynamics, physical health and paternal factors as potential mediators. Since our review indicates that parental mental health and parenting behaviours are important factors operating between parental trauma and child well-being, we recommend further research to explore these mediators among fathers who have experienced trauma. Additionally, future mediation studies can consider more complex, sequential mediation analyses to elucidate the ways in which biology, behaviour and family dynamics interrelate on the pathways between a parent's experience of trauma and their children's well-being.

Chapter 3: Impact and mental health mediation of intimate partner violence on child behaviour: a cross-sectional study

3.1 Abstract

Background

Intimate partner violence (IPV) is known to have detrimental and often lingering effects on persons directly experiencing this form of abuse. Emerging research also indicates that a parent's experience of IPV may operate through various intermediary pathways to influence children's well-being. However, there is still no established model to explain underlying mechanisms of action between a parent's experience of IPV and their children's well-being. Furthermore, the bulk of the longitudinal studies have been conducted in developed countries, with no study of this nature conducted in the Caribbean to date. This study will be the first in the Caribbean to assess the mediation effect of maternal mental health symptoms on the association between maternal exposure to IPV and child behavioural problems.

Methods

In this cross-sectional study, we performed a logistic regression analysis to assess the impact of maternal IPV exposure on child behavioural problems (withdrawal or aggression) amongst a national sample of Trinbagonian mothers with children between the ages of 5 to 12. We then utilised generalized structural equation modelling (GSEM) to test the mediation effect of both maternal depression and anxiety symptoms on the overall association that we observed between maternal IPV exposure and child behavioural problems.

Results

We established a prevalence of 55% for lifetime exposure to emotional, sexual or physical violence by an intimate partner amongst the mothers sampled. Mothers who experienced any form of IPV in their lifetime were almost three times as likely to report their children displaying behavioural problems compared to mothers who had never experienced IPV (OR=2.81; 95% CI, 1.08-7.33). Additionally, we found that both maternal depressive symptoms and maternal anxiety symptoms partially mediated the relationship between maternal exposure to IPV and child behavioural problems.

Conclusion

Our study indicates that more than half of mothers in Trinidad and Tobago have experienced the scourge of IPV in their lifetime, with many likely lacking resources (material or psychological) for protecting their children from its effects. Additionally, our results suggest that the effect of maternal

IPV exposure on child behavioural problems is mediated by maternal depression and anxiety symptoms. Since depression and anxiety symptomology have previously been associated with diminished parenting skills, we make the case for maternal parenting behaviours likely playing an important role in determining child well-being amongst IPV-exposed families in Trinidad and Tobago. Our exploratory study has paved the way for larger scale, longitudinal studies to specifically assess the role of parenting-related mechanisms between IPV and poor child well-being. As our study demonstrates, IPV is a phenomenon affecting all walks of life in Trinidad and Tobago, but it may be especially damaging in the context of maternal mental health distress. Women experiencing both IPV and mental health issues may experience a double-stigma, potentially hindering their help-seeking behaviours for themselves or their family. While we must ultimately eliminate the blight of IPV, there is an urgent need to focus on encouraging mental health interventions and promoting positive parenting strategies in the Caribbean.

RESEARCH PAPER COVER SHEET

Please note that a cover sheet must be completed for each research paper included within a thesis.

SECTION A – Student Details

Student ID Number	lsh1800852	**Title**	Miss
First Name(s)	Jihana		
Surname/Family Name	Mottley		
Thesis Title	The Effect of Parental Trauma on Child Well-being in Trinidad and Tobago: a mixed-methods study		
Primary Supervisor	Dr. Sujit Rathod		

If the Research Paper has previously been published please complete Section B, if not please move to Section C.

SECTION B – Paper already published

Where was the work published?			
When was the work published?			
If the work was published prior to registration for your research degree, give a brief rationale for its inclusion			
Have you retained the copyright for the work?*	Choose an item.	Was the work subject to academic peer review?	Choose an item.

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SECTION C – Prepared for publication, but not yet published

Where is the work intended to be published?	Journal of Interpersonal Violence
Please list the paper's authors in the intended authorship order:	Jihana Mottley, Karen Devries, Phil Edwards, Sujit Rathod
Stage of publication	**Not yet submitted**

SECTION D – Multi-authored work

For multi-authored work, give full details of your role in the research included in the paper and in the preparation of the paper. (Attach a further sheet if necessary)	I acquired the dataset from the International Development Bank, acquired the census data for constructing survey weights, ran the statistical analyses in Stata, and wrote up the paper with input from my supervisory team.

SECTION E

Student Signature	
Date	6 Jan 2023

Supervisor Signature	
Date	10 Jan 2023

3.2 Background

Intimate partner violence (IPV) is a global phenomenon that disproportionately affects developing countries and poorer women.[167] The most recent data from the WHO Global Database estimates that worldwide, "27% of ever-partnered women between the ages of 15-49 have experienced intimate partner sexual or physical violence, or both."[168] For some Caribbean islands, the figures are even more prominent – with more than half of women reporting experience of some form of IPV in their lifetime.[170]

Not only does the Caribbean have high rates of IPV relative to worldwide estimates, but women seeking help for their experiences of IPV may meet a series of challenges in securing appropriate help for themselves or their children due to culturally entrenched barriers.[171] In previous findings, authors have alluded to the legacy of slavery, persistent gender inequality, and the dominance of hegemonic masculinities as potential impetuses for the Caribbean's high gender-violence rates, with limited recourse offered amidst a 'culture of silence.'[171] [172] Researchers have also commented on the lack of appropriate services available to women seeking assistance for IPV in the Caribbean, citing infrastructure issues, as well as victim-blaming perpetuated amongst service providers.[149]Additionally, there are many single-parent households in the Caribbean, with mothers disproportionately bearing the burden of parenting in these cases.[173] Mothers in the Caribbean are therefore not only often victims of IPV, but may have limited support for addressing its detrimental effects on themselves or their families.

In addition to its direct effects on mothers, IPV exposure may operate through various intermediary pathways to indirectly influence children's well-being. For instance, it is well established that a parent's experience of IPV can significantly impact their children's behavioural adjustment, yet how this occurs needs further exploration.[174] A 2018 meta-analysis found that the odds of a child displaying behavioural problems were about twice as high among children whose mothers had experienced IPV as compared to children of unexposed mothers.[175] Despite this association being established by several studies, mediators of these associations have not yet been solidified.[143] [176] [177] Further, all of the available studies have been conducted in developed, high-income countries.[178] More work is therefore needed to establish a model of interrelated pathways between parental IPV and child well-being. Such a model might also highlight specific contexts in which certain mediators might be more or less relevant. For instance, we may find that mediating factors differ based on social, historical and cultural influences affecting both parents and children; such insight would prove helpful for the design of targeted interventions addressing the effects of IPV in specific contexts.

At present, evidence around mental health as a mediator between IPV and child well-being is circumstantial. Still, its potential role as a mediator of this association has a strong theoretical basis. For instance, numerous studies have observed an association between exposure to IPV and adverse mental health, such as depression, suicidality, PTSD and anxiety.[179] [179] [180] [181] Further, there is evidence that mental health challenges have the potential to negatively influence parenting behaviours. For example, in a meta-analysis,[49] mothers with depression reported that their parenting was characterized by "diminished emotional involvement, impaired communication, disaffection, and increased hostility and resentment." Though not as frequently assessed, several studies have also shown correlations between maternal anxiety and reduced quality of the parent-child relationship, through factors like parental overinvolvement, parental hostility and parenting stress.[182] [183] [184] [185] [186] [187] [188] Parenting behaviours may therefore be an important determinant of children's well-being among mothers who are exposed to IPV, because of compromised maternal mental health. This premise is consistent with evidence from previous IPV studies indicating that a positive mother-child relationship may be a significant protective factor for child behavioural problems.[189] [190]

We therefore propose the following sequential mediation pathway operating between parental IPV and child behavioural problems: maternal IPV affects maternal mental health, which subsequently influences parenting behaviours, ultimately impacting children's behaviour. Though we do not test parenting behaviours as a sequential mediator in this study, we take an important step in testing the first mediator in this proposed pathway in an under-researched context. Essentially, the present study tests maternal mental health symptoms (depression and anxiety) as mediators of the relationship between maternal IPV and children's behavioural problems in Trinidad and Tobago. Our study focuses on two aspects of child well-being known to be important predictors of children's future social and academic adjustment: child withdrawal (an internalising behaviour) and child aggression (an externalising behaviour).[191] [192]

The magnitude of IPV's impact on public health might prove even greater than previously thought given its potential to catalyse cascading effects on intergenerational well-being. The results of our study will help to inform interventions to improve parent and child well-being in the Caribbean, where IPV is highly prevalent and where no similar analysis has been performed to date. In this report, we aim to determine 1) whether women in Trinidad and Tobago who experienced lifetime exposure to IPV reported having children who were more prone to behavioural problems, and 2) whether this effect is mediated by maternal mental health symptoms.

3.3 Methods

3.3.1 Setting

A previous study of interpersonal violence exposure (including non-partners) in Trinidad and Tobago estimated that 65.1% of women surveyed (between 15 to 30 years old) had experienced some form of violence in their lives.[193] Despite the high prevalence estimate in that study, no indications of its resulting impact on maternal or child well-being were given.

Trinbagonian youth are displaying signs of behavioural problems on a national scale. For instance, a school survey conducted in 2017 observed high levels of suicidal ideation (24.1%) among adolescents aged 13-17.[113] Additionally, several other studies have identified a significant increase in delinquent behaviours over the past decade, potentially reflecting an escalation in impaired emotional well-being among youth. These behaviours include: bullying, truancy, fighting and disrespect of teachers in secondary schools in Trinidad and Tobago.[116] [115]

3.3.2 Sample

This is a secondary analysis of a 2017 nationwide cross-sectional household survey of women's health in Trinidad and Tobago.[104] The Inter-American Development Bank sponsored this survey to assess the frequency and prevalence of different types of Violence Against Women in the Caribbean alongside associated factors, particularly women's and child health.

The survey team used a multi-stage sampling design (probability proportionate sampling) to acquire a population-based sample of women, using a sampling frame based on the Trinidad and Tobago national 2011 Population and Housing Census. They selected Enumeration Districts (EDs) as Primary Sampling Units, oversampling those communities belonging to a government-initiated, community crime prevention programme known as the Citizens Security Programme (CSP). They then selected a fixed number of households (15) from each ED. Then one eligible woman (between the ages of 15-64) was selected from each of these 15 households using a Kish Selection grid.

After acquiring the population-based sample, household surveys commenced. The survey team found that 4% of the original household sample lived in ineligible households due to non-intact buildings and 18% of the original household sample either refused to answer the survey or were inaccessible. Of the 1,496 households which completed the interview, 17% of women were ineligible. This left 1,243 eligible women among households sampled. 87% of eligible women who were approached by the study team completed the individual interview. Of these 1,079 completed interviews, 1,017 women

were ever-partnered. For our analysis, we used data for the 304 ever-partnered women who had a child between the ages of 5 and 12 years old at the time of the survey.

3.3.3 Data Collection

Upon identifying the selected respondent and obtaining verbal informed consent, a female interviewer administered the study questionnaire in English. The questionnaire had sections drawn from the WHO Multi-Country Study on Women's Health and Domestic Violence. Survey methodology was initially employed in Jamaica with its suitability reviewed by an expert panel prior to its use in Trinidad and Tobago. The survey team was comprised of local, female Trinbagonian staff who underwent a two-week training to ground them in the survey's theoretical background, as well as the logistics of data collection and bias reduction. They were coached on how to deliver a survey asking sensitive questions while retaining their overall composition with neutral body language. The survey questions were close-ended and pre-written in English language in order to reduce interviewer bias. Data were collected via the software SurveyToGo, with "validation checks, skips, and automatic calculations programmed into the questionnaire to avoid erroneous entries."[104]

All procedures for data collection were approved by the University of the West Indies Ethics Committee (St. Augustine, Trinidad and Tobago).[104] The present secondary data analysis was approved by the London School of Hygiene and Tropical Medicine Ethics Board (United Kingdom). Throughout the survey, women were reminded of their right to withdraw consent or omit questions due to their sensitive nature.

3.3.4 Exposure: Maternal Lifetime Exposure to Intimate Partner Violence

In our analysis, we considered women to be exposed to lifetime intimate partner violence (IPV) if they reported having experienced at least one act of physical and/or sexual partner violence by a current or former partner in their lifetime. The criteria for physical violence exposure included a range of violent acts (slapped, object thrown at, pushed/shoved, hair pulled, hit with object or fist, kicked, dragged, beaten, burned, choked, threatened with weapon). The criteria for sexual violence exposure included a range of forced sex acts (physical force, intimidation, degrading acts/humiliation). The criteria for emotional violence exposure encompassed a range of psychologically aggressive acts (insults, belittling/humiliation, intimidation, verbal threats of physical violence). For the analysis, we represented lifetime IPV as a dichotomous measure of presence or absence (=1 or =0, respectively) based on whether a participant had experienced at least one type of intimate partner violence (emotional, sexual or physical) in their lifetime.

3.3.5 Mediator: Maternal Mental Health

Measures of depression symptoms and anxiety symptoms were adapted from the PHQ-9 and GAD-7 screening tools for depression and generalized anxiety, respectively, which have been previously validated in Caribbean populations.[194] [195] The survey team asked women whether they had experienced symptoms of anxiety or depression in the past 2 weeks using these screening questions. During the design of the questionnaire, the study team made response options binary, removing the frequency component of the items (an adaptation of the original PHQ-9 and GAD-7 format) to its length. In our analysis, we calculated a composite score for maternal depression symptoms [range 0-9] by summing the participants' dichotomous responses for each item (9 items total) in this section (a summation of the number of different depression symptoms each woman experienced in the past two weeks). We derived a composite score [range 0-7] in the same way for the anxiety section (7 items total), representing mother's self-reported experience of anxiety symptoms over the past two weeks. We modelled both mediators as continuous variables in the analysis using these composite scores.

3.3.6 Statistical Analyses

We only included mothers with complete data on lifetime IPV exposure and child behavioural outcomes in our analyses. There was missing data for 30.2% of women in the overall sample regarding their motherhood status; however, among mothers, only 5.0% of mothers had missing data regarding their IPV exposure and their children's behaviour. First, we performed descriptive analyses using two-way tables of frequency, with either Pearson χ^2 or Fisher's exact test as measures of association. Next, we fit a logistic regression model using maternal lifetime IPV exposure as the independent variable and the presence of child behavioural problems as the dependent variable. Finally, we used generalized structural equation modelling (GSEM) to conduct path analyses from maternal IPV to child behavioural problems through maternal depression symptoms. We then calculated an overall indirect effect for the path from maternal IPV to child behavioural problems through maternal depression symptoms. We obtained bootstrap standard errors and confidence intervals for the parameters using 2000 bootstrap resamples to improve the confidence limit coverage.[196] We then repeated these path analyses for maternal anxiety symptoms. We conducted all analyses using Stata version 16.0, accounting for the complex survey design with the survey set command (entering appropriate information to assign the primary sampling unit, the probability weights, and the strata used during the probability proportionate sampling design process). A text file containing the Stata commands used for these analyses can be found in Appendix 5.

3.3.7 Outcomes: Child Behavioural problems

The survey team asked mothers whether any of their 5–12-year-old children displayed timid/withdrawn behaviour or aggressive behaviour. Although the dichotomous questions about withdrawn and aggressive behaviour were not validated, the questions reflected well known components of the validated Child Behaviour Checklist,[197] and were derived from extensive qualitative work with IPV-exposed mothers in Nicaragua which is culturally similar to the Caribbean.[198] The team recorded this outcome variable as a binary measure, according to whether the participant had ever observed withdrawn or aggressive behaviour in their children within this age range.

3.3.8 Covariates

We standardised and considered the following variables as confounders in our analysis: maternal age (years), maternal education level (none, primary, secondary or higher), and socioeconomic status. Socioeconomic status was a continuous measure, derived by the first component of a principal components analysis of a range of household and material assets (i.e. source of drinking water source, toilet facilities, roof material, appliance and vehicle ownership, internet access, and number of rooms in the dwelling).[199]

3.4 Results

3.4.1 Description of sample

From the overall survey sample of 1,079 women, 72% were ineligible because they either did not have co-resident children between the age of 5 and 12 or they did not respond to the survey question regarding motherhood status. We included the remaining 304 participants in this analysis. Overall, 54.6% of surveyed mothers had been exposed to at least one incident of IPV in their lifetime (emotional IPV (43.0%); physical IPV (38.0%); sexual IPV (12.8%)). 12.5% of mothers reported behavioural problems amongst their children (withdrawn behaviour (7.4%); reported aggressive behaviour (7.6%)).

Table 3.1 provides a summary of descriptive statistics for participants. Mothers in the sample were on average 35.8 years old. Mothers who had experienced lifetime violence were on average 3 years younger than those who had not. The majority of mothers were Evangelical Christian or Roman Catholic (49.21%). 43.5% of mothers identified as African; the majority had some secondary school education (54.7%) and were currently partnered (70.6%). Most mothers lived in urban areas (76.4%)

and were employed in the public/private sectors (55.2%). IPV-exposed mothers were less likely to be currently married (60.6%) than mothers with no exposure to lifetime IPV (83.1%). Mean socioeconomic status differed significantly by IPV exposure status: mothers with lower socioeconomic status scores were more likely to have experienced lifetime IPV.

Table 3.1 Study characteristics by lifetime IPV status among women with co-resident children between ages 5-12 in Trinidad and Tobago

	Lifetime IPV Exposure		**Group effect[a]**
Characteristic	Yes (n=166)	No (n=138)	p-value
Maternal age [years; mean (±SD)]	34.4 (±6.67)	37.5 (±8.01)	0.0035**
Religion			
None	3.3%	3.1%	0.7579
Roman Catholic	22.3%	21.0%	
Evangelical	26.9%	27.9%	
Hinduism	8.1%	14.8%	
Baptist	14.7%	9.6%	
Anglican	4.3%	4.4%	
Other Christian	10.6%	6.2%	
Other non-Christian	9.8%	12.9%	
Ethnicity			
African	51.3%	33.7%	0.0638
East Indian	20.3%	39.5%	
Mixed (East Indian and African)	20.8%	19.9%	
Other	7.5%	6.9%	
Educational Attainment			
No education/primary only	9.5%	10.7%	0.9019
Secondary	54.3%	55.5%	
Higher	36.2%	33.8%	
Current Partnership Status			
Currently married	60.6%	83.1%	0.0062**
Currently partnered but not married	1.8%	5.3%	
Currently no partner	21.4%	11.6%	
Urban/Rural			
Urban	85.4%	72.0%	0.0045*
Rural	14.6%	28.0%	
Socioeconomic Status			
High	25.9%	43.6%	0.0346*
Medium	36.3%	31.4%	

Low	37.9%	25.0%	
Main activities during past week			
Employed in a public/private corporate	57.8%	52.4%	0.3199
Self-employed	8.1%	9.6%	
Housework/work as unpaid family member	20.1%	30.2%	
Unemployed	14.0%	7.9%	
Main source of income			
Income from own work	28.8%	21.3%	0.3297
Support from partner/husband	22.9%	32.9%	
Equal share self and partner	26.8%	32.5%	
Support from relatives/friends	11.8%	5.3%	
No income/pension/social services/other	9.7%	8.0%	
Maternal Mental Health (composite score; mean (±SD)]			
Maternal Depressive Symptoms [0-9]	2.36 (±2.45)	1.0 (±1.45)	14.82**
Maternal Anxiety Symptoms [0-7]	2.76 (±0.36)	1.63 (±0.19)	9.08**
Child Behavioural Problems			
Yes	17.1%	7.18%	4.02*
No	82.9%	92.8%	

*p<0.05 **p<0.01

3.4.2 Mediation Results

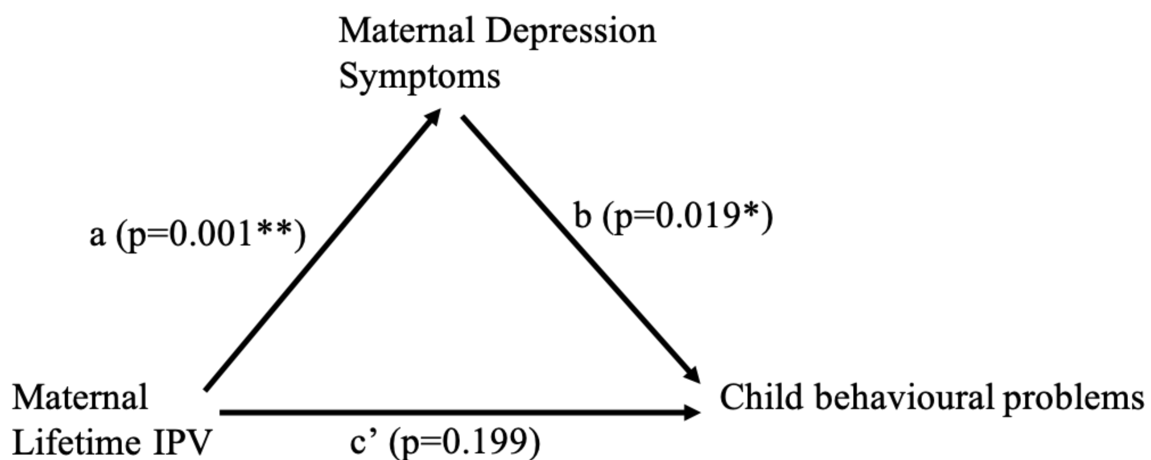
Our unadjusted logistic model testing the association between maternal lifetime IPV and child behavioural problems indicated that children of women exposed to IPV were 2.67 times as likely to experience behavioural problems as compared to children of mothers with no lifetime exposure to IPV (OR=2.67; 95% CI 0.98-7.23). This association strengthened after adjusting for maternal age, education, and socioeconomic status (OR=2.81; 95% CI 1.08-7.33).

Model 1 (Fig.3.1) shows the results of three separate path analyses we performed to test the overall mediation effect of maternal IPV on child behavioural problems through maternal depressive symptoms. The direct effect of maternal IPV on child behavioural problems (path c') became attenuated when maternal depression symptoms (OR=1.79; 95% CI 0.68-5.07) was included in the logistic regression. Separately, IPV was found to be positively associated with symptoms of maternal depression (B=1.22, p=0.001) using a linear regression equation (path a). In other words, in our sample, a woman's exposure to IPV increased her depression symptoms score by 1.22 points on a continuous scale between 0-9. When testing the pathway between maternal depression symptoms and child behavioural problems (path b) using a logistic regression equation, we found that children of

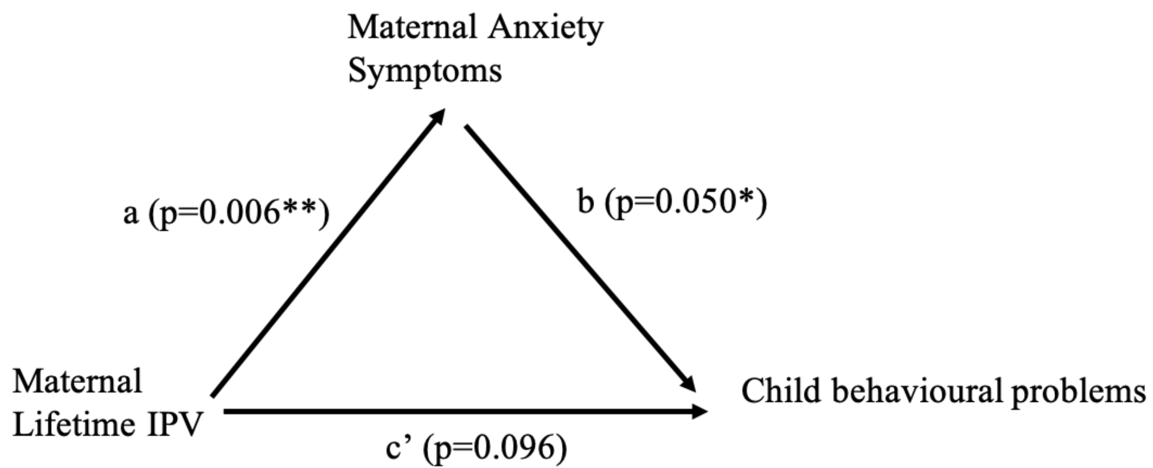
mothers with depression symptoms were 1.35 times more likely to have behaviour problems than children of mothers without depressive symptoms (OR=1.35; 95% CI 1.05-1.73). We calculated the overall indirect effect for the path from maternal IPV to child behavioural problems through maternal depression symptoms by using GSEM to combine the linear and logistic regression coefficients from paths a and b (Fig. 3.1), producing a coefficient for the indirect effect on the log-odds scale (β=0.37; 95% CI 0.08-0.78) with bias-corrected bootstrap confidence intervals. The resulting indirect effect was statistically significant, suggesting that maternal depression symptoms partially mediate the relationship between maternal IPV exposure and child behavioural problems in this sample.

Model 2 (Fig.3.1) shows the results of path analyses testing the overall mediation effect of maternal IPV on child behavioural problems through maternal anxiety symptoms. The direct effect of maternal IPV on child behavioural problems (path c') was attenuated when maternal anxiety symptoms (OR=2.19; 95% CI 0.91-6.04) was included in the logistic regression. Maternal lifetime IPV was associated with maternal anxiety symptoms (B=1.01, p=0.006) in our linear regression equation (path a). In other words, in our sample, a woman's exposure to IPV increased her anxiety symptoms score by 1.01 points on a continuous scale between 0-7. However, the path between maternal anxiety symptoms and child behaviour problems (path b) revealed a weak association (OR=1.26; 95% CI 0.99-1.59) with the lower bound of the confidence interval very close to the null. We employed the same GSEM method used for model 1 to calculate the overall indirect effect for this path from maternal IPV to child behavioural problems through maternal anxiety symptoms on the log-odds scale. The resulting indirect effect was statistically significant (β=0.37; 95% CI 0.08-0.78) suggesting that maternal anxiety symptoms partially mediate the relationship between maternal IPV exposure and child behavioural problems in this sample.

Model 1



Model 2



Paths b and c' were estimated using logistic regression, yielding coefficients on the log-odds scale
Paths a were estimated using linear regression and unstandardized regression coefficients
Path coefficients correspond to the effect of maternal IPV compared to no maternal IPV exposure

Fig. 3.1. Association of lifetime IPV and child behavioural problems, testing mediation paths through common mental symptoms among women in Trinidad and Tobago

3.5 Discussion

3.5.1 Significance of Findings

Our study estimated a prevalence of 54.6% for lifetime exposure to emotional, sexual or physical violence by a partner amongst mothers with children between the ages of 5 to 12 in Trinidad and Tobago. This figure is higher than previous WHO estimates for Latin America and the Caribbean which report that one-third of ever-partnered women (though not limited to mothers) in this region have experienced IPV in their lifetime.[200] Essentially, nearly half of mothers with children in a key developmental period (ages 5 to 12) in Trinidad and Tobago are currently contending with the effects of lifetime exposure to IPV. Further, our analyses suggest that children in Trinidad and Tobago are more likely to display behavioural problems (aggression and withdrawal) when their mothers have been exposed to IPV. Our finding of an association between maternal IPV and child behavioural problems is consistent with evidence derived in high-income, developed nations reporting similar results.[177] [143] [176] However, our study is among only a few studies worldwide that have assessed this relationship in younger children; most previous studies focused on adolescent behavioural outcomes. Our results emphasise the importance of routinely screening for parental IPV in early childhood, mitigating its effects during early stages of child development. Additionally, to our knowledge, this study provides the first national adjusted estimates of maternal IPV and children's behavioural problems amongst Caribbean mothers. This makes it an important addition to the growing literature

linking maternal IPV to poor child well-being outcomes within a range of developmental stages and contexts, further emphasising the impact of IPV on public health.

We also observed that maternal symptoms of both depression and anxiety partially mediate the relationship between maternal IPV and child behavioural problems in this sample. This lends support to our proposed hypothesis: compromised maternal mental health following IPV exposure negatively impacts children's behaviour. Our mediation findings contribute to growing evidence that maternal mental health is an important factor on the pathway between a parent's experience of IPV and their children's well-being. Relative to the amount of evidence linking parental IPV to child behavioural problems, existing research has largely neglected the identification of mediating factors explaining this association.[143] A few studies have pointed to the mediating role of maternal mental health in the relationship between IPV exposure and child aggressive behaviour.[201] [202] [203] [204] However, none of these have looked specifically at the role of maternal depression or anxiety symptoms as mediators; instead, they all group maternal mental health into an overarching category, with little consistency between studies on how this is measured as a mediating factor. By testing these two groups of mental health symptoms separately using validated measures, we contribute to the understanding of how specific maternal mental health traits impact child behavioural problems in the context of IPV. This has important implications for designing targeted mitigation efforts.

3.5.2 Strengths and Limitations

This study's main strength is its nationally representative sample in an under-researched population with high prevalence of IPV. The study sample was ethnically and economically diverse, with data on maternal covariates readily accessible for incorporating confounding factors and testing mediation. Additionally, the study utilised a well-validated scale for measuring IPV which was reviewed by an expert panel prior to its dissemination, allowing for a high response rate for sensitive questions amongst women who completed the interview.

Several methodological limitations are relevant to this discussion. Foremost, this study was cross-sectional and therefore causation cannot be implied based on the associations drawn in its analysis. Secondly, previous research has noted that women who experience symptoms of mental health disorders may be at increased risk for exposure to IPV.[205] As such, we cannot completely eliminate the possibility of reverse causation between either maternal depression or anxiety symptoms and IPV. Third, maternal lifetime IPV was measured through self-reported questions which may introduce some level of recall bias, and could have resulted in under-reporting of IPV given the stigma attached to this admission. However, if present, such biases likely drove associations toward the null. Since mental health is highly stigmatized in Trinidad and Tobago,[206] [207] women experiencing both IPV and

mental health issues may carry a double-stigma. As a result, women who have experienced IPV may have also been less likely to report mental health symptoms, potentially biasing the reported associations toward the null. However, women suffering from mental health symptoms like depression or anxiety may be more likely to perceive behavioural issues in their children due to their own feelings of mental distress.[208] If such a bias was present in our data, it may have led to an overestimate of our indirect effect measures of maternal IPV on child behavioural problems through depression and anxiety symptoms.

Additionally, child behavioural outcomes were measured using questions that had been established in a similar population of women exposed to IPV in Nicaragua. While these questions may be highly relevant among mothers exposed to IPV, they have not been validated with respect to specific behavioural disorders in children. Lastly, the study sample size (for mothers in the overall survey) was small, which led to wide confidence intervals; a more robust sample size would have improved the precision of results. We accounted for many relevant confounders of the effect of maternal IPV on the mediators and outcomes of interest by using an a priori list derived from the literature. However, there may be other unmeasured confounders which we could not account for in our analysis. For example, an important consideration might be a child's direct witness to IPV which is related to both the exposure and outcome in our study. It is practically difficult to collect information on child witness in the age group included in this study (ages 5-12), particularly within the limits of a population-based survey. However, longitudinal studies of mediation should consider collecting this data where possible.

3.5.3 Future Directions

Future longitudinal research on the effects of parental IPV should identify how behavioural problems experienced in this younger age group correlates with longer-term outcomes across the developmental spectrum. Additionally, our study has identified maternal mental health as an important potential mediator between a mother's experience of IPV and her children's behavioural problems; future mediation studies should advance this knowledge by exploring the pathways leading from maternal mental health distress to diminished child well-being in the context of IPV. In particular, parenting factors should be analysed for their role in this overall succession. While our study did not collect data on fathers, future research should collect paternal-related mediators to identify how fathers fit into this cycle of intergenerational distress, both with respect to their own mental health, as well and their parenting behaviours. Progress in all of these research areas can inform programmes aimed at helping families exposed to IPV.

Since parenting styles and relational dynamics vary widely from culture to culture however,[209] longitudinal, quantitative studies should be employed to examine IPV's effects on parent and child behaviours in the specific Caribbean context. Additionally, qualitative studies should explore families' perspectives of how IPV impacts relational dynamics in Caribbean households; identifying these interpersonal effects will better equip parents in protecting their children from the effects of IPV in a region where prevalence is high and parenting support is scarce.

3.5.4 Conclusion

To our knowledge, ours is the first study looking at mediation effects between parental IPV and child well-being conducted in the Caribbean. Our results indicate that children whose mothers have experienced IPV may be at higher risk of behavioural problems in their pre-adolescent years as a direct result of their mother's mental distress. This may in turn, increase their risk of experiencing difficulties in their future interpersonal relationships, potentially perpetuating intergenerational cycles of distress. With regard to interventions therefore, children who display signs of withdrawal and aggression should be given support that takes into account their home lives as a potential catalyst for these behaviours. Their mothers, for instance, can then be equipped with tools to minimize symptoms of anxiety and depression and to establish a positive relationship with their children. Similarly, current IPV prevention and support interventions should expand their programmes to consider the well-being of co-resident children, providing parenting support and child counselling services as high priority initiatives.

Chapter 4: A qualitative exploration of parenting under adversity: “Surprisingly, it worked - using firecrackers to get her accustomed to the sound”

4.1 Abstract

Background

The majority of resilience research to date has focused on understanding a child’s ability to achieve success under the threat of adversity, with studies often portraying parenting factors as means to this critical end. We contend that a parent’s own well-being as well as their historical, structural and cultural context, predicts their ability to steward their children’s well-being under threatening conditions, emphasising parental resilience as a high priority for family and child research. In this qualitative study, we assess the impact of adverse life events on the parenting experience in Trinidad during a period when several national crises converged.

Methods

We recruited a sample of parents with children under the age of 18 in Port of Spain, Trinidad during March 2022. Through a series of focus group discussions with mothers and fathers, we explored parent’s perceptions of parenting under adversity. Finally, we performed a thematic analysis of participants’ responses in order to identify the story behind the participant data, highlighting some of the mechanisms through which adversity might influence parental resilience and child well-being. By adopting both an inductive and deductive approach to this analysis, we attempted to uncover parents’ feelings and motivations as well as explicit behaviours related to their experience of parenting under adversity.

Results

The majority of parents in our sample indicated that their personal well-being was challenged by present adverse circumstances. Nevertheless, parents adopted a range of coping mechanisms in their attempts to remain resilient parents. Despite their efforts to adopt a form of parental stoicism, many parents indicated a decline in their mental health under adversity and some indicated their use of negative parenting practices. Unequal gender norms and mental health stigma also appear to contribute to poor parental well-being and compromised parenting behaviours in the context of adverse circumstances. Some parents described strained family dynamics as a result of prolonged experiences of adversity.

Conclusion

Parents in our sample expressed a deep commitment to their children's well-being and often displayed a strong sense of pride in their identity as parents. In an effort to achieve parental resilience, most parents reported expending intense energy on their children's care during periods of adversity. This self-sacrificial parenting often came at the expense of their own well-being and may have detrimental effects on both their parenting behaviours and their family's dynamics. Programmes that address parental mental health and parenting support interventions are of utmost priority in Trinidad at present, with a special emphasis on assisting fathers to healthily engage with their parenting responsibilities.

RESEARCH PAPER COVER SHEET

Please note that a cover sheet must be completed <u>for each</u> research paper included within a thesis.

<u>SECTION A – Student Details</u>

Student ID Number	lsh1800852	**Title**	Miss.
First Name(s)	Jihana		
Surname/Family Name	Mottley		
Thesis Title	The Effect of Parental Trauma on Child Well-being in Trinidad and Tobago: a mixed-methods study		
Primary Supervisor	Dr. Sujit Rathod		

If the Research Paper has previously been published please complete Section B, if not please move to Section C.

<u>SECTION B – Paper already published</u>

Where was the work published?			
When was the work published?			
If the work was published prior to registration for your research degree, give a brief rationale for its inclusion			
Have you retained the copyright for the work?*	Choose an item.	Was the work subject to academic peer review?	Choose an item.

*If yes, please attach evidence of retention. If no, or if the work is being included in its published format, please attach evidence of permission from the copyright holder (publisher or other author) to include this work.

<u>SECTION C – Prepared for publication, but not yet published</u>

Where is the work intended to be published?	Child Development Perspectives
Please list the paper's authors in the intended authorship order:	Jihana Mottley, Ana Maria Buller, Karen Devries, Kristin Hart, Sujit Rathod
Stage of publication	**Not yet submitted**

SECTION D – Multi-authored work

For multi-authored work, give full details of your role in the research included in the paper and in the preparation of the paper. (Attach a further sheet if necessary)	I designed the study and its data collection materials. I also conducted the focus groups and transcribed and analysed the data. With help from my supervisory and advisory team, I wrote the paper and will be primarily responsible for its publication.

SECTION E

Student Signature	
Date	6 Jan 2023

Supervisor Signature	
Date	10 Jan 2023

4.2 Background

Parenting involves considerable expenditure of personal resources and can be demanding even under the best of conditions. During periods of adversity, parents do not get a reprieve from their caregiving responsibilities. Instead, they must now contend with additional elements of stress while attempting to care for their children's well-being. Parenting interventions often focus on promoting positive parenting practices to protect children's well-being and healthy development in the midst of adversity.[37 210] Less clear however, are the factors which influence parental well-being under adverse conditions.[211] Parental well-being undoubtedly affects how parents conceptualize their identity as parents, as well as the emotional, physical and practical resources they can allocate toward parenting under adverse circumstances.

Surprisingly, there are limited data available on parenting under adversity in developing countries. A few reviews have collated studies on the subject, but these are mostly centred in developed nations.[212] For example, a recent scoping review of the intergenerational effects of trauma focused on Latin Americans who had migrated to America, a high-income, developed nation.[213] The authors commented that studies in their review placed an over-emphasis on individual risk factors for intergenerational transmission of trauma rather than historical, cultural and structural factors. Another review concentrated on parenting after experiencing childhood abuse, but most of its studies were conducted in the United States and only one was based in a developing nation.[214] The review's authors identified some important risk and protective factors for child well-being in the context of parents' adverse childhood exposures, but acknowledged the lack of evidence around fathers and indigenous parents.

Small island developing states like Trinidad and Tobago face unique public health challenges and yet their populations have largely been neglected from international research. Our study attempts to address this deficit by focusing on parents contending with adverse exposures in Trinidad. Merriam-Webster dictionary defines adversity as: "a state or instance of serious or continued difficulty or misfortune."[215] Previous research suggests that under serious adversity, humans have the capability to adapt by entering into 'survival mode' in order to respond to threats efficiently.[216] While this adaptation may be effective in the short-term, harnessing parents' protective instinct toward their children, the physiological and psychological toll of living in 'survival mode' might eventually damage both a parent's body and mind.[217] This, in turn, will have negative implications for their parenting capacity.

The majority of resilience research to date has focused on understanding a child's ability to achieve success under the threat of adversity, with studies often portraying parenting factors as means to this

critical end. We hope to augment the available literature by focusing on aspects of parental resilience under adverse conditions. Parental resilience is defined as the "capacity of parents to deliver competent, quality parenting to children despite adverse personal, family, and social circumstances."[61] We contend that a parent's own well-being as well as their historical, structural and cultural context, predicts their ability to steward their children's well-being under threatening conditions; emphasising parental resilience as a high priority for family and child research.

4.3 Trinidad and Tobago context

At odds with the idyllic representation of a sun-bathed, sea-rimmed island, Trinidad and Tobago is currently a hotspot for crime, violence and economic instability. While there are many proposed factors for this phenomenon, a time-series analysis of crime in Trinidad and Tobago has suggested that these upticks might be related to changes in government and policies.[218] Specifically, their analysis suggests a decrease in the detection and arrest rate and increasing unemployment might have contributed to the elevated crime and violence risks in the 2000s. Relatedly, the Inter-American Development Bank (IDB) reported a 69.9% increase in wounds and shootings between 2008 and 2013.[102] Since the time of the IDB report in 2013, the Trinidad and Tobago Police Service has recorded sustained, high levels of various types of criminal offences (burglaries and breakings, kidnapping, murders, rapes, incest and sexual offences, robberies and woundings and shootings).[219] More recently, a 2017 Women's Health Survey of 1,079 women across Trinidad and Tobago showed that 30% of ever-partnered women had experienced lifetime physical and/or sexual partner violence.[104]

Part of the uptick in crime may be related to a consistent decline in Trinidad and Tobago's economy over the past years. A recent ECLAC survey indicated that 2019 was the fourth year of economic contraction for the nation, due to a steady decline in the performance of the energy sector.[111] [220] The stringent, nationwide Covid-19 lockdown enforced throughout the better part of 2020 only worsened the economic outlook, with businesses forced to shut their doors. Many Trinidadian parents were experiencing unprecedented hardship in providing for their family's basic needs at the time of this study.

In this paper, we explore the impact of adverse life events on the parenting experience in Trinidad during a period where several national crises converged. Through a series of focus group discussions with mothers and fathers, we attempt to understand some of the mechanisms through which adversity might influence parental resilience and child well-being.

4.4 Methods

4.4.1 Setting

We conducted our qualitative study in Port of Spain, the capital of Trinidad and Tobago, where there are a wide range of sociodemographic and cultural backgrounds. Participants from all areas of the island were eligible to participate; however, our targeted recruitment efforts yielded a sample of mostly low to middle-income parents from the North-Western region of the island.

The estimated population of Trinidad and Tobago is 1.4 million.[221] The most recent estimates for the island's demographic makeup come from the last countrywide survey conducted in 2011: East Indian (35.4%), African descent (34.2%), mixed - other (15.3%), mixed - African/East Indian (7.7%), other (1.3%), unspecified (6.2%).[222] The age structure reflects an ageing population with 30.29% of the population under the age of 24, 43.7% between the age of 25-54 years, and 26.0% in the category of 55 years and older.[222] 53.3% of the total population lives in urban areas and the GDP per capita was 25,670 USD in 2021, representing a -1.3% decline from the previous year's estimate.[223] The economy shrunk by 6.8% during 2020 due to pandemic-related restriction measures on trade and commerce. As a result of the nation's precarious economic situation at the time of these focus groups, many of the nations' families had experienced recent job loss or income reductions amidst rising food prices.[224]

At the time of this study in March 2022, 125 murders had already been recorded for the year. This number is 50% higher than the cumulative total recorded in March 2021, trending toward making 2022 the deadliest year in the nation's history with respect to murder rates.[219] In fact, now at the end of 2022, Trinidad and Tobago ranks as the country with the 12th highest murder rate per capita in the world, with 30.65 homicides per 100k people.[225] On this same global index, El Salvador ranked the highest at 52.02 murders per 100k people, and Jamaica in second place at 43.85 murders per 100k people.[225]

4.4.2 Sampling

We recruited participants from local study partners' networks, including four non-profit partners that provide disaster relief and rehabilitation services to persons at risk in Trinidad and Tobago (The Credo Foundation for Justice, Life in Life Ministries, Families in Action and Is There Not a Cause?). Study partners shared recruitment flyers with potential participants via electronic messaging. The flyer invited interested persons to contact the first author directly via phone or email. However, parents who heard about the focus groups by word of mouth were also included if eligible. We did not deny anyone participation once they met the eligibility criteria of being a parent over the age of 18,

with a child currently living with them at home. Upon receiving interest from potential participants, the first author shared the study information sheet and assessed the interested person's study eligibility. She then invited eligible participants to attend a focus group session (3 to 6 persons scheduled per group) at a pre-scheduled time and date at the study venue.

4.4.3 Tool development

The first author designed the topic guides under the supervision of the senior author. She then pilot tested the topic guides with a group of Trinidadian mothers via a remote focus group on the *Zoom* video communication platform. Following the pilot test, she revised the topic guides to accommodate feedback given by parents regarding the comprehensibility and flow of the focus group sessions.

During the focus groups, we explored the impact of adverse parental experiences on parental well-being and parenting. Additionally, the first author prompted participants to comment on their perceptions of the impact of adversity on the parent-child dynamic and children's well-being. The topic guide included questions such as: 'Can you tell me about types of traumatic events that people experience in your community?' and 'What are some of the ways these difficult or traumatic experiences can impact parents' well-being?'

4.4.4 Data Collection

Data collection took place in March 2022 via both in-person and remote modalities. The first author facilitated focus groups in English, conducting this research as part of her PhD at the London School of Hygiene and Tropical Medicine (LSHTM). As part of her preparation, the first author received training on qualitative methods and facilitating focus groups with sensitive topics. She then trained a graduate student in criminology from the University of the West Indies in study methodology; this graduate student acted as a research assistant to help facilitate logistics and take notes during the focus group discussions. We reimbursed participants £7.5 for their costs related to childcare, travel or internet usage during their study attendance. In-person participants received refreshments after the focus group sessions.

Fathers proved more difficult to recruit than mothers. As such, while recruitment efforts continued for males, we commenced the female focus groups to establish a baseline for study content and logistics flow. Though focus group content became repetitive during the fifth female focus group, we held a final (sixth) focus group of 3 mothers to ensure that content saturation was actually achieved among mothers. Following this, we recruited and assigned fathers to a series of male focus groups. Initially, fathers shared some distinct perspectives on the study topic as compared to mothers, providing a

unique perspective; however, after 7 fathers participated in focus groups, their discussions began to repeat the same content that other parents had previously mentioned. After the third male focus group, we ended data collection with data from 9 fathers, in order to make best use of limited study resources.

The first author collected the qualitative data herself, adjusting the topic guide after an initial pilot test; this helped her to modify language to suit the study's target audience. As a Trinidadian national, she was well-acquainted with the local language and culture, able to put participants at ease with her familiarity. Participants shared distressing and personal information quite freely throughout the focus groups, which is likely in part due to a cultural tendency of Trinidadian persons to be outspoken, but also suggests that the focus group design and implementation was appropriate for both the population and the topic. The first author's training on interviewing persons on sensitive topics and her previous experience in pastoral care helped her to refrain from judgmental or reactionary responses, despite the distressing content covered by some of the participants. However, in order to put participants at ease, she could not remain completely neutral throughout the focus groups, expressing signs of empathetic acknowledgment of participants' distress where she felt necessary.

The Covid-19 pandemic coincided with this study's planned schedule, delaying data collection several times due to the related government-mandated lockdown in Trinidad. Ultimately, we conducted the study in a hybrid form, with both in-person and remote focus group sessions to accommodate pandemic-related adjustments to everyday life. This mixed modality also facilitated parents' ability to participate remotely without needing to find appropriate childcare. Additionally, though the Covid-19 pandemic delayed data collection, the associated lockdown was in and of itself an adverse experience for many study participants. As such, participants were able to comment on its effect on their parenting and their children during focus group discussions. The government-mandated Covid-19 measures did not inhibit the logistics of in-person focus groups in any observable way. However, perhaps some parents were unable to attend either in-person or virtually due to the significant strains on their time and energy as a result of these mandates; this may explain some of our difficulty around the recruitment of fathers.

4.4.5 Safeguarding

We informed participants prior to the discussions that reports of child abuse or intention to harm others would need to be reported to relevant officials. We asked participants to agree to keep the identity of other focus group participants anonymous, but encouraged them to mingle after the focus groups, with refreshments provided. We conducted focus groups in a church meeting hall on a secure compound. A security guard was present at the study site during data collection to protect participants

and researchers from threats of crime and vandalism. We conducted remote focus groups via a password-protected *Zoom* meeting, a secure platform for hosting video conferences (no recordings were stored on this platform at any time).

The first author directly uploaded all study materials (audio recordings, transcripts and informed consent forms) to an LSHTM secure server after data collection and analysis. These materials are password-protected with access restricted to the first author. Only audio recordings of remote focus groups are stored as she deleted *Zoom* video recordings immediately after data collection.

4.4.6 Referral protocols

The study team anticipated that participants might experience psychological distress when speaking about the effects of adverse events in their life. As such, the team compiled a list of study partners who agreed to provide support services to participants (family support, relief services, counselling services and pastoral care) for up to 6 months after data collection and free of charge (ratified by a Study Collaborator Agreement); we distributed this referral list to participants after each focus group.

4.4.7 Consent Procedures

We obtained ethical approval for the study from the Ethics Committees at LSHTM and the Ministry of Health, Trinidad and Tobago. At the study centre and on the day of the focus group discussion, the first author read statements of consent aloud to participants, informing parents that their participation was completely voluntary and that consent could be withdrawn at any point during the focus group without their access to referral services being compromised. The first author then retrieved informed consent via signatures on electronic tablets (including participants' date of birth, full name and the focus group date) for those parents who wished to proceed. If participants consented, they remained at the study centre for a 60–90-minute focus group. For remote focus groups, the first author read the same statements of consent aloud, providing participants with an electronic copy of the consent form to read and follow along. The first author recorded informed consent verbally using the *Zoom* audio recording feature, signing as a witness on behalf of remote participants using the electronic tablet form.

4.4.8 Data Analysis

At the point of content saturation, we had collected data from 29 focus group participants; 20 mothers and 9 fathers. The first author and her research assistant then transcribed the audio recordings of focus groups. The first author reviewed all transcripts for accuracy before coding and analysing them. This

resulted in 9 transcripts (6 with mothers and 3 with fathers) of focus group discussions, totalling 15 hours of participant discussion.

The first author and her research assistant transcribed the audio recordings verbatim. The first author then reviewed all transcripts for accuracy before coding and analysing them in Nvivo. During the first step, the first author immersed herself in the data, transcribing and reading through focus group discussions several times. She then generated some initial data-driven codes using an inductive approach to categorize data into codes by searching for recurring ideas in the dataset. These code units were then combined into groups, organizing them into broader theory-driven themes based on ideas derived from existing literature. These themes were then reviewed and refined, combining broader ideas and removing any themes that were not relevant to the research question. Themes were named after the central idea represented by their respective codes. Since we used an open-ended style of interviewing to capture parents' perspectives, our inductive approach to developing codes allowed us to identify common ideas across these interviews, representing a search for meaning of phenomena across participants. By adopting a deductive approach when creating broader theme categories however, we were able to compare our findings more easily to previously established constructs in our discussion section. The latter is an important consideration in conducting qualitative analysis, since it underscores when new evidence contradicts researchers' assumptions. Finally, the first author discussed her initial findings with her research assistant, another Trinidadian national who is similarly well-versed in the local context and was present during the in-person focus groups. This provided a second perspective on data interpretation to help reduce the first authors' subjectivity.

Most parents described themselves as having a low to lower middle-income background and the majority were of African, East Indian or mixed descent. The mean age of mothers was 37.3 years and the mean age of fathers was 36.8 years. Though we did not explicitly specify this as part of our inclusion criteria, all participants were the biological parents of at least one of their co-resident children under 18.

4.5 Results

4.5.1 Summary of Results

The majority of parents in our sample indicated that their personal well-being was challenged by present adverse circumstances. Namely, our first theme: 1) Compromised parental well-being, was identified by participants as a direct stress response to adverse factors. Further themes appeared to be subsequent consequences of parents' compromised well-being. We identified two themes described by parents as positive responses to adversity and their compromised well-being: 2) Parental stoicism; and 3) Coping mechanisms. These factors are depicted by 'Path 1' in Fig. 4.1. We also identified four

themes which parents described as unintended, negative responses to adversity and their compromised well-being. These themes are depicted by 'Path 2' in Fig.4.1 and centre around harmful parenting behaviours and family dysfunction: 4) Gender inequalities in parenting responsibility; 5) Parenting resentment; 6) Releasing stress on others; and 7) Strained family dynamics. For each theme identified in the results below, we compare the perspectives of mothers and fathers where relevant, exploring their views on the experience of parenting under adverse conditions, with respect to their own well-being and that of their children.

4.5.2 Illustration of Study Themes

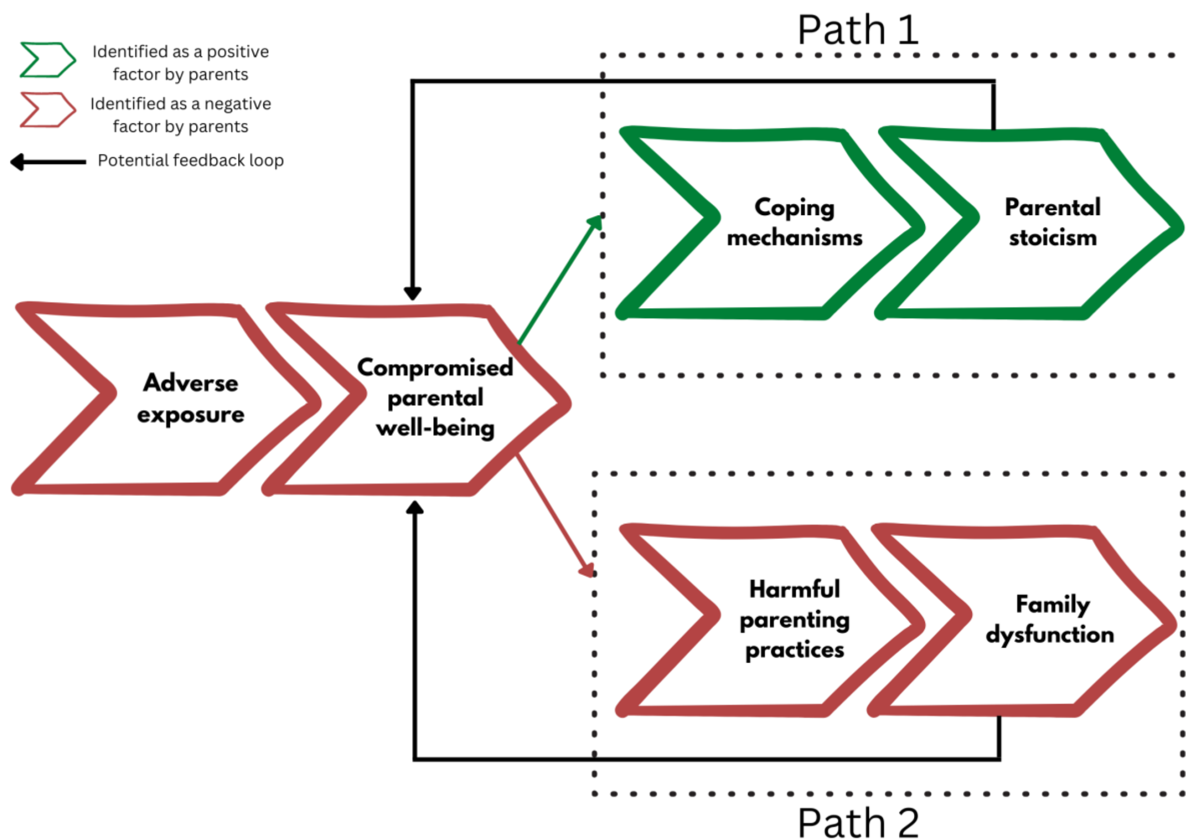


Fig. 4.1. Flow diagram depicting potential interrelation of factors involved in parental responses to adversity as described by focus group participants in Trinidad

4.5.3 Narrative Analysis of Study Themes

1. "I don't see like the future is going to be brighter": Compromised parental well-being

Many parents mentioned that ongoing threats to their family's well-being caused them anxiety. Parents were anxious about their children's risk of contracting Covid-19, as well as the financial challenges imposed by the pandemic. Mothers in particular expressed concern about their children facing an unknown future:

"*I'm very traumatized (...) trying to survive on this particular salary with everything that is increasing, and then have to take care of these children, provide for them - school is back out, and then my older one, who's asthmatic - every minute wondering what's going to happen. If he's going to contract COVID (...). I don't see like the future is going to be brighter."* - Mother

Fathers also experienced mental distress resulting from adverse circumstances, though more often these were centred around immediate threats to their family's security. For example, one father expressed extreme anxiety over his family's situation in a high-crime neighbourhood. He described his desire to protect his children from physical harm and a resulting sense of panic when unable to do so:

"As ah dad yuh does feel ah sense of, you d superman tuh yuh chirren, and your wife and family more or less. So, you, ah wasn't at home and there were a couple of shooting incidents, two of them in particular, where two individuals actually died and, in that situation (...) my chirren were outside (...). I was just frightened, and I mentally just trippin' off, because I wasn't home, around them."- Father

A few parents indicated having depressive or suicidal thoughts as a result of significant financial challenges and their inability to provide stability for their children in this regard. Particularly distressing to one mother was the unpredictable nature of some of the costs related to her children's well-being:

"You have to kind of dip into your savings now and have to make ends meet, basically. So suicidal thoughts kick in there, you have a baby, so you have to make sure you think about your baby, the needs of the babies, or children, in general, they can–you can just get up one morning and something is wrong with one of them, or all of them (...) where am I going to get the money from to see about my baby, my child?" - Mother

Many parents also commented on the negative effects of stress on their physical well-being, many times resulting in high blood pressure, heart palpitations and sleeplessness. Some mothers also mentioned diminished health-seeking behaviours with respect to addressing their physical health needs:

"We ignore when our own body is telling us something is wrong (...) even the regular pap smears–a lot of mothers, when you, if you go to clinic, you will hear them saying: 'I didn't do it in two years, or three years', but they make sure and see about the immunization of their child." - Mother

2. “You have tuh dig yourself back up from d grave” - Parental stoicism

Despite their mental and emotional distress, the majority of participants were determined to remain resilient parents for their children. In particular, fathers felt a weighty responsibility to be strong and not appear weak, holding themselves together emotionally for their family’s sake:

“So, I think because men in society is portrayed as supposed to have all the answers. Supposed to be on top of their game, supposed to be macho? (...) Okay, and we’re the ones our families and our dependents would look to for support and strength. Um, I don't think that men would be particularly willing to admit that they need help, or they don't have it all together.” – Father

Mothers similarly felt a need to be extremely resilient as parents; explaining that practically speaking: they felt their family’s functioning depended on them. Several mothers felt they needed to hide their own distress in order to prioritise their children’s well-being:

“*Although some children do see it because I guess we don't hide it well enough (...) but we still have to bear in mind that our children are number one and keep that in mind. So, if we need to hide, we need to go in a corner, we need to cry it out and then come back and wipe our face and say: ‘okay, yeah, mommy good,’ (...) then that's what we need to do*.” - Mother

Despite the desire to remain strong and competent parents under adverse life circumstances, the majority of participants described the toll this was taking on their personal well-being and particularly, their mental health. Given the space to talk, parents began to open up about these struggles, but often used humour to balance the intensity of their admissions.

“So, even if yuh um, get shot in the head, um, even if you pull the trigger for yourself - you have tuh dig yourself back up from d grave (laughter in room). And yuh have to go on, and yuh have to go on. And yuh have to be there, and yuh have to do everything.” – Mother

3. “And we pour it into our children den”- Coping mechanisms

In the midst of adverse circumstances, there were many ways that parents adapted their parenting behaviours in an effort to remain resilient as parents. The sacrificial actions these parents took to protect their children’s well-being however, often came at the expense of their own desires or needs. For example, several parents reported skipping meals so that their children could eat instead:

"I'm Muslim, and I'm gonna tell you one of the things that my husband does to make it easy on us because I'm breastfeeding, I eat a lot - he actually fasts a lot. And that just helps so that you know, we have things in the house to eat."- Mother

One mother explained that she only developed her self-sacrificial attitude after having children. She commented that parents go to great lengths to protect their children's well-being during adversity and that a parent's ability to express compassion for their children is not always equal to their ability to engender self-compassion:

"Having children and raising them made me realise how much love I was capable of (...) the things that we would do, bend over backward just for our children (...). Until, we are put in a situation with our children. And then we realise, we have tonnes of ability and knowledge that we could have utilised, within our own personal self, that we never did. And we pour it into our children den."- Mother

Several parents alluded to the tendency for Trinidadians to use humour to avoid difficult conversations. For example, one mother noted the prevailing tendency of Trinidadians to avoid talking about serious issues due to an unwillingness to admit gaps in their knowledge, perhaps because of an underlying shame surrounding exposure of their personal weaknesses.

"But when you figure you know everything, and the 'crab in bucket' mentality that we as Trinidadians have and the way that we make everything into a joke. Every single thing can be made into a joke. Sometimes we need to get serious. And mostly is because they're embarrassed, and they're afraid, they're ashamed because somebody come and dey draw out something to pay attention."- Mother

A trait that many fathers described, was their innate desire to problem-solve when it comes to protecting their families' well-being. For instance, many fathers described creative solutions to financial problems, like fasting to reduce their family's food intake and potty-training their children earlier than expected in order to save on diaper costs. Even in the midst of his personal anxieties, one father came up with an innovative solution to addressing the adverse after-effects of his daughter's traumatic exposure to neighbourhood violence:

"Because of the constant gunshots, she, as ah does say - she was panicking. And, one of the things we did was use firecrackers - to get her accustomed to the sound of explosion. And trust me, it wasn't easy trying to come up with ways, so that mentally took a drain, a good drain on both of us (...) Surprisingly, it worked."- Father

4. “If one more person tells me: ‘I'm so strong, I'm gonna lose it” - Gender inequalities in parenting responsibility

Many mothers referenced a prevailing cultural expectation that women shoulder the weight of parenting responsibilities; they found this expectation to be burdensome, particularly when adverse circumstances placed constraints on their already limited resources. One mother commented that her natural resilience as a woman enabled her to remain attentive to her children’s needs despite the pressures of single parenthood. Still, she grieved the loss of her overall well-being in the process:

“If one more person tells me: ‘I'm so strong, I'm gonna lose it.’ Because me being strong is not something to be admired. I'm strong because ah have to be, I'm not strong because I want to be, as in like yea, ‘Give me more suffering. Give me more stuff. Give me more tests - so I can be strong.’”- Mother

A few mothers mentioned that they had taken on the role of both mother and father in their households, even when they lived in a two-parent household. One mother commented that women are forced to take on more than their fair share of responsibilities because of a lack of support from male family members, disrupting the entire functioning of the household:

“Women and mothers in Trinidad and Tobago, in the Caribbean, have taken on so much - that we encroaching on what we need the men to do in the families. And then the homes are breaking down. And society as a result is breaking down.”- Mother

Many fathers also described this gender imbalance in parenting responsibilities. In fact, one father suggested that men in Trinidad have developed an apathy towards their roles as husbands and fathers because of historical adversity. He mentioned that colonialism and slavery likely degraded the foundation for thriving family units when men were forcibly oppressed:

“There has been (...) from an Afro Trinidadian perspective, a breakdown of the historical and cultural roles and responsibilities of a male and, and, reshaped into a Westernised, colonial perspective, and what that should be. So, that has formed, that has degraded the baseline that allows at least black men in Trinidad, to be more, yuh know, more responsible and more involved.”
-Father

Most men felt that they were not given the tools to manage their emotions when they were themselves children, leaving them with compromised emotional regulation skills as fathers. Some also indicated their experience of childhood abuse as a hindrance to their healthy emotional development. One father

commented on his own emotional dysregulation as a result of the lack of emotional guidance he received as a child:

"Daiys the way how we were brought up. You know, yuh fall down and scrape yuh knee: 'get up! Wuh yuh crying for?'(...) we go had to end up bottling it up to a, to a point where you know, we will have to explode." - Father

Some fathers opined that many Trinidadian men react with physical violence and infidelity towards their wives, or general apathy around their role as men in the family, because they are ill-equipped to handle their emotions when adversity arises. Many described the ridicule that men encounter when trying to seek help for their mental distress or marital problems, through both formal and informal means. One father noted that he had a few honest and bold counterparts that served as his informal 'counsellors', keeping him accountable when his mental health was less than ideal. This seemed like a rare find among participants who generally felt like they lacked formal and informal support for their mental health needs:

"I have at least two assholes of friends. Right? And the reason why I would brand them that - because their level of honesty and boldfaceness is what keeps me in check. So, if I was like mentally going off, it's like, they'll come, and they would literally ask yuh straight up: 'wha yuh really going tru?' And they would mentally come at you in a kind of aggressive way, that you would not like - but it is what is needed to bring yuh back."- Father

5. "Yuh not seeing the good parts" – Parenting resentment

Despite their best attempts to remain resilient parents, some participants (mostly mothers) found themselves resenting motherhood or even their children. One mother described her embarrassment around the postpartum depression she experienced after the birth of her first child. She was personally very grateful that her husband was a very hands-on father who assumed much of the parenting responsibility during her time of distress. His actions seemed to contradict the characterization of Trinidadian fathers as irresponsible by many other participants:

"I had postpartum depression with the first one. Because, the whole birthing situation was traumatic. But, because I was too shame to admit it, I hid it. And she was a difficult baby, so her dad stayed away from work and he basically um, raised her."- Mother

Another mother indicated her inability to see anything good in her son when he was experiencing a rebellious stage. It took a third party (his teacher) to help her identify the negativity that she was displacing on her child and to balance her thinking:

"'Ok mom, write down ten things that you love about your son and send it to me…And he was, he was surprised because I was quick. I didn't, I didn't take time - it was like maybe five minutes (inaudible). Yuh see? I do love my son (...) but he's still (laughs) rebellious." - Mother

6. "Yuh just wanna unintentionally pass it on" – Releasing stress on others

Some parents (mostly fathers) indicated a tendency to take their pent-up frustrations out on their family members. Though they did not desire to harm their children's well-being, they found it difficult to control their emotional responses when interacting with their family members under stress, often resulting in angry outbursts:

"It is, negative energy just coming towards you. And, you know, you're feeling it. Yuh just wanna unintentionally pass it on. Because you just wanna feel good. Yuh just wanna release." - Father

Another father mentioned that his inability to financially provide for his children caused him extreme frustration. This stress caused him to lash out on the same children that he was determined to provide for materially:

"I would admit that I would have probably taken it out on the kids. So, I was yelling more, I would be shouting more. And it was just difficult to stay calm and stay focused."- Father

A few parents linked their constant concern for their children's safety, particularly amidst the crime and violence threats, to development of paranoia and overprotective parenting. They observed that their children were missing out on the innocence of childhood as a result of this parental paranoia, oftentimes adopting a fearful perspective of life themselves:

"Well, she complains that her friends, (...) they get to go here, they get to go there. And I will tell her if it's somebody that I know and trust, I don't have a problem. Or, if you're still gonna go with your friends, I will tag along. I will be in the mall but you could go with them." - Mother

One father mentioned his obsession over his family's whereabouts because of the high crime risk in his community. He describes becoming reactive to every threat that his family faced, which his wife found distressing:

"I started readjusting, me randomly, just readjusting every, every day to every different situation that we face (...). So, ah became annoying to the point where if she, if I'm not home, every 15 minutes, every half an hour, every hour, calling- 'where you are? Where dem chirren? Where yuh dey? Allyuh inside?' And, it um, became annoying, and it bothered her a lot."- Father

7. "She couldn't come to me, because I was mentally absent" – Strained family dynamics

Several mothers commented on the fact that families in the Caribbean do not acknowledge or discuss trauma. As a result, the consequences of adverse experiences on families are more likely to go unresolved:

"I think a lot of uh, Caribbean families, they, we hide the trauma, and we hide the negative things in the family. We don't talk about it; we sweep it under the rug."- Mother

Some parents noted that Trinidadian parents in general are not able to soothe their children or identify with their emotional distress in an empathetic way, often giving mixed messages around the parent-child dynamic:

"When we say things like, you know: 'stop crying or I'll give yuh something to cry about.' But then you want to tell them: 'you can come and talk to me.' 'But you now tell meh to stop crying!' (laughter). Like, we have very contradictory patterns (...) and that, that can only be confusing to our children."- Mother

Parents felt that adversity sometimes prompts the development of generational patterns of unconscious behavioural dysfunction, even after the initial adverse stimulus is removed. Many parents cited the progress they had made in identifying negative coping mechanisms inherited from their own parents, by receiving forms of parenting education and through dedicated reflection. One mother explained the concept of unconscious, inherited patterns using an analogy she had heard recently:

"Somebody makes a ham. And they cut off the tip of the top of the ham, about (...) six inches of a ham. And then, they would put it in the oven, and they will dress it and everything (...). Somebody's kid finally said, 'why do you do that?' And everybody went, 'because my mother did it.' (...). And it was because in the olden days, they had smaller ovens (laughter in room)."- Mother

Many parents expressed a desire to depart from older forms of strict, authoritarian parenting techniques toward more gentle and empathetic parenting approaches. Despite their efforts to change,

they observed that the adversity they experienced as children often negatively influenced their own parenting communication style:

"We grew up with everything being a lash and that's not necessarily needed now (...) I grew up with a lot of verbal abuse. So, I try to, to kind of curb how I react. Although it's not, I'm not–I'm very rarely successful. But I try not to make the same mistakes that my parents made."- Mother

Parents also commented on the impact of adversity and trauma on healthy familial bonding and their own ability to express warmth toward their children.:

"Some parents, depending on what it is they go through, they not affectionate to their children (...) I'm like that, depending on my mood, 'cause I have some trauma from before, but I tried to break it out." – Mother

Many parents noted that their own mental capacity was limited due to the constant strain of adverse factors. One gentleman described his neglect of his daughter's emotional needs, during a financial crisis, even admitting that he actively rejected her attempts to connect with him, leading to her further distress:

"Wid mah daughter case (...) she couldn't come to me, because I was mentally absent more or less (...) I became, just anytime anybody would come to meh for anything, I would say 'Oh gor, leave meh alone!' yuh know? It was just a lot of attitude towards everyone - so that, affected her badly, until I come back tuh my senses more or less, and had to apologise to her."- Father

4.6 Discussion

4.6.1. Significance of Findings

Our study explores the concept of parental resilience under adversity. In our qualitative sample, we identified a pervasive theme of compromised parental well-being resulting from parents' adverse experiences. At the time of our study, there were several national crises happening in Trinidad: the Covid-19 pandemic and its associated government-mandated restrictions, an ongoing crime and violence epidemic, and an economic emergency. These crises placed significant constraints on parents, forcing them to make decisions regarding how to expend their personal resources. When given this choice, many parents sacrificed aspects of their own well-being to address the perceived needs of their children during adversity. In fact, many parents described numerous coping mechanisms they employed in an attempt to protect their children, often at the expense of their own personal well-being. This altruistic approach may satisfy aspects of parents' self-concept since many

expressed a desire to be resilient parents for the sake of their families. However, with set limits to parents' emotional and physical resources, this parenting tendency appears to be unsustainable. As exposure to adversity persists, as in the case of prolonged crises, self-sacrificial parenting may begin to take a toll on parental well-being. Coping mechanisms may be an effective parenting tool in the short term, but eventually, parents' diminished personal well-being may actually instigate harmful parenting behaviours, leading to family dysfunction.

Many parents in our sample described symptoms of extreme mental distress such as paranoia and even suicidal thoughts, but most were able to press on with their daily parenting duties in a form of parental stoicism, despite the seriousness of their emotional and mental challenges. This is consistent with literature derived from studies in continuously traumatic situations whereby some persons manage to cope under the pressures of constant adversity.[226] Despite their coping mechanisms, stress levels were high among study participants, many complaining that they lacked sufficient outlets for releasing this stress or addressing their poor well-being. This may be why many participants noted an eventual degradation in their familial relationships and negative behaviours toward their children, despite their devotion to their parenting role. Perhaps their self-perception as a 'resilient parent' became challenged by their declining personal well-being. In fact, previous studies have identified a tendency for mothers with over-protective and self-sacrificial parenting attitudes to eventually resort to insensitive parenting practices, with resulting negative effects on their children's behavioural adjustment.[227]

Harmful parenting practices have previously been noted in situations of parenting under threat. Though studies in low- and middle- income countries (LMIC) are limited, some evidence is available on the experience of parenting in war-settings.[228] For example, a recent review found that war-exposed parents displayed harsher parenting behaviours and less warmth toward children than unexposed parents, mediating the impact of parental war exposure on children's behavioural adjustment. Additionally, the review performed a qualitative meta-analysis noting that the nature of a war trauma determined the type of parenting behaviours employed thereafter; for example, parents in highly dangerous situations showed more hostile and harsh behaviours, while those living under threat (with a possibility of an attack) were more likely to develop overprotectiveness, yet still display signs of warmth toward children. Though we did not analyse our study's data based on the type of adversity experienced, we did notice a range of different coping mechanisms and parenting behaviours being employed, some of which may actually have protective effects on children's well-being. Further research should attempt to identify which aspects of the coping mechanisms and parenting behaviours observed in our sample might have benefit to children's long-term well-being.

Previous research has highlighted the importance of self-compassion and adaptive emotional regulation in the ability to remain mentally resilient under adversity.[229] Our study suggests that many parents in Trinidad have been deprived of these attributes through powerful cultural influences. In fact, many parents described having avoided the seriousness of their declining mental health and personal well-being, with most never having sought professional help. Several of our study participants also pointed to societal-level barriers restricting their access to appropriate care, like high levels of mental health stigma and limited parental support services. Still, with the reflection our focus groups allowed, many parents expressed a growing awareness of the need to prioritise their well-being for both their own and their family's sake.

Our participants identified several social factors contributing to poor parental well-being in Trinidad. Oftentimes, mothers were aware of their emotional struggles but felt they had no time or energy to address these due to their family's dependence on their sacrificial service. This overburdening of maternal responsibility reflects a gender imbalance in many families perpetuated by cultural stereotypes. Fathers on the other hand, felt they did not have the tools to either identify or address their emotional well-being due to their upbringing and lack of modelling around healthy emotional regulation. Perhaps this explains some of the variance in the types of coping mechanisms adopted by fathers as compared to mothers in our sample. We also observed a prominent cultural norm resulting in an overburdening of mothers with parenting responsibilities. This might be an artefact of deeply ingrained societal beliefs around men's emotional invulnerability. If fathers are unequipped to address their own emotional well-being effectively under pressure, this leaves them with few resources for protecting their children's well-being under adversity. The reality that many fathers are unable to assume this responsibility contradicts a prevailing cultural belief identified by participants in our study: that men are strong providers expected to protect their families. This internal conflict may be driving many fathers to adopt compromised parenting practices since they lack the tools to foster their children's emotional development.

Parents identified a collective difficulty in the way Trinidadians relate and communicate with each other. Instead of promoting safe spaces for expression and healthy communication, interpersonal interactions among peers were often described as shallow or centring around forms of diversion rather than broaching serious issues. Though parents in our sample desired healthy communication within their families, some described a lack of appropriate tools to process and talk about trauma with their children. Similar phenomena have been observed in families that have experienced extreme trauma, such as the "conspiracy of silence" observed in many families of Holocaust survivors.[230] Unresolved trauma has consequences for family functioning and children's well-being. For instance, a qualitative study on the transmission of trauma among refugee families found that parents' communication style regarding their traumatic experiences influenced their children's development of healthy attachment

styles.[231] Under constant adversity, families may learn to relate to each other in ways that are adaptive in periods of extreme stress, but do not promote secure attachment and communication styles. These unhealthy patterns may then transfer from generation to generation, reinforcing this cultural norm of avoiding difficult conversations.

A major strength of our study was its context. Three major crises coalesced during the time that our study's focus groups were conducted in Trinidad, enabling parents to comment on a wide range of recent adverse factors and their effects on families; namely: elevated crime and violence risk, a national economic crisis, and the restrictions associated with the Covid-19 pandemic. Given the current pervasive impact of these national crises on family life, parents were able to readily recall adverse effects on their well-being and parenting. An additional study strength was our inclusion of fathers' perspectives, adding a unique understanding of the gender differential in the way that mothers and fathers conceptualize the experience of parenting under adversity. Lastly, our participants were very forthcoming regarding sensitive topics throughout these focus group discussions. Despite the national Covid-19 restrictions, parents seemed to value the opportunity to express their experiences of adversity whether in-person or by virtual focus group. In fact, the Covid-19 lockdown had imposed further limits on already strained outlets for parents to address their well-being through social or professional means. These focus groups therefore, were a welcome opportunity for many parents to connect with themselves and others regarding their struggles. As a result, our study was able to acquire honest and sometimes graphic accounts of the effects of adverse impacts on families.

There were some limitations to our study: while we provide insight into the parenting experience under adversity, our data is limited to one parent's perspective within their larger family unit. We did not consider the perspectives of children or spouses; doing so may have provided a more holistic view of the parenting experience in the context of the family structure. Secondly, our study participants may represent those Trinidadian parents who are most committed to their parenting role, given their willingness to partake in our research. As such, we may have missed some important perspectives from persons with different approaches to their parenting role. Thirdly, our study did not collect information on parents' education level, socioeconomic status or formal mental health diagnoses. This information might be useful in future research in order to identify potential differences in the way that parental resilience differs between subgroups of parents.[232] Lastly, our study did not consider differences in parents' responses by their children's age or gender, both of which may be important influences on parenting behaviours.

4.6.2 Future Directions

Future qualitative studies should include other family members' perspectives of living through adversity. Such data may help parents' understanding of how neglect of their personal well-being affects their entire family functioning. Further research should also explore techniques to encourage family discussions around trauma disclosure and communication in families and communities where dialogue around serious issues is typically avoided. Additionally, the identification of specific factors which predict parenting behaviours under adversity (both negative and positive correlates) is important to prevention and intervention programmes.[233] Future research along these lines should collect demographic data and include validated mental health and parenting measures, so that we gain a better understanding of how parenting behaviours differ by subgroups and types of adverse experiences.

While crises are often unavoidable, some of the adverse conditions presently experienced by Trinidadian parents can be alleviated through societal reforms. Our results highlight a need to improve parents' access to mental health services and practical parenting support. For instance, previous research has indicated important policy issues that positively influence families' immediate and distal social contexts through indirect means, such as paid parental leave and welfare programmes; research should be designed to assess such approaches for their relevance in the Trinidadian context.[234] Simultaneously, public health interventions can focus on culturally-relevant campaigns to improve parents' well-being. This may involve efforts to reduce stigmas around mental health and change social norms regarding unhealthy gender roles. There might also be scope for establishing community support groups that help parents discuss their shared struggles in an informal way, connecting around their collective experience of adversity.

Finally, since parents in our sample expressed concern about their parenting impact, parenting interventions in Trinidad might benefit from considering the importance of encouraging positive cascades. Prevention programmes which promote parenting confidence and improved self-concept might trigger positive cascades which improve other areas of parental well-being. For instance, programmes might focus on promoting positive health-seeking behaviours and enhancing social support since these are important factors for building mental resilience among parents.[235] Targeted parenting programmes which promote counter-cultural values have been shown to gradually shift parenting attitudes and practices in similar settings where mothers are expected to carry an unequal share of parenting responsibilities.[236] Since some parents in our study desired improved familial communication and relational dynamics, programmes which integrate both parents and children might appeal to some parents; such programmes have previously shown success in improving child well-being through group processes.[237]

4.6.3 Conclusion

Parents in our sample expressed a deep commitment to their children's well-being and often displayed a strong sense of pride in their identity as parents. In an effort to achieve parental resilience, most parents reported expending intense energy on their children's care during adversity, often at the expense of their own well-being; perhaps with the right resources made available, some of this same vigour can be channelled into parents' improving their own well-being for their children's long-term benefit. Parents adopted a number of adaptive mechanisms in an attempt to prioritise parental resilience under adversity. Further research should investigate which of these coping mechanisms may be beneficial or harmful to child well-being, and in which contexts they apply. Programmes that address parental well-being and parenting support interventions are of utmost priority in Trinidad at present. Their design should be sensitive to important contextual factors relevant to Trinidadian parents and their social circumstances, such as significant cultural barriers to receiving mental health support, difficulties in constructive interpersonal communication, and unequal gender roles. In particular, if fathers are better equipped to address their own well-being and parenting responsibilities, the functioning of the entire family structure will be improved to children's advantage.

Chapter 5: Discussion

This PhD research project used mixed methods to investigate the impact of parental trauma on child well-being. In this chapter, I provide an overall synthesis and interpretation of my results, exploring their implications. I describe my principal findings with respect to the research aims and highlight the strengths and limitations of the study design for each research component. Finally, I provide a summary of implications of the project's findings for public health research and policy in Trinidad and Tobago.

The specific aims of this project were:

1. To evaluate the peer-reviewed literature on mediators of the association between parental trauma and child well-being.
2. To estimate the impact of maternal IPV on child well-being.
3. To assess the mediation effect of maternal mental health symptoms in the relationship between maternal IPV and child well-being.
4. To understand how parents perceive the effects of adversity on their parenting experience.

5.1 Principal Findings

5.1.1. Synthesis of Findings

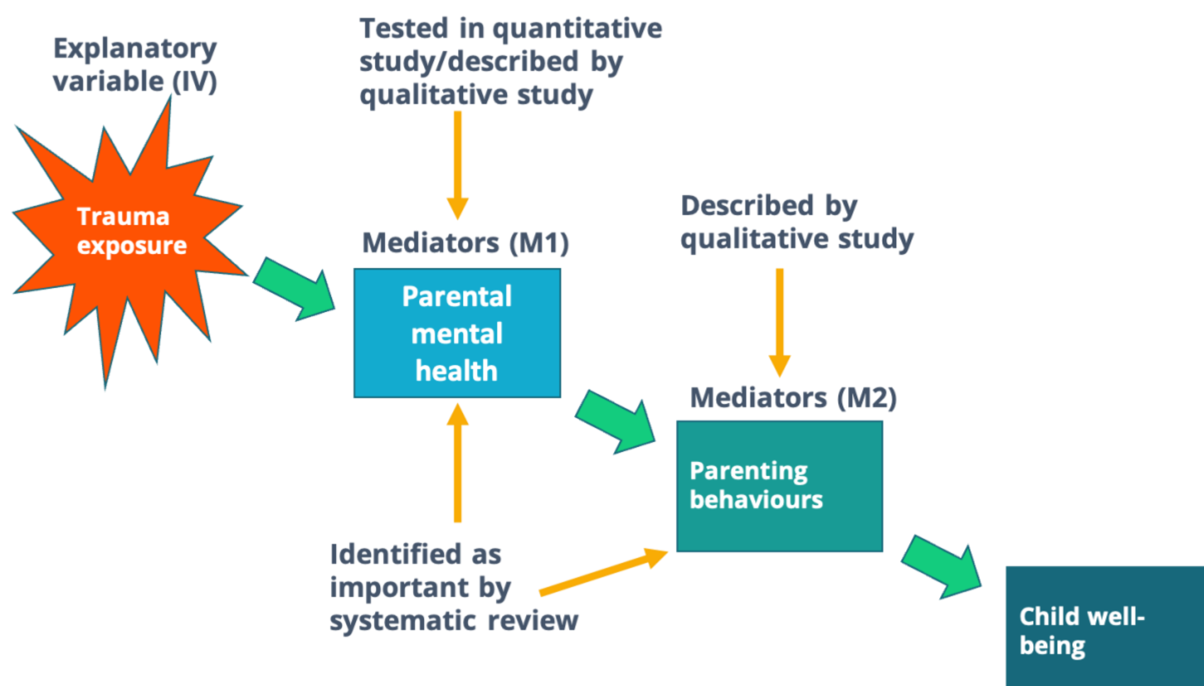


Fig. 5.1. Areas of knowledge addressed by this PhD project

Much of existing literature on the intergenerational effects of trauma has focused on the transmission of psychological trauma through relationships, often labelling intergenerational trauma as a discrete form of trauma that can be 'passed on.'[238 239] A frequent assertion made alongside this

conceptualization is that parental trauma predisposes children to experiencing trauma themselves. However, my PhD thesis has approached the intergenerational effects of trauma from a different perspective: one that views parental trauma as a complex experience that is not discretely transmitted from one generation to the next. In an effort to address parental trauma from a broader public health perspective, my project considers the effects of various types of parental trauma on a broad range of child well-being measures, including outcomes that may not have been typically linked to trauma sequelae in previous research. My introduction chapter clearly highlights the multifaceted nature of trauma and its effects, bolstering my hypothesis that a parent's experience of trauma is far-reaching in terms of its impact on both a parent and their child. In this light, my systematic review collated the global, longitudinal evidence for mediators operating between parental exposure to trauma (as defined by the DSM-5) and child well-being. I organised the results of this review into six broad categories of mediators. These included: caregiver mental health, parent-child relationship quality, parenting behaviour, maternal stress factors, maternal physical health, and child-level factors. Several gaps were identified by this review, namely: most research to date has focused on high-income, developed countries and children over the age of five, studies were skewed toward maternal exposures to trauma and mediators related to maternal well-being/parenting behaviour, there were few studies assessing natural disasters or non-partner violence as traumatic exposures, and aspects of children's physical well-being were neglected among outcomes. Most studies included in the review found at least partial mediation effects for their mediators of choice. These findings suggest that a parent's experience of trauma (as the DSM-5 defines such exposures) can affect future generations through various different pathways. Despite the diversity of trauma types covered, my review's results suggest that the differential effects of trauma type on child well-being outcomes remain under-researched at present.

Since my systematic review highlighted parental mental health is an important mediator of the relationship between parental trauma and child well-being, I decided to test this finding in my chosen study setting of Trinidad and Tobago. I selected maternal IPV as the trauma exposure of interest for my quantitative analysis given its pervasiveness among families in Trinidad and Tobago. As hypothesized, children of mothers exposed to IPV were more likely to experience behavioural problems as compared to children of mothers with no lifetime exposure to IPV. With respect to mediation analyses, both maternal depression symptoms and maternal anxiety symptoms were found to partially mediate the effect of maternal IPV on child behavioural problems. These findings further emphasised the importance of parental mental health in understanding the intergenerational effects of trauma. Importantly however, my quantitative study focused on two specific aspects of parental mental health: depression and anxiety symptoms, as potential mediators. This level of granularity was missed by the majority of studies in my systematic review which often grouped several poorly defined aspects of parental mental health into one variable for their mediation analyses. In the case of my quantitative analysis, the fact that both depression and anxiety symptoms separately mediated the

impact of maternal IPV on child behaviour gives us a more nuanced understanding of changes to the parent-child dynamic following a parent's traumatic exposure. This is an important step forward in our thinking of trauma as a complex phenomenon which 'happens' to people, rather than a stimulus that triggers a mental health diagnosis. While my quantitative study did not assess the mediation potential of parenting behaviours, my systematic review did provide substantial evidence to suggest that these may comprise an important group of mediating factors in the overall pathway between parental trauma and child well-being. Thus, when considering the combined evidence from my systematic review and my quantitative study, it seems plausible that parental mental health and parenting behaviours are sequential mediators of this relationship, in that respective order. Though beyond the scope of this project, future longitudinal studies should seek to better understand how these two mediating factors interrelate in the context of parental trauma.

My quantitative study is one of few to have assessed the association between maternal IPV and child behaviour among pre-adolescent children, suggesting that IPV affects patterns of behaviour in children at earlier ages than previously identified. Still, as my systematic review indicated, outcomes in even younger children (under the age of 5) need further attention, both in the broader literature on parental trauma, as well as with respect to parental experiences of IPV. My study augments available evidence by confirming the importance of research regarding maternal IPV and child well-being in the Caribbean context. As indicated by my review, such settings have been neglected by previous research on intergenerational trauma which has focused on high-income, developed nations. By highlighting the mediation effects of these specific symptoms of mental health, my study not only contributes to our understanding of how a particular form of trauma, IPV, affects mothers' well-being, but it points to the potential of these mental health sequelae to inflict collateral damage on future generations. Such insight into mediation pathways can assist the development of intervention efforts to mitigate the effect of parental trauma on child well-being.

Considering the outcomes from the first two components of my project, I knew that parental mental health and parenting behaviours were likely integral aspects to understanding trauma's intergenerational effects. In this line, I designed a qualitative component to my PhD to understand how parents in Trinidad perceive the experience of parenting under adversity, with a particular emphasis on capturing any resultant shifts in parenting behaviours. When conducting the focus group discussions, I allowed parents to determine which experiences they deemed to be 'traumatic,' rather than prescribing this delineation. Specifically, parents highlighted their experience of parenting during a triple threat of three major crises on the island: the Covid-19 pandemic, a crime and violence epidemic, and an economic crisis. Most of the parents in my qualitative study expressed extreme levels of stress, emotional distress and mental health complaints as a result of recent adversity they

had experienced. Oftentimes, parents noted a change in the way they interacted with their children as a result of these challenges. These descriptions of trauma's effects are consistent with findings from both my systematic review and my quantitative study, but my qualitative study expanded the range of parental traumatic experiences to include things like: job loss, poverty, unequal gender roles, and forced social isolation. By allowing parents to determine what constitutes 'trauma' in their lives, my study derived a rich understanding of how parental behaviours may shift following such experiences, highlighting some of the motivations, feelings and contextual factors parents felt were behind these behavioural shifts. Unlike my quantitative study, my qualitative research included male participants, highlighting some of the unique ways in which fathers' behaviours are impacted by trauma.

All three components of my PhD emphasised parental mental health as an important mechanism between parental trauma and children's well-being. My systematic review also pointed to parenting behaviours as a significant mediator of this relationship. However, it was only in my qualitative sample that the sequential link between parental trauma, parental mental health and parenting behaviours became apparent. For instance, despite complaining of mental distress, many parents in the qualitative sample developed coping mechanisms to try to preserve their children's well-being in the midst of adversity, sometimes at the expense of their own personal well-being. Even with their best intentions and significant effort however, many parents described their inability to sustain positive parenting practices in the face of prolonged adversity. These findings emphasise the importance of considering diminished parental well-being (particularly parental mental health) as a risk factor for compromised parenting behaviours in the context of parental trauma. Additionally, factors related to family dynamics did not feature frequently among my review's studies, nor was I able to test such factors in my quantitative analysis. Across my qualitative sample however, several aspects of family dynamics were mentioned during the focus group discussions. For instance, parents noted problematic communication and impaired bonding in families who experienced consistent adversity, often as a result of compromised parental mental health, and resultant changes in parenting behaviour. Though parents did not comment in-depth on child well-being outcomes, some felt that despite their best attempts at achieving parental resilience, their own experiences of adversity substantially impacted their family's dynamics. As outlined in my introductory chapter, the environmental context in which a child develops can have both direct and indirect impacts on their well-being, pointing to family dynamics as an important potential mechanism for further exploration. Overall, parents in our sample did express a desire to receive support for their own well-being, even when they did not explicitly connect their diminished well-being to that of their children's. However, most felt they were hindered in this pursuit by historical and contextual factors related to gender disparities, mental health stigma, intergenerational family patterns, and lack of appropriate parental support and mental health services. Further qualitative work is needed to improve our understanding

of how parental mental health may interact with these factors to influence children in the context of trauma-exposed parents.

Gender disparities were observed across all three components of my PhD project. For instance, my systematic review emphasised that on a global scale, there is a paucity of research concerning the role of fathers in determining children's well-being outcomes. Though my quantitative study supplied novel insight into the Trinidad and Tobago context, its analyses were limited to secondary data collected on mothers only. However, since the experience of IPV is much more prevalent among women than men in Trinidad and Tobago, this was an appropriate sample for understanding this specific trauma type. Still, research on specific trauma types common to fathers is warranted, and even in the realm of IPV research, the role of fathers both with respect to their participation in violent relationships and their resulting parenting behaviours should be considered moving forward. Lastly, my qualitative study highlighted pervasive gender disparities in parenting responsibilities amongst Trinidadian families, a sociocultural phenomenon that likely affects both parental and child well-being through strained family dynamics. Additionally, we observed an effect of gender on the type of coping mechanisms parents adopted during adversity, a potentially important observation to consider with respect to differential impacts mothers and fathers may have on child well-being outcomes. My project therefore makes the case for fathers being prioritised in future parental trauma research, with respect to how their well-being is affected by trauma, how they cope with trauma's effects, how their parenting behaviours are impacted, and ultimately how all of this influences their children.

In summary, all three components of my project suggest that traumatic experiences are complex and often impact parental well-being and parenting behaviours in ways that hinder a broad range of child well-being outcomes. Furthermore, the impact of these experiences on parents and their children cannot be understood without considering the differential impacts of trauma on mothers and fathers, the historical, social and cultural context in which a traumatic experience occurs, and the personal and public resources available to mitigate its effects on both parent and child.

5.2 Strengths and Limitations of Project

5.2.1 Mixed-methods research

Mixed-methods approaches are growing in popularity and have been used for quite some time in high-income countries. Mixed-methods research has a number of benefits, primary of which is the reduced bias and increased validity it offers by combining the strengths of different approaches. A key to harnessing the strength of a mixed-methods approach lies in the integration of these methods in a way where its individual parts become interdependent in the pursuit of a research goal.[240] My PhD project

therefore enlisted a range of persons skilled in quantitative methods, qualitative methods and mixed-methods research at every point of the project development, from initial inception to final analysis. In this way, my project reflects a thoughtful approach to addressing its research question, since individual study components were designed to complement each other's strengths and weaknesses.

While mixed-methods research has gained some traction in the Caribbean over the past few years, a review published in 2019 analysed peer-reviewed articles between 1996 and 2014 and found that 53% of articles used qualitative approaches, 34% used quantitative approaches and only 8% used mixed methods approaches.[241] As noted by these figures, few existing epidemiological studies in the Caribbean used meta-inferences or synthesised findings from qualitative and quantitative research. Each individual component of my PhD project has included robust methods that either focus on quantifying health exposures, mechanisms and outcomes or help to explain the motivations, contextual factors, and behaviours behind epidemiological trends. By synthesising these findings into a mixed-methods report, my project sets an important precedent for epidemiological research in the Caribbean region. In this project, I opted for a quantitative, then qualitative sequence when testing my study hypotheses. I first tested whether there was an association between mothers' experiences of IPV in Trinidad and Tobago and their children's well-being, then I tested whether maternal mental health symptoms mediated this association. My quantitative findings of a significant mediation effect between maternal IPV exposure and child well-being were then explained by qualitative interviews which also highlighted the important role that mental health plays in the experience of parenting under adversity. In particular, this qualitative component improved my understanding of how many Trinidadian parents employ adaptive processes to manage their limited resources during times of crisis, highlighting an important tension between achieving parental resilience and maintaining personal, mental resilience in the face of adversity.

5.2.2 Representativeness

My global systematic review was broad in its search, but yet its scope was ultimately limited by the paucity of relevant literature currently representing LMIC or developing countries, and a disproportionate focus on populations in the United States. This left a gap in its global representativeness. My quantitative and qualitative studies addressed this representation gap by contributing to our knowledge of relevant mediators between parental trauma and child well-being in a developing nation. The study sample for the quantitative component of this project was ethnically and economically diverse, with data on maternal covariates readily accessible for incorporating confounding factors and testing mediation. This made it a highly representative sample of the broader Trinidad and Tobago population. The sample for my qualitative piece was less diverse, as I strategically targeted lower-income communities where parents were more likely to have experienced

adverse factors and there was only one participant from the smaller island of Tobago who had migrated to Trinidad (Trinidad and Tobago is a twin isle nation). This limits the claims I can make about the entire population of parents in Trinidad and Tobago from this data.

5.2.3 Covid-19 restrictions

The Covid-19 pandemic coincided with my planned fieldwork for this study's data collection. As a result, my qualitative study was delayed several times due to the related government-mandated lockdown in Trinidad and Tobago. Eventually, I was able to conduct the study in a hybrid form with a mix of remote focus group and in-person sessions, with government-mandated Covid-19 measures implemented during the latter. Perhaps some parents were unable to attend either virtual or physical sessions due to the significant strains on their time and energy as a result of these Covid-19 restrictions. This may have limited my qualitative sample to parents who were less severely affected by the Covid-19 pandemic in terms of their availability to take part in this research (for instance, families in extreme poverty may have had no options for childcare or internet access for remote participation). Given this possibility, it is likely that the extreme distress described by parents in my study's sample may have only scratched the surface of what some families in Trinidad were experiencing during this period of intense nationwide adversity. As such, the call for increased parental support in Trinidad should be given utmost priority at this time.

5.2.4 Observer bias

Observer bias is defined as "systematic discrepancy from the truth during the process of observing and recording information for a study."[242] I took many steps to avoid the introduction of this type of bias at every stage of the PhD. From its initial conception, to the final analysis, all three members of my PhD supervisory team provided opinions on where I might be allowing my own preconceptions to shape the way I approached the development of PhD research questions, the study design, as well as the data collection. For the systematic review, two reviewers compared their initial screening results before completing the abstract and full-text screening process, and three different reviewers performed data extraction after comparing and standardising their individual data extraction processes. The original data collection for my quantitative study was performed using the WHO multi-country study protocol and an adaption of their questionnaire. The use of some well-validated self-report scales and well-trained interviewers likely reduced significant observer bias in this instance since mothers answered pre-designed, closed-ended questions. With respect to its data analysis, I made sure to base my study hypotheses on an in-depth scoping review of available literature on the subject, with input from local key informants from Trinidad. The mediation effect that I hypothesized had been previously noted in developed nations, and I had reason to believe that the same effect might

be observed in the local Trinbagonian context, given the reconnaissance I conducted a priori. In the case of the qualitative study, my topic guides were pilot-tested with parents in order to ensure that the interview questions were clear and to highlight any potential barriers to participants' engagement with the interviews. I made appropriate changes to the topic guides following the pilot test. After the focus group sessions, I discussed the content of the interview recordings with my research assistant who was present during these sessions in order to provide her general commentary on the data as a second observer. During the analysis of the qualitative data, I reviewed my coding results with my supervisory team and a qualitative methods expert at several instances in an attempt to involve a wider range of viewpoints regarding the study's claims, making adjustments to my interpretation where appropriate.

5.2.5 Cross-sectional data

While my systematic review only included longitudinal studies, both the quantitative and qualitative components of this project used cross-sectional data. This limited my ability to draw claims about causation in the quantitative study. However, given that an epidemiological analysis of the association between maternal trauma and child well-being had never been previously conducted in the Caribbean, the analysis of this cross-sectional data was an important first step in generating hypotheses for further longitudinal research. With respect to the qualitative study, it was designed to provide an important backdrop for the current social context in which the quantitative data was collected, so its cross-sectional nature was appropriate. Therefore, though cross-sectional, combined findings from these two approaches are useful to understand the current state of Trinbagonian families, as well as when considering future areas for longitudinal research with respect to parental trauma and child well-being.

5.2.6 Generalisability

In my analysis of population-based data collected in the quantitative survey, I went through great lengths to ensure that my findings are generalisable to the entire population of Trinidad and Tobago through my use of the PPS design and survey weights. Though Trinidad and Tobago appears to have a high IPV prevalence compared to many countries in the Caribbean region, there are many cultural and societal similarities amongst nations within the Caribbean. Similar analyses should therefore be performed in other Caribbean nations to confirm if this project's conclusions hold true within those settings. The qualitative study used participants recruited from communities in Trinidad at high risk for adverse events (crime, poverty, violence etc.) via NGOs, agencies providing relief services, and via word of mouth. Their viewpoints therefore, may not be generalisable to persons who live in lower-

risk communities. However, since the study was interested in specifically understanding the impact of adverse events on parenting factors, this is not a disadvantage. My qualitative findings are likely relevant in other contexts with a similar demographic makeup to the participants in my focus groups: low to middle-income parents contending with socio-cultural factors related to gender inequalities, mental health stigma, lingering effects of colonialism, harsh government mandates/restrictions, and high levels of crime and violence. My qualitative findings should be tested for their relevance in such contexts.

5.3 Implications of project

My PhD project has successfully highlighted the importance of addressing parental trauma as a major public health issue in Trinidad and Tobago. Its collective toll on the nation has yet to be quantified, but its pervasiveness is well-established by this project. Whether through exposure to crime and violence, economic downturn or natural phenomena (epidemics, disasters) etc., trauma is leaving a trail of mental health problems and hindering the well-being of present citizens and future generations in this twin-isle.

In this section, I begin by introducing the main ways in which parental trauma can be addressed as a public health issue for both parent and child well-being outcomes in Trinidad and Tobago. Next, I list a series of policy recommendations that correspond to the main arguments I make in this section, discussing potential barriers to the successful rollout of public health initiatives in the Trinidad and Tobago context. Finally, I suggest some areas for further investigation based on questions raised by my research.

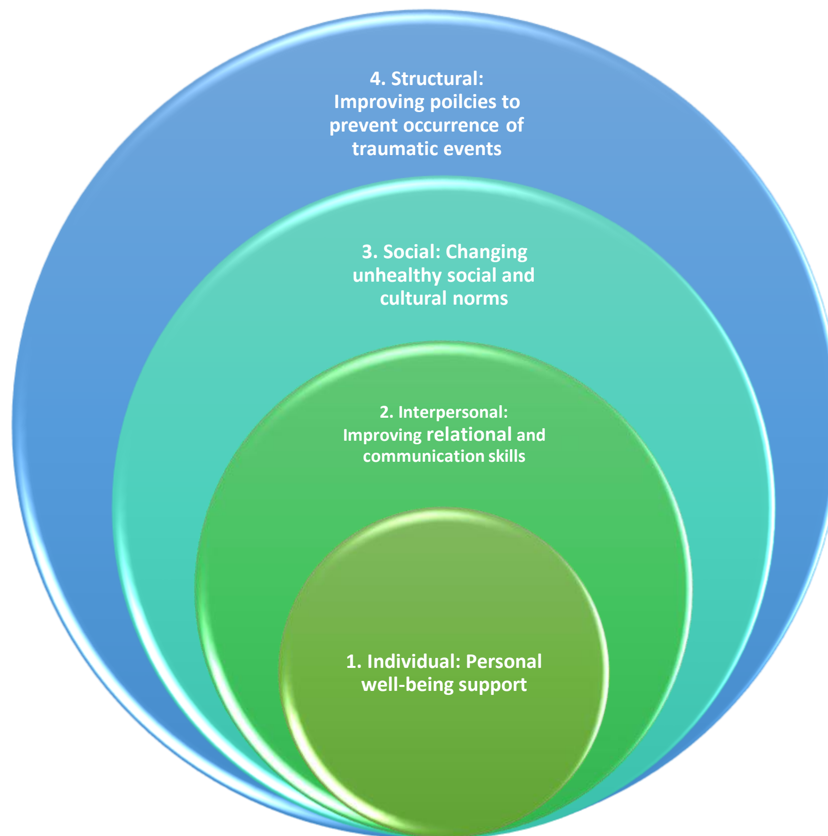


Fig. 5.2. Adaptation of the social ecological model to highlight key areas for intervention to reduce the occurrence and impact of parental trauma in Trinidad and Tobago

Fig.5.2 above highlights four key areas of intervention to address the issue of parental trauma in Trinidad and Tobago. Firstly, at the individual level, parents and children need increased support for their personal well-being. Trinidad and Tobago has experienced a number of crises in the recent past and there are some demographics which are at particularly high risk for experiencing ongoing adversity. As such, the provision of services (both informal and formal) to support mental, social, and physical well-being should be of utmost priority amongst policymakers. In particular, these services should be made accessible to low-income households and must take into account Trinidad and Tobago's wide cultural and class diversity.

Secondly, with respect to interpersonal connections, the government should prioritise the provision of services for families in need of relationship counselling or parenting support since widespread adverse conditions have strained family dynamics in the nation. Additionally, schools should encourage programmes that bolster children's personal development and social skills since these may be compromised in the home environment due to parental trauma or familial patterns of compromised communication.

Thirdly, at the social level, there needs to be a move toward nationwide reduction in cultural and social norms which promote violence, gender inequality, family dysfunction and harsh parenting.

Hegemonic masculinity needs to be addressed through public education campaigns that challenge long-standing social norms. Additionally, parents in my qualitative study sample noted that older generations adopted a more authoritarian take on parenting and did not promote empathetic communication between parents and children. Some families and communities may have also adopted dysfunctional patterns of relating to each other which are based in their historical experience of adversity. As these patterns of interrelating are passed down from generation to generation, unhealthy social norms around parenting and family dynamics form. Public health campaigns should therefore encourage individual family members to prioritise their personal mental health while also emphasising the importance of families' emotional bonding and healthy communication to promote children's well-being.

Lastly, at the structural level, the local government should prioritise its efforts to reduce the occurrence of preventable traumatic events. Current efforts to reduce crime and violence have not yielded significant improvements. Government research into effective crime and violence prevention programmes should therefore receive high priority at this time. On the economic front, many families would benefit from welfare and relief services to support them through financial difficulties which add a heavy burden to families grappling with trauma.

5.3.1 Addressing gender disparities in Trinidad and Tobago

Given my project's findings, the government of Trinidad and Tobago should consider targeted efforts to reduce gender disparities and unhealthy gender norms at every level of intervention outlined in Fig. 5.2. Guidance from countries where progress has been made in shifting societal values away from traditional hegemonic masculinity norms should be considered for the implementation of nation-wide, targeted efforts to improve gender equality amongst Trinbagonian parents. These might include public education campaigns, as well as school-centred or community programmes focused on developing healthy emotional development skills amongst girls and boys. The excerpt from a local newspaper article below further highlights the discrepancy between fathers' and mothers' assumption of parenting responsibilities observed in my qualitative study, highlighting how unhealthy gender norms fuel this problem.

NEWSDAY News Latest Sports Sections

NEWS

No ID, so no help for Longdenville single mother of 5

NICHOLAS MARAJ TUESDAY 22 NOVEMBER 2022

PLEASE HELP US: Samantha Persad with four of her five children at her Railway Road, Longdenville, Chaguanas home. - Photo by Roger Jacob

Samantha Persad, 34, is the single mother of five children, all below ten. Four of their births are unregistered because Persad's own birth was never registered.

Worse, because the Longdenville mother does not have a birth certificate or any official form of ID, she cannot access social welfare services or apply for maintenance.

She called Newsday in search of help and to appeal to the public.

Persad said her former partner of eight years is the father of her youngest three children – boys aged four, two and one. Their father left her a month ago.

She and her children live in a small plyboard house near Ravine Sable Road, Longdenville, for which she must pay $500 a month in rent. They have water in the kitchen sink and an electricity connection.

But there is no indoor toilet or shower, and the roof leaks whenever it rains. The family of five sleep on two beds, which get wet when the rain comes from a particular direction. When the breeze blows, it raises the galvanise roof.

Years ago, Persad was a domestic worker, but she is now unemployed. She said at her ex-partner's insistence, she stopped working outside the home.

"I didn't have a choice but to stay at home.

"He was a wild person. He never say he'd get a babysitter so I could get a job. He say, my job was stay home, see 'bout the children and that's that.

"Basically, we living with food what people giving we. Neighbours does give we hampers sometimes."

Fig. 5.3 Excerpt from local Trinidad and Tobago newspaper, 'Newsday' from December 2022 showing national discrepancy in mothers' and fathers' parenting responsibilities[243]

5.3.2 Mental Health Care in Trinidad and Tobago

This project suggests that impaired parental mental health is one of the major determinants of poor child well-being among trauma-exposed parents. At present, the framework for mental health research in Trinidad and Tobago is limited. To date, most local studies of mental illness have been hospital-based and have focused on severe depression and suicide.[244] In fact, while engaging with stakeholders from the University of the West Indies, Branford Wellness Centre, and the Caribbean Public Health Agency during this project's inception, many persons acknowledged the paucity of mental health

research available or planned for the near future. Further epidemiological research should focus on quantifying trends in mental health via both nationally representative surveys as well through targeted studies among high-risk families. Despite the paucity of evidence to date, this project provides insight into some common mental health complaints faced by parents in Trinidad and Tobago, emphasising their feeling of a lack of support from relevant public services.

Despite room for improvement, there have been some landmark agreements to establish the policy environment for mental health services in Trinidad and Tobago over the past two decades. For instance, the Trinidad and Tobago National Mental Health Policy and Plan was formulated by the local Ministry of Health and the Pan American Health Organization and approved by Trinidad and Tobago's Cabinet in 2000. The aim of this programme was to promote adequate individualized care for those with mental health care needs by reversing negative perceptions about mental disorders, promoting healthy lifestyles, improving care and support for persons dealing with mental illness, and improving evaluation, research and training efforts regarding mental health services.

The enaction of this policy marked a significant step forward for the nation as mental health services became the charge of Regional Health Authorities (RHA). A National Mental Health Commission and a Regional Mental Health Committee were also established to implement this policy and plan in every RHA, with a special emphasis on improving the evaluation of mental health services.[245] Additionally, the policy document outlined specific services aimed at parents, proposing that each region should have a health facility that provides child guidance services.[245] However, public commentaries have suggested an overall public dissatisfaction with the rollout of such services.[246] [247] Even with these policies and plans in place, implementation of mental health programmes and uptake of available services remains challenging. In particular, national programmes face the issue of navigating a diverse cultural makeup and a wide range of perspectives on mental health, ranging from neuro-biological understandings of mental illness to traditional practices involving religious, superstitious or folklore beliefs.[248] A wide-scale effort involving implementation research and improved delivery of services should be prioritised to improve the state of mental health care in the nation.

Part of the issue surrounding low uptake of currently available services may stem from structural problems regarding their accessibility. Despite the National Health Policy and Plan's push toward more community-based services, much of the mental health service delivery still remains dependent on inpatient services in places known colloquially as the 'madhouse.'[249] The correlation between parental trauma and child well-being seen in my results highlights the importance of mental health support services that are easily accessible and equipped to deal with a range of different mental health sequelae in both parents and children. At present, parents in Trinidad and Tobago might be partially hindered in seeking support for their mental health needs because of the failure of current policies to

translate into effective implementation of appropriate services. The government should revisit the aims of the Trinidad and Tobago National Mental Health Policy and Plan enacted in 2000 and perform some evaluation activities aimed at understanding why these gaps between service design and effective programme implementation exist. A commentary on mental health policies in Trinidad and Tobago from 2004 suggested that going forward, the planning and delivery of mental health services should be focused on providing solutions specifically tailored to developing countries and should receive strong support from the legal and political sectors to improve services.[245]This recommendation still holds value almost two decades later.

With respect to their children's mental health needs, the current climate is similarly difficult to traverse. However, in recent years, children's mental health has been moving to the forefront of political and social will. For example, the Children's Authority of Trinidad and Tobago was established in 2015 and has made a significant impact in advocating for the rights of children, including those living in difficult family situations. Additionally, in 2020, the Government of Trinidad and Tobago issued a National Child Policy, the first of its kind in the nation. This document outlined the lack of effective mental health services for children in Trinidad and Tobago and acknowledged a paucity of research to inform the improvement of currently available services. It also suggested that the government prioritise the development of a separate National Mental Health Policy for Children.[250] My findings point to a need for community-based approaches to mental health service delivery where parents and their children can find support for everyday emotional and mental health concerns. In particular, NGOs and agencies providing relief services often have direct access to populations who have experienced traumatic situations and may be able to act as gatekeepers to improve mental health-seeking behaviours among families. Alternatively, health authorities can consider an integrated services approach that incorporates both physical and behavioural health services, to simplify family's access to formal mental health care.

5.3.3 Mental Health Stigma in Trinidad and Tobago

A 2014 study collected information on knowledge and attitudes toward mental illness among English-speaking college students in the Caribbean. Their results revealed a high level of stigmatization toward mental illness and a lack of understanding related to the aetiology and symptomology of mental disorders even among this highly-educated sample. In their paper, they recommended targeted campaigns and public education around mental health in order to reduce the widespread stigma in many Caribbean countries.[207] A recent survey assessing attitudes and beliefs toward mental illness at a mental health symposium in Trinidad and Tobago confirmed that stigma and discrimination around mental health are still highly relevant societal factors. Most participants in the survey expressed an unwillingness to share their mental health challenges with friends or employers, though most felt

comfortable visiting psychiatrists.[249] This suggests that even when they opt to access formal services, persons living with mental illness in Trinidad and Tobago may lack appropriate social support for their mental distress.

Mental health was included amongst the United Nation's Sustainable Development Goals in September 2015, marking a global push toward recognizing the importance of the worldwide mental health burden. Subsequently, the WHO issued their Special Initiative for Mental Health (2019-2023): Universal Health Coverage for Mental Health in 2019,[251] and the World Mental Health Report in 2022,[252] both advocating for increased investment in mental health education in order to improve persons' understanding of mental illness and reduce associated stigma. The WHO acknowledged advancement in these areas in certain countries, while reporting that others lag behind. These WHO policy documents outline detailed theories of change and provide insight into multisectoral approaches for the promotion and prevention of mental health. The government of Trinidad and Tobago should similarly endorse a multisectoral approach to improving mental health care by employing some suggested strategies from these landmark, global documents at the individual, social and structural levels. In order to de-stigmatize mental illness, a whole systems approach to integrating mental health care would help to ensure that appropriate services are readily accessible to all persons and are not relegated to select sections of society.[251] In this light, the reduction of mental health stigma should be a national priority moving forward. I propose a national effort to begin dismantling the deeply entrenched cultural beliefs and behaviours which promote mental health discrimination in Trinidad and Tobago. For example, the Children's Health Authority might be an appropriate actor for the development of targeted campaigns promoting mental health awareness amongst young people. Additionally, the RHA might be able to utilise their existing mental health committee structures to launch community-wide campaigns targeting mental health stigma reduction.

As outlined by my thesis, widespread parental trauma is likely contributing to a wide range of emotional and behavioural health problems among children in Trinidad and Tobago. As such, campaigns should encourage parents to seek care for their children's mental health concerns without placing the blame on parents. Instead, campaigns can target parents by educating them on the effects of trauma on the parent-child dynamic, and encouraging them to prioritise their own well-being alongside their children's. Essentially, campaigns can seek to de-stigmatize parental and child mental distress by acknowledging the real impact of trauma on families. The government is moving in the right direction in this regard, with a particular push in recent years toward campaigns that normalize mental health seeking behaviours (see Fig. 5.4 below). However, much work remains to be done in this regard since campaigns have not yet translated into cultural shifts in attitudes toward mental illness or mental health-seeking behaviours.

Government of the Republic of Trinidad and Tobago
Ministry of Health

DIGNITY IN MENTAL HEALTH
PSYCHOLOGICAL & MENTAL HEALTH FIRST AID FOR ALL

Source: Psychological first aid: Guide for field workers

What is Psychological First Aid (PFA)?

Psychological First Aid is the practical care and support provided in the immediate aftermath of an extremely stressful and potentially traumatising event e.g. hurricane, vehicular accident, violent death of a loved one. PFA involves:

- Assessing the needs and concerns of persons
- Comforting and helping persons feel calm
- Listening to people's experiences without pressuring them to talk
- Helping people get access to basic supplies (food, water, information etc)
- Guiding persons to the appropriate service providers (health centres,Employee Assistance Programme [EAP] services, police etc)
- Getting people away from further harm

Why is Psychological First Aid necessary?

Exposure to crises increases one's risk for the development of mental health and psychosocial challenges. As such, PFA:

- Is helpful to a person's long-term recovery from a traumatic incident
- Equips households, communities and individuals with basic skills to support others until there is access to the appropriate service providers

Who can provide Psychological First Aid?

ANYONE. Psychological First Aid is **NOT** psychological counselling or clinical debriefing that is offered by a trained professional. Both specialised professionals and members of the general public can be trained to provide PFA. This training can be made available through the Ministry of Health's Mental Health Unit.

Psychological First Aid Action Steps

1 Look
- Check for safety
- Check for people with obvious urgent basic needs
- Check for people with serious distress reactions

2 Listen
- Approach people who may need support
- Ask about people's needs and concerns
- Listen to people and help them feel calm

3 Link
- Help people address basic needs and access services
- Help people cope with problems
- Give accurate information
- Connect people with loved ones and social support

4 Don'ts
- Do not force help on people and do not be intrusive or pushy
- Do not judge the person for their actions or feelings
- Do not pressure people to tell you their story
- Do not exaggerate your skills
- Do not give false information

For further information: Mental Health Unit (Information Centre) 285-9126 ext. 2571, 2577, 2573

www.health.gov.tt Ministry of Health-Trinidad and Tobago TrinidadHealth MoH_TT

Fig. 5.4. Psychological first aid campaign issued by the Ministry of Health via 'Facebook' in Trinidad and Tobago in 2016.[253]

5.3.4 Parenting Support in Trinidad and Tobago

The WHO, UNICEF and the Office of the Special Representative of the Secretary-General on Violence Against Children issued a policy call to national governments advocating for universal parenting support to prevent child abuse and neglect in November 2021.[254] In this document, they outline evidence-based parenting programmes which contribute to well-being factors in both caregivers and their children. My project highlights the importance of this focus on parental well-being in order to improve child well-being outcomes in the context of parental trauma. The government of Trinidad and Tobago should pay special attention to the evidence summarised in this international policy call.

Currently, the Ministry of Social Development and Family Services in Trinidad and Tobago runs the National Family Services Division. This division holds workshops for parents, runs media campaigns around parenting, and provides parent support services and remedial programmes for families. In 2022, they launched a workshop series on parenting and family violence for parents and other caregivers as part of their annual parenting workshop series. The workshop topics include: "family violence, healthy relationships, gender socialisation, male mentoring and mental health."[255] It seems like the government of Trinidad and Tobago has already begun to implement infrastructure for parenting support by enacting specific programmes to address many of the key themes identified by this PhD project. Importantly, many of these parenting workshops focus on important aspects of post-trauma recovery for parents, like improving parents' interpersonal relationships and reducing their parenting stress. However, my PhD adds an interesting element for consideration in the parenting support arena: while these current programmes focus on equipping parents with tools to improve the parent-child relationship and their parenting skills, my project has emphasised the importance of improving parental well-being as a matter of high urgency among Trinbagonian parents.

Parenting campaigns and support services for parents should therefore be centred around the knowledge that a child's well-being is significantly impacted by a parent's own well-being. Parents in Trinidad and Tobago are currently dealing with a multitude of threats regarding their family's safety and stability, and as my qualitative study acknowledges, parental resilience has its limits. The Ministry of Social Development and Family Services should consider increasing its practical support to parents in the form of welfare programmes and advocating for paid maternity leave and flexible working hours for parents. These types of practical assistance may help to reduce the strains placed on Trinbagonian parents and free up some of their emotional resources for their families' benefit. Additionally, programmes that provide family counselling and parent support groups should be prioritised, with a specific emphasis on making these programmes available and appealing to fathers in need of support.

Research has previously highlighted the importance of social engagement in the learning and adoption of positive parenting skills. For instance, one study observed that parents were able to successfully modify their parenting behaviours when advised by trained individuals and given an opportunity to practice positive interaction and communication skills with their children.[256]Another intervention found that high levels of social engagement with parenting coaches resulted in improved maternal responsiveness to children, which in turn improved child development outcomes.[257] Similarly, in refugee settings, mothers who had social support despite living in a war zone (tangible, emotional/informational, or positive interaction/affection) showed greater levels of psychological and parental resilience.[258] This suggests that parents are best equipped to maintain or gain positive parenting practices when they receive strong social support. Parents who are facing adverse conditions or are recovering from traumatic events in Trinidad and Tobago already have their hands full when it comes to managing their families, potentially reducing their capacity for maintaining their external social network. Even when they do have adequate peer or family support, these networks may not be able to provide appropriate empathetic support when it comes to emotional and mental distress due to high levels of mental health stigma. Organised parenting support groups might therefore be an appropriate means for supplying this need for social support.

5.3.5 Navigating toxic environmental conditions

In addition to trauma's adverse effects on parents and parenting, children can themselves be directly impacted by toxic conditions associated with trauma. This phenomenon has been previously noted in war settings where conflict disrupts important environmental conditions needed for healthy child development.[259] Many of the traumatic events discussed in this PhD project may result in toxic conditions like poverty, safety threats and low levels of social support. Apart from their impact on the parent-child dynamic, such conditions can also be directly detrimental to children's well-being. If for example, these conditions inhibit social engagement and experiences, children may begin to display problematic behaviours as a direct result of this deprivation, rather than through impaired parenting. These problematic child behaviours may then add to parents' stress levels, resulting in compromised interactions with their children, further harming child well-being.

In essence, toxic conditions may be creating a negative feedback loop between parents and children in Trinidad and Tobago. Families that are caught up in such negative feedback loops may experience difficulty in bonding or connecting in healthy ways. Where children are often characterized as bringing fun and laughter to families, children grappling with their own experiences of trauma may actually add to heavy parenting burdens. Given the limits of individual parenting programmes to effectively address multi-faceted structural conditions, community-level interventions to engage children directly are also an important consideration. Free community programmes that endorse

healthy socialization and provide extra-curricular activities for children may help them to establish important social interactions with non-familial role models, as well as improve the parent-child dynamic by providing parents temporary relief from caregiving duties. A child may experience multiple stressors due to adversity, but research indicates that if they are supported well during their recovery from these stressors, their exposure to stress can actually enhance aspects of their development through neurobiological flexibility and the emergence of effective coping strategies for dealing with stress.[260] While toxic conditions should be mitigated wherever possible, their reality cannot be denied. Organisations like the Children's Authority of Trinidad and Tobago should therefore implement national education campaigns aimed at helping children to build resilience skills. Additionally, community-based youth programmes should seek to provide children with valuable tools for traversing these conditions and helping them to navigate life in the face of inevitable adversity.

5.4 Unanswered questions and future research

My systematic review emphasised a number of areas for future research. For one, it highlighted the paucity of available research on parental trauma and child well-being in LMIC and developing nations. Longitudinal studies should therefore be prioritised in these settings, especially with respect to specific trauma types frequently experienced in these contexts, such as war and natural disasters. It is feasible that mass trauma events like a natural disaster may have a differential impact on both mediators and outcomes resulting from parental trauma. Since these types of collective trauma can drastically alter a family's environmental conditions, such disruptions not only affect the parent-child dynamic, but can alter the entire ecological framework in which a child develops, an important consideration for designing longitudinal research. Mediating factors related to family dynamics or household/environmental stressors did not feature frequently in studies included in my systematic review, suggesting an important area for further exploration. Additionally, in cases like war or disaster, the collective nature of the traumatic event results in shared negative experiences within a community. Perhaps factors related to parental resilience might differ in these instances, as opposed to individual experiences of trauma. For instance, future research might identify protective factors like group cohesion that foster parental resilience in the face of shared tragedy, impacting child outcomes as a result.[261]

Additionally, there were limited studies assessing the role of parental trauma on parent and child physical health in my systematic review. This is surprising given that we know that trauma can impact a range of physical health conditions, including increasing a person's risk for cardiovascular disease and diabetes. Still, the only physical measures of parent and child health assessed in my review were asthma and obesity. I therefore advocate for further longitudinal research to specifically identify the

aspects of physical health which transfer intergenerationally. In particular, factors related to the neuro-endocrine system and the stress response should be prioritised in future studies since our understanding is growing regarding the impact of maternal social influences on the development of children's physiological stress response. For instance, as seen in one of my review's studies, a mother's hypothalamic-pituitary-adrenal axis functioning impacts her cortisol production and stress response, which then goes on to influence her child's own cortisol baseline and reactivity levels during a stress response.[153] In said paper, Halevi et. al focused on the impact this plays on children's risk of psychopathology following parental trauma; however, this same biological mechanism might be connected to children's increased risk for physical disease in the context of parental trauma.

Additionally, I advocate for larger, longitudinal studies which focus on the effects of parental trauma on child outcomes during early childhood. As we expand the age range included in this type of research and employ research designs to identify several different types of moderating or mediating factors, we will improve our understanding of parental trauma's effects on specific stages of child development. In particular, my review identified parent-child relationship quality as an important mediator between parental trauma and child well-being. Given the evolving nature of the parent-child relationship from infancy to adolescence, it is reasonable to hypothesize that mediating effects of parental trauma might differ throughout a child's developmental period. Whether or not the stage of child development at which a parental trauma occurs influences its effect on their offspring's life course perspective is therefore of interest and remains to be answered. Additionally, when considering the combined evidence from the three components of my project regarding the association between parental trauma and child well-being, it seems plausible that parental mental health and parenting behaviours are sequential mediators of this relationship, in that respective order. Though beyond the scope of this project, future longitudinal studies should seek to better understand how these two mediating factors (as well as any others), interrelate in the context of parental trauma.

My systematic review revealed a major gap with respect to studies assessing paternal experiences of trauma or mediators related to father's well-being/parenting factors. By focusing on the effects of mother's mental health on offspring outcomes, much of the present literature has, perhaps unintentionally, singled out mothers as the sole agent responsible for children's outcomes. The mother-child dyad is just one piece of a multi-faceted and complex interaction that occurs within families with parental trauma exposure. There is evidence to suggest that in the specific case of trauma exposure, father's mental health may significantly and even uniquely impact their children's health, though more research is needed to explain gender differentials for these proposed pathways between parent and child health. For instance, a recent review suggests gender differences in the emotional, cognitive, and neurobiological correlates of risk for PTSD and its comorbid conditions.[88] Though the role of gender in PTSD is complex and not yet fully understood, it is critical that we

continue to explore the ways in which trauma exposure may uniquely impact a father's well-being and their parenting behaviours, and therefore distinctively impact child well-being. In addition to differential impacts of trauma on mothers' and fathers' physiology and behaviours, this project highlights the role that gender inequalities play in the experience of parental trauma. In its 2030 Agenda for Sustainable Development Goals, the United Nations outlines the importance of gender equality as a development priority.[262] In doing so, they acknowledge the specific barriers faced by many women worldwide with respect to attaining a healthy life. Regarding parental trauma, gender disparities may influence both the type of traumatic exposures that mothers experience compared to fathers, as well as the ways in which these different experiences go on to affect parenting responsibilities and family functioning. It is therefore of utmost importance that future parental trauma research prioritises fathers.

Though my systematic review had a wide scope and employed a rigorous search strategy, I found that most studies included in my review have not expanded their thinking about mediator types to incorporate the complexity of trauma's effects. For example, in my introduction section, I make the case for a comprehensive array of trauma-related sequelae, covering physiological, behavioural and even environmental disruptions to a parent's life and including both subtle and extreme consequences. I mentioned there that trauma can affect an individual's emotions, cognitions, physiology and behaviours in unique ways. If we can apply this more nuanced understanding of trauma's effects to select mediators for research, we can gain a better sense of which specific aspects of parental well-being and parenting behaviours precipitate changes in children's well-being following a parent's exposure to trauma.

In my PhD project I attempted to cover a broad range of trauma types: I included a variety of events strictly meeting the DSM-5 criteria in the systematic review, I addressed the specific trauma of IPV in my quantitative study, and finally, I prompted parents to comment on any adverse event that they deemed to be traumatic in my qualitative study. Results from these components of my PhD project suggest that parenting behaviours play an important role in mediating the impact of all types of parental trauma exposure on many aspects of child well-being. However, we still do not have a clear understanding of if and how specific trauma types alter specific parenting behaviours and how these may then affect specific child well-being outcomes. This is an important area for additional consideration. Large scale cohort studies that cover a wide range of trauma types (currently there is a disproportionate focus on IPV), parenting behaviours and child well-being measures should therefore be prioritised. Such large-scale studies can perform a range of comparative analyses to explore whether the type of trauma experienced by a parent differentially impacts parenting behaviours and children's well-being.

When considering the design of future mediation research, some other considerations should be noted to improve the intricacy of our understanding of parental trauma. With respect to the parent, we do not yet understand the differences that parental age, gender and trauma type may have on mediating effects or on child well-being outcomes. Further, while it is clear that children whose parents are exposed to traumatic experiences are at risk for negative outcomes, differential risks dependent on child age, gender and pre-existing susceptibility (genetic and sociocultural factors) have been largely unexplored. Overall, the field of parental trauma research would also benefit from increased use of validated, clearly defined measures for mediators. In particular, future research should emphasise the mediator categories which have heretofore been under-developed, such as parent and child physical health measures, parent and child stress response factors, neural correlates of parent-child bonding, emotional regulation, cognitive processes, self-efficacy, family dynamics, household stressors, and factors related to social transmission of behaviours through parental modelling. Among more well-established mediator categories like parental mental health and parenting behaviours, future qualitative studies should explore which specific aspects of these mediators are relevant to child well-being and in which contexts their roles might differ.

5.5 Conclusion

In conclusion, this PhD project aimed to further our understanding of the impact of a parent's experience of trauma on their children's well-being, with particular interest in identifying mechanisms operating in this relationship. As predicted, my work confirms that trauma is a complex concept involving many internal and external influences. As these forces work together to influence both parents and their children, the dynamics of these interactions are inherently as complex as trauma's effects on an individual and their ecological setting. Still, my project uncovered some overarching trends regarding trauma's ability to alter a parent's well-being, drastically shift their parenting behaviours, strain family dynamics and ultimately increase children's risk of poor well-being outcomes. In addition, my project points to the importance of wider social, historical and cultural influences that impact parent's risk and resilience factors in the face of adverse circumstances.

My PhD project's results identify several gaps in available research assessing the impact of parental trauma on child well-being, leaving many questions as yet unanswered. Further precision is needed to identify specific aspects of parent's traumatic experiences that may be particularly damaging to children, with larger, longer, mediation studies conducted in diverse contexts. As we further our understanding of specific risk factors leading to poor offspring outcomes, both with respect to parents and children, researchers will have a better understanding of children's overall risk in the context of parental trauma. In particular, further research is needed to elucidate how risk factors predict the type and severity of negative offspring outcomes in the face of parental trauma.

Across all components of my project, parental well-being (especially parental mental health) and parenting behaviours emerged as important determinants of poor child well-being among parents experiencing various forms of trauma. These should therefore be noted as important areas for intervention in any context where parents experience traumatic events. In particular, I advocate for multisystemic interventions that provide practical, social and psychological support to parents who are grappling with the effects of trauma. Parenting support should also focus on promoting self-efficacy for parents who may have experienced changes to their mood, cognitions and parenting identity post-trauma. Parents who are suffering from trauma-related sequelae need tools for building mental resilience and may need to learn strategies for balancing their own well-being alongside parenting responsibilities. Additionally, programmes which involve group processes for families within their parenting training should be prioritised given the importance of addressing a child's broader ecological placement when attempting to mitigate their risk of poor outcomes.

Although this PhD project's results focus on the Trinidad and Tobago context, I encourage future researchers to test my study's hypotheses in other developing nations. Since sociocultural factors influence the way that mental health and parenting behaviours are both expressed and addressed, future research might identify differential effects of parental trauma on child outcomes in other settings.

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Appendices

Appendix 1

Table A1. Search strategy for studies included in 'Mediators of the association between a parent's experience of trauma and their children's well-being: A systematic review'

Main concepts (combined vertically with AND or NOT)	Synonyms (combined with OR): subject heading and key word search
Parental figure (related to exposure)	1. (parent* or mother* or father* or matern* or patern* or guardian* or caregiv*).tw 2. exp parent/
Traumatic exposure (exposure)	1. (trauma* or abus* or violen* or assault or victim* or ptsd or posttrauma* or post-trauma* or toxic stress or (advers* adj2 (experience* or event*))).tw 2. (armed conflict* or mass conflict* or post-conflict* or political conflict* or ethnic conflict* or national conflict* or war or wars or torture* or terror* or genocide or ethnic cleansing or human rights violation* or massacre or military operation or invasion or political revolution* or unrest).tw 3. (natural disaster* or hurricane* or flood* or tsunami* or earthquake* or disaster* or pandemic* or outbreak* or humanitarian cris* or emergenc* or Natural Calamit* or Flood* or Volcanic Eruption* or Cyclone* or Drought* or Tornado* or Landslide* or Mudslide*).tw 4. (intensive care unit* or critical illness* or critical patient* or medical catastroph* or motor vehicle accident* or (road adj3 injur*)).tw 5. ((partner or relationship or wom$n or domestic or spous*) adj4 (victimi* or batter*)).tw 6. Rape.tw 7. ((physical* or verbal*) adj (threat* or hostility)).tw 8. ((child* or girl? or boy? or infant* or baby or babies or toddler* or preschool* or pre-school* or pre school* or young person or young people or minor? or teen* or adolescen* or youth* or preteen* or tween* or kid? or son or sons or daughter? or grandchild* or grandson? or granddaughter?) adj5 (maltreat* or neglect* or abandon* or harm* or offence? or offens* or rape? or raping or molest* or exploit* or spank* or hit or hitting or hits)).tw. 9. exp Child Abuse/ or Shaken Baby Syndrome/ or Incest/ or exp Child Welfare/ or Infant Welfare/
Child emotional/psychological/social/physical health (outcome measure)	1. ((child* or offspring* or dependent* or juvenile* or adolescent*) adj2 (externali* or criminal* or delinquen* or incarcera*)).tw 2. (child* or offspring or dependent? or juvenile? or adolescent?) adj3 (internali* or distress or aggres* or behav* or anorexi* or psych* or eating disorder? or temper* or fight or emotion* regulation or substance us* or substance abus*).tw 3. (child* or offspring or dependent? or juvenile? or adolescent?) adj3 (well-being or morbidity or health or outcome? or mortality or wasting or stunting or disease? or comorbid*).tw

Appendix 2

Table A2. Scoring sheet for critical appraisal of studies included in 'Mediators of the association between a parent's experience of trauma and their children's well-being: A systematic review'

Study ID (Author, Year)	1	2	3	4	5	6	7	8	9	10	11	12	Overall score
Abel 2019	0	1	1	1	1	0	1	1	0	1	0	1	8
Awada 2020	1	1	1	1	1	0	0	1	1	1	1	1	10
Brunst 2017	1	1	1	1	1	0	0	1	1	1	1	1	10
Chung 2021	1	1	1	1	1	1	0	1	1	1	1	1	11
Gustafsson 2012	1	1	1	1	1	1	0	1	1	1	0	0	9
Huang 2020	1	1	1	1	1	0	0	1	1	1	0	0	8
Juan 2020	1	1	1	1	1	1	0	1	1	1	0	1	10
Manning 2014	1	1	0	0	1	0	0	0	1	1	0	0	5
Zvara 2016	1	1	1	0	1	1	1	1	1	1	0	0	9
Hairston 2011	0	0	0	0	1	1	1	1	1	1	1	0	7
Leonard 2017	0	1	1	1	1	0	0	1	1	1	1	1	9
Linde-Krieger 2018	1	1	1	0	1	1	1	1	1	1	1	0	10
Plant 2013	0	1	1	1	1	0	0	0	1	0	0	1	6
Zvara 2017	1	1	1	1	1	1	1	1	1	1	0	1	11
Abramson 2010	1	1	1	1	1	1	0	1	1	1	0	0	9
Kroska 2018	0	1	1	0	0	1	0	1	1	1	0	1	7
Halevi 2017	1	1	1	1	1	1	1	1	1	1	1	1	12
Levy 2019	1	1	1	0	1	1	1	0	1	1	1	1	10
Levy 2019_2	1	1	1	0	1	1	1	1	1	1	1	1	11
Bryant 2018	0	1	1	1	1	1	0	0	1	0	0	0	6
No. of studies scoring '1' on column criteria	15	19	19	13	20	14	8	17	20	19	10	10	

Questions used to score study quality:

1) Did the study include a theoretical framework?
2) Did the study address a clearly focused question/issue?
3) Is the research method (study design) appropriate for answering the research question (randomization/control group?)
4) Was the selection of the cohort/panel clearly defined based on objective criteria?
5) Was follow-up long enough to detect change in mediator and outcome?

6) Were objective or validated measurement methods used to measure the exposure?
7) Were objective or validated measurement methods used to measure the outcome and mediator?
8) Did the study ascertain whether changes in the mediator precede changes in the child well-being outcome?
9) Was a formal mediation analysis performed?
10) Were statistically appropriate methods of data analysis used?
11) How precise is the estimate of the effect? Were confidence intervals given?
12) Were all reasonable confounders controlled for in analysis?

Appendix 3

Table A3. Detailed results of data extracted from studies included in 'Mediators of the association between a parent's experience of trauma and their children's well-being: A systematic review'

Study ID	Dataset Used	Study Setting	Quality Score (/12)	Study Design	Study Population	Sampling method	Sample size	Sex of caregiver assessed	Type of parental trauma exposure	Mediators Assessed	Age of child at outcome report	Child well-being outcome	Type of Mediation Analysis	Main (relevant) findings
Abel 2019	Avon Longitudinal Study of Parents and Children (ALSPAC)	UK: Avon health districts	8	Cohort (subsample)	Mother-child dyads	All women pregnant with due-dates between April 1st 1991 and December 31st 1992 were eligible to take part.	3997 dyads	Mothers	IPV (scale not mentioned)	Maternal depression (EPDS)	8 years	Offspring IQ (Wechsler Intelligence Scale for Children (WISC) III)	Regression	In the unadjusted model, the unstandardised regression coefficient (estimated difference in mean offspring full IQ score associated with any maternal IPV) was 2.0 (95% CI: -4.3 to -1.5). After adjusting for maternal depression, the estimated difference in mean offspring full IQ score associated with any maternal IPV was -2.3 (95% CI: -3.8 to -0.8), implying that maternal depression might play a role in the relationship between maternal IPV and child IQ. However, no tests for mediation were performed so unable to assess significance of depression effect.
Awada 2020	Fragile Families and Child Wellbeing Study	USA; 20 cities	10	Panel	Families with newborns	Stratified random sample of all US cities with 200k or more people; single parents oversampled	4898	Mothers	IPV (some items from adaptation of CTS)	Maternal parenting stress (Child Development Supplement from PSID); harsh parenting (subscales from CTSPC)	15 years	Adolescent delinquency (scale from National Longitudinal Study of Adolescent Health)	SEM with delta method	Maternal experience of IPV and higher adolescent delinquency (at age 15) were positively correlated (β = 0.02, p<0.001). This association was sequentially mediated through higher maternal parenting stress (child age 5) and higher psychologically harsh parenting (child age 9) (β=0.0004; 95% CI [0.001, 0.01]). The effect of maternal IPV on physically harsh parenting (child age 9) was mediated by maternal parenting stress (child age 5) (β=0.02 p=0.002;95% CI [0.04, 0.16]). The effect of maternal IPV on psychologically harsh parenting at child age nine was mediated by maternal parenting stress (child age 5) ((β=0.02 p=0.001;95% CI [0.03, 0.12]).
Brunst 2017	Asthma Coalition on Community Environment and Social Stress (ACCESS) project	USA; Boston, MA; Lower-income ethnically diverse cohort	10	Cohort	English- or Spanish-speaking Pregnant women (≥18 years old)	Sample of women receiving prenatal care from specified clinics	857 dyads	Mothers	Maternal Lifetime Interpersonal Trauma (R-CTS short form)	Maternal active asthma during pregnancy (clinician-diagnosed asthma reported by mother)	Period from birth to 6 years	Child clinician-diagnosed asthma (maternal-reported)	Path analysis	Children of women with chronic maternal IPT had greater odds of an asthma diagnosis (OR=1.82; 95% CI, 1.06–3.13). In the SEM mediation model, the indirect effect of chronic IPT on children's asthma was significant (β=0.12, p=0.031). These associations were most prominent among boys.
Chung 2021	Welfare, Children, and Families: A Three-City Study (TCS)	USA; San Antonio , TX, Chicago, IL and Boston, MA; low-income families	11	Cohort (subsample)	Low-income families with child ages 10-14 years	Stratified random sample of low-income families (household survey)	965 dyads	Mothers	IPV (Revised CTS)	Mother-child relationship quality (adapted from IPPA); Spanking (items from Parent Styles Scale)	Mean=12.09 years over 3 waves	Child externalising behaviours (CBCL)	Autoregressive cross-lagged path model	IPV had a direct effect on children's externalising behaviours at Wave I (Wave I, β= .21, p < .05). Autoregressive paths were significant for externalising behaviours (β=.59, p < .001 from Wave I to Wave II; β= .29, p< .001 from Wave II to Wave III). Mother-child relationship quality and spanking were not significant mediators of the effect of IPV on children's externalising behaviours. However, results did reveal a transactional process between parent and child behaviours (indirect effect: β=.003, 95% CI = [.001,

													.014]); in other words, IPV had a positive, direct effect on children's externalising behaviours at Wave I which then had a positive direct effect on spanking at Wave II. This elevated level of spanking at Wave II was predictive of children's higher externalising behaviours at Wave III. Resulting from the influence of IPV, greater Wave I externalising behaviour was linked to poorer parent–child relationship quality at Wave II. This poorer parent–child relationship quality at Wave II resulted in elevated child externalising behaviours at Wave III (indirect effect: β = .004, 95% CI = [.001, .014]).
Gustafsson 2012	The Family Life Project (FLP)	USA; North Carolina and Central Pennsylvania; hospital catchment	9	Birth cohort	Families with newborns	Families sampled from local hospitals; oversampled African-American and low-income families	1292 dyads	Mothers	IPV (CTS)	Maternal sensitive parenting (scales adapted from NICHD Study of Early Child Care)	58 months old.	Child effortful control (CBQ subscales)	SEM and Sobel's test	Elevated IPV levels during the first two years of life were positively associated with lower levels of children's effortful control (β = -.15, p < .01). In the nested model, the path between IPV and effortful control was constrained to zero; the indirect effect was significant confirming full mediation of this relationship by maternal parenting (p = .03).
Huang 2020	Fragile Families and Child Wellbeing Study	USA; 20 cities; clinic sample	8	Panel	Families with newborns	Stratified random sample of all US cities with 200k or more people; single parents oversampled	1690 dyads	Mothers	IPV (unknown scale)	Maternal physical punishment (Items adapted from CTSPC)	9 years and 15 years	Child Bullying Victimization (Year 9) (items adapted from PSID); Teenage Depression Symptoms (Year 15) (items from CES-D)	SEM and Sobel's test	IPV exposure during Years 1-3 was positively associated with depression symptoms at Year 15 (β = 0.06, p < 0.05). The indirect effect of exposure to IPV at Years 1-3 on bullying victimization at Year 9 was significant (β 0.01, p<0.05) The indirect effect of physical punishment at Year 5 on teen depression symptoms at Year 15 was significant (β=0.01, p<0.05). The effect of IPV exposure on teen depression is partially mediated by physical punishment and bullying victimisation (indirect effect: β = 0.001, p<0.05).
Juan 2020	Fragile Families and Child Wellbeing Study	USA; 20 cities; hospital catchment	10	Panel	Families with newborns	Stratified random sample of all US cities with 200k or more people; single parents oversampled	2986 families	Mothers and fathers	Partner Violence (both parents) (CTS)	Child-parent attachment (TAS-39 & child self-report; unknown scale)	5 and 9 years	Child aggressive behaviour (unknown scale)	SEM	The relationship between exposure to PV and child aggression at age 5 was significant (p<0.01) but did not appear to be mediated by attachment at age 3. The relationship between exposure to PV and child aggression at age 9 (p<0.05) was fully mediated by attachment at age 9.
Manning 2014	NA	USA; Northeastern City; low-income	5	Cohort	Mother-toddler dyads from racially diverse, socially-disadvantaged families	Convenience & purposive sampling From multiple	201 dyads	Mothers	Interparental Violence (CPS physical aggression subscale and	Sensitive parenting (rating scales for mother-child observation from Iowa	Wave 1 (M=26 months); Wave 3 (Wave 1 + 2 years)	Child externalising problems; Child prosocial behaviour	Latent difference score model	IPV was not associated with externalising (β = 0.05, ns) or prosocial (β = -0.04, ns) behaviours in children. However, the interaction term (IPV x Maternal Sensitivity) at Wave 1 was associated with children's angry reactivity to interparental conflict 1 year later at Wave 2 (β = -0.29, p=0.01). Additionally, children's level of angry reactivity at Wave 2, was positively

						agencies serving disadvantaged children and families			Revised CTS2 p24-item physical assault and injury subscales)	Family Interaction Rating Scale)		(California Child Q-Set)		associated with their externalising symptoms (β = .21, p < .01) and negatively correlated with their prosocial behaviour (β = .20, p < .05). There is evidence for sequential mediation passing through the interaction term (IPVx maternal sensitivity), then children's angry reactivity at Wave 2 and on to children's prosocial functioning (95% CI 0.007 to 0.24). This same sequential pathway is evident between IPV and child externalising problems (95% CI (-0.32 to -0.45)
Zvara 2016	The Family Life Project (FLP)	USA; North Carolina and Central Pennsylvania; hospital catchment	9	Cohort (subsample)	Families with newborns	Families sampled from local hospitals; oversampled African-American and low-income families	395 families	Mothers and fathers (biological)	Maternal IPV (reported by mothers & fathers) (CTS-R couples form)	Parenting behaviour (observed behaviour NICHD Early Child Care Research Network)	First grade	Child conduct problems (SDQ)	SEM with delta method	IPV was positively corelated with child conduct problems (β = .11, p <. 01). The indirect effect of IPV on child conduct problems through paternal harsh–intrusive parenting was significant (β = .02, p = .04). When stratified by maternal gatekeeping behaviour, within the low-encouragement (high-gatekeeping) group there was no association between IPV and paternal harsh–intrusive parenting (β = .05, p = .14) nor was maternal (β = .04, p = .15) or paternal (β = .10, p = .54) parenting related to child conduct problems.
Hairston 2011	Maternal Anxiety during Childbearing Years (MACY)	USA; Detroit, MI and Ann Arbor, MI	7	Cohort	Mother-child dyads	Convenience sample from childcare centres and pediatric clinics	184 dyads	Mothers	Maternal childhood trauma history (CTQ-SF)	Maternal mental health (NWS-PTSD and PDSS)	18 months	Toddler behaviour problems (CBCL)	Mediation analysis using Preacher and Hayes (2008) approach	To determine whether internalising and externalising behavioural problems were associated with infant sleep disturbance and/or mother infant bonding at 4 months, stepwise regression analyses were run, in which WASO, Sleep Anxiety, and total PBQ were the independent variables, and gender was a weighting factor. The model for internalising was not significant, but the model for externalising was (F1,68 = 9.509 P = 0.003, Adj. R2 = 0.110), with PBQ significantly predicting externalising problems (β = 0.350). The estimated indirect effect coefficient for depression symptoms was 1.38 with CI 99% 0.56–2.49, suggesting a positive indirect effect (i.e., mediation effect) significant at α = 0.01. For WASO, the indirect effect was not significant (0.26, CI 99% -0.05–0.64), although the direct effect on PBQ remained significant (0.15, P = 0.002). Thus, depression symptoms significantly mediated the relationship between mothers' diagnosis history and mother-infant bonding, while infant sleep disturbance made an independent contribution to the mother-infant bonding outcome.

Leonard 2017	The National Longitudinal Survey of Youth 1979 (NLSY79)	USA; National Study	9	Cohort (subsample)	Mother-child dyads	Mothers recruited into cohort from birth in 1979. Children recruited and followed from 1986 to 2012.	1979 mothers; 1986 children	Mothers	Maternal childhood adversity (items from BRFSS)	Maternal pregnancy weight (self-reported)	2–5 years	Children's risk of obesity (BMI calculated by height/weight measured by interviewers or as reported by mother)	Petersen method of estimating Natural Direct Effects and Controlled Direct Effects[1]	There was a significant association between maternal childhood adversity and early childhood (2-5 years) obesity (RR:1.21 (95% CI: 1.00, 1.46). There was an excess of 3.7 cases of obesity for every 100 mothers who experienced childhood physical abuse (95% CI: -0.1 to 7.5). The effect of maternal childhood physical abuse on child obesity was partially mediated by maternal pre-pregnancy (proportion mediated: 25.7%) BMI but not by gestational weight gain.
Linde-Krieger 2018	NA	USA: Southern California	10	Cohort (subsample)	Mother-child dyads	Caregivers were recruited in convenience sample via community-based childcare centres	225 dyads	Mothers	Maternal history of child sexual abuse (ETI)	Mother's helpless state of mind (CHQ)	4 and 6 years	Child internalising and externalising behaviour problems (Observation using TOF)	Mediation analysis using Hayes (2013) method	There was a significant mediation effect between mother's CSA severity and child externalising problems through mother's helpless state of mind among girls but not boys (β = 0.046; 95% CI :0.004 to 0.105). The moderated mediation model for the effect of mothers' CSA severity on child internalising problems (β = -.146; 95% CI -.277 to -.015) was not significant.
Plant 2013	South London Child Development Study	UK: South London	6	Cohort (subsample)	Mother-child dyads	Pregnant women recruited from clinics	125 dyads	Mothers	Maternal childhood maltreatment (scale unknown)	Offspring childhood maltreatment (combined parent and child CAPA; lifetime abuse measured by unknown scale).	11 and 16 years	Offspring adolescent antisocial behaviour and adolescent depression (combined parent and child CAPA)	Path analysis	Mothers who experienced childhood maltreatment were significantly more likely to be depressed during pregnancy [odds ratio (OR) 10.00]. The relationship between maternal childhood maltreatment and offspring adolescent antisocial behaviour was mediated by offspring exposure to childhood maltreatment. The effect of maternal childhood maltreatment on offspring exposure to childhood maltreatment was only significant for those offspring exposed to depression in utero (regression coefficient estimate=0.48, p=0.004), not for those whose mothers were well (regression coefficient=0.12, p=0.48).

Zvara 2017	The Family Life Project (FLP)	USA; North Carolina and Central Pennsylvania; low-income	11	Cohort	Mother-child dyads	Complex sampling procedure to obtain representative sample Mothers recruited from hospital the day after giving birth.	1292 dyads	Mothers	Maternal childhood sexual trauma (THQ)	Maternal IPV (CTS-R); Maternal depressive symptoms (BSI); sensitive parenting (observational ratings adapted from NICHD Study)	Grade 1	Child conduct problems (SDQ)	SEM using delta method and Holmbeck (2002) method	The indirect pathway between maternal CST and child conduct problems through maternal IPV and maternal sensitive parenting was significant (β = .06=3, $p < .05$). The indirect pathway through depressive symptoms was not significant. Constraining the paths from maternal CST to child conduct problems to zero did not affect model fit during a chi-squared difference test. These findings suggest full sequential mediation of the association between CST and child conduct problems at grade 1 through maternal IPV (under child age 3) and maternal sensitive parenting at 60 months.
Abramson 2010	GCAFH=Gulf Coast Child & Family Health Study; NHIS=National Health Interview Study	USA: Louisiana and Mississippi	9	Cohort (subsample)	Households in areas greatly affected by Hurricane Katrina	Random sample of households; Kish sampling strategy to recruit 1 child from each eligible household.	427 households	Parents	Hurricane Katrina damage (FEMA damage assessment database)	Maternal mental health (scale unknown)	4-17 years old	Child serious emotional disturbance (SDQ)	SEM	Results from the regression analysis revealed that the odds of child serious emotional disturbance (SED) was 4.32 times higher for children in households that were affected by Hurricane Katrina as compared to unaffected households. Part (about 1/3) of this effect was a direct result of exposure to Katrina (OR 1.49). The rest of the effect operated through parental mental health. The SEM model revealed an indirect effect of Katrina hurricane exposure on SED through parental mental health (OR=2.82 $p<0.001$) suggesting mediation.
Kroska 2018	The Iowa Flood Study	USA: Iowa	7	Cohort (subsample)	Pregnant women in Iowa flood-affected regions in mid-June 2008	Pregnant women were recruited through community and clinics in areas affected by the flood.	268 mother-child dyads	Mothers	Prenatal maternal flood stress (Iowa Flood 100 scale)	Offspring birthweight (from birth records)	30 months	Offspring BMI (measured in lab)	Mediation analysis using Hayes (2013) method	Greater prenatal maternal flood stress (PNMS) predicted greater child BMI at 30 months; this effect was mediated by higher offspring birthweight among participants with low social support (mediation effect = −0.2831, CI [− 0.6287; − 0.0682]). High social support acted as a buffer between PNMS or negative appraisal of the flood and offspring birthweight (index − 0.1533, CI [− 0.4695; − 0.0018]). Among mothers reporting low levels of social support, higher offspring birthweight mediated the effect of increased Maternal Subjective Stress on greater BMI at 30 months (mediation effect = 0.6308, CI [0.0033; 1.9053]).
Halevi 2017	NA	Israel: Sderot;	12	Cohort	Mother-child dyads	Controls were matched (age, gender, birth-order (1st born/later born), maternal and paternal age and educatio	232 dyads	Mothers	War-related trauma history (scale unknown; mother-reported)	Maternal psychopathology (SCID-I); maternal stress physiology (hair and saliva cortisol levels tested by ELISA); maternal synchronous parenting (dyadic interaction	5-8 years; 9-11 years	Child psychopathology (CBCL 1.5-5)	Mediation analysis using Hayes (2013) method	The effect of war exposure on child psychopathology was mediated by maternal psychopathology (95% CI = .004, .085). There was a mechanism linking war exposure to child symptoms which involved coupling of maternal and child hair cortisol concentration (HCC) and salivary cortisol (SC) levels. Higher maternal SC (linked with higher child SC), followed by lower child engagement, mediated the effect of war exposure on lower child externalising behaviour (95% CI = .001, .007). The relationship between war exposure and child externalising behaviour was sequentially mediated by maternal synchrony and child engagement level (95% CI = .001, .030). The effect of war exposure on child internalising symptoms was sequentially mediated by increased maternal HCC, followed by higher child

						n, and maternal employment and marital status) children located in Tel Aviv.				coded using CIB manual infancy/preschool version); Child engagement level (CIB)				HCC and more internalising problems (95% CI = .001, .015). The relationship between war and internalising symptoms was mediated by maternal psychopathology (95% CI = .019, .108).
Levy 2019	NA	Israel: Sderot and Tel Aviv	10	Cohort	Mother-child dyads	148 families living nearby the Gaza border; matched control group of 84 non-exposed families in the greater Tel-Aviv area.	232 dyads	Mothers	Terror or war-related violence (scale unknown)	Mother-child synchrony (dyad interaction coded using CIB)	M=11.81 years	Child prosocial skills (SDQ)	Mediation analysis using Preacher and Hayes (2008) approach	War exposure was negatively associated with maternal gamma wave activity (β = -0.23, p<0.05). Mother-child synchrony was positively associated with maternal gamma wave activity (β = 0.26, p<0.05). Maternal gamma activity was positively associated with children' prosociality (β = .25, SE = .11, p < .05). The indirect effect of war exposure on child prosociality (−.02; 95% CI .01 to .16) indicated sequential mediation by mother-child synchrony and gamma activity. Since this effect was negative, it suggests that war exposure results in lower mother-child synchrony, which goes on to increase maternal gamma activity. An increase in maternal brain activity is associated with higher child SDQ prosocial scores. There was no difference between war-exposed and control children with respect to their prosociality scores.
Levy 2019_2	NA	Israel: Sderot and Tel Aviv	11	Cohort	Mother-child dyads	148 families living nearby the Gaza border; matched control group of 84 non-exposed families in the greater Tel-Aviv area.	232 dyads	Mothers	Terror or war-related violence (community exposed to rockets and missile attacks)	Mother-child synchrony (dyad interaction coded using CIB)	T3: 9.14 ± 1.30; T4: 11.81 ± 1.24 years	Child anxiety behaviours (T3) (DAWBA); Child neural empathic response (T4) (MEG scanning during empathy-based simulation).	Mediation analysis using Hayes (2013) method	The impact of trauma exposure on children's neural basis for empathy was mediated by mother–child synchrony mediated (p < 0.05). There is evidence to suggest the activation of the SMA and MCC nodes are important in adolescent's neural empathic response to distress. This neural response was not associated with child negative reactivity, suggesting that these two neural processes are distinct. This study supports evidence for the role of mother-child synchrony (across a child's first decade of life) in establishing the neural basis of empathy in adolescence.
Bryant 2018	Building a New Life in Australia (BNLA) study	Australia: 11 sites (major cities and regional areas); refugee population	6	Cohort	Refugee families	Refugee families were selected using convenience sampling of refugee applicants in migrating units	394 caregivers; 639 children	Male and female primary caregivers	Refugee caregiver's trauma history (modified HTQ traumatic events module)	Caregiver PTSD (PTSD-8); caregiver harsh parenting (warmth scale from CRQ; hostility scale from ECLSC)	11-17 years	Child psychological difficulties (SDQ)	Path analysis	Primary caregiver PTSD was positively associated with children's emotional difficulties (β=0·144, p=0·0001). Caregiver's experience of trauma and postmigration difficulties was positively associated with PTSD, which then went on to predict greater harsh parenting and subsequently higher levels of child conduct problems (β=0·049, p=0·0214), hyperactivity (β=0·044, p=0·0241), emotional symptoms (β=0·041, p=0·0218), and peer problems (β=0·007, p=0·047).

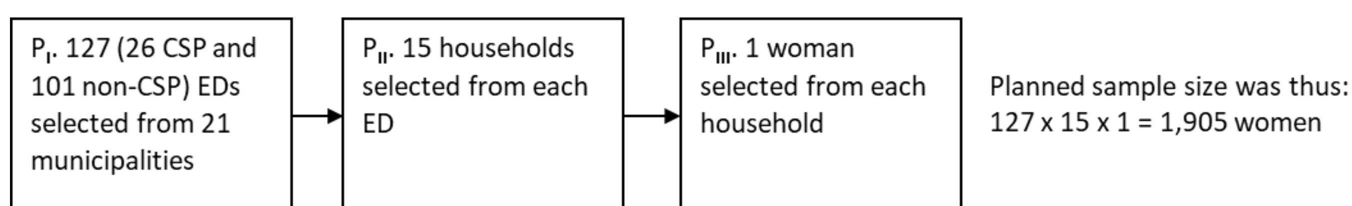
Appendix 4

Detailed Methodology for addressing the complex survey design for Chapter 3: Impact and mental health mediation of intimate partner violence on child behaviour: a cross-sectional study

The original sampling strategy for my quantitative study involved a complex survey design using probability proportionate sampling (PPS). Additionally, the sampling strategy was designed to oversample communities belonging to the Ministry of National Security's Citizen Security Programme (CSP). This is a violence prevention programme initiated by the Ministry of National Security in 2007 seeking to prevent violence in certain high-risk communities through community and institutional collaboration. However, the secondary dataset provided for analysis did not include the survey weights used during the design stage. In order to account for the PPS design therefore, I needed to employ appropriate methods to back-calculate these survey weights using the dataset provided, census information regarding the household counts in each Enumeration District, as well as the research team's description of the oversampling method they used for CSP communities. These calculations are described in detail below:

Estimation of probability weights

A three-stage random sample of 1,079 women aged 15-64 was selected from a total population of 482,300 women in Trinidad and Tobago at the time of data collection (2016). At the first stage, a random sample of Enumeration Districts (EDs) was selected using PPS according to the number of households in each ED. At the second stage, a systematic random sample of 15 households was selected from each ED. EDs were over/under sampled according to CSP status. At the third stage, one woman was selected from each household for interview.



Probability of selection at each stage of design

The study employed probability weights to ensure that all women included in the final study sample had an equal probability of selection into this sample. The first two stages of the study design were self-weighted:

STAGE I. 127 (26 CSP and 101 non-CSP) EDs were selected from 21 municipalities: The probability of selection for each ED was proportionate to the number of households within the ED (H_{ED}) such that

those EDs with more households had a higher probability of selection. EDs belonging to the CSP programme were oversampled such that their probability of selection was increased by a factor of 2 and the probability of selection for EDs belonging to non-CSP households was reduced by a factor of 1.125 (9/8). The probability of selection for every ED included in the sample is known as $\mathbf{P_I}$.

STAGE II. A fixed number of households (15) were then selected from each ED. The probability of selection of each household within an ED is known as $\mathbf{P_{II}}$ and depends on the number of households (H_{ED}) within that ED ($\mathbf{P_{II}} = 15/H_{ED}$). Since PPS was used in Stage 1, we know that P_I for each ED is proportionate to the number of households in that ED. The common H_{ED} terms in $\mathbf{P_I}$ and $\mathbf{P_{II}}$ from sampling stages 1 and 2 make these two probabilities self-weighted, apart from the fixed over-sampling factor distinguishing CSP and non-CSP communities.

STAGE III. One woman was then selected from each household. The probability of selection of each woman is known as $\mathbf{P_{III}}$ and depended on how many eligible women (W_H) there were in the household ($\mathbf{P_{III}} = 1/W_H$).

Therefore, in order to calculate probability weights for each woman in the study sample, I multiplied the probability of selection at each stage described above into one overall term as such:

For CSP EDs: $P_w = 1.125 \times 15/H_{ED} \times 1/W_H$
For non-CSP EDs: $P_w = 0.5 \times 15/H_{ED} \times 1/W_H$

The calculation and inclusion of these probability weights were an important step in providing an accurate estimate for this national survey data and testing my study hypotheses. Their incorporation takes into account the survey team's use of probability proportionate sampling, a complex but rigorous means of establishing national estimates for household surveys.

Text below is from 'Sample Design: Women's Health Survey 2016-2017' by QURE Research. Used with permission from the Inter-American Development Bank in July 2021.

"Sample Size and Sample Design for National Survey

A three-stage probability proportionate sampling design was used for the WHS National Survey in Trinidad and Tobago. The first stage was a selection of the primary sampling units (PSUs), in this case, Enumeration districts (EDs), which are chosen via probability proportionate sampling (PPS). The second stage will be the selection of the households, the secondary sampling units (SSUs), via random sampling from the selected EDs. Finally, in the third stage, via the Kish Selection Grid, an individual woman, the ultimate sampling unit (USU), will be selected from each of the chosen households by enumerators on the field.
Trinidad is stratified into fourteen administrative districts or municipalities: two (2) cities, three (3) boroughs and (9) regional corporations; Tobago is subdivided into seven (7) parishes. These

municipalities are made up of Enumeration Districts (EDs). Each ED consists of about 150 to 200 households each, on average. The 2011 housing census data and the census microdata listing of private dwelling households were used to as the Sample Frame and the List Frame for the first and second stages respectively.

In the first stage, EDs were selected by probability proportional to size (PPS). The probability of inclusion under PPS sampling can be expressed as:

$$\pi_j = \frac{nx_j}{\sum_{j=1}^{N} x_j}$$

Where:

- *πj = probability of inclusion*
- *n = sample size (% large enough to provide robust estimates of population parameters)*
- *N = total number of households/EDs*
- *x = the characteristic statistic (households) being used to grade the population units.*

The employment of PPS in the first stage facilitated greater control over the selection of the USUs without having to resort to stratification by size, as the PSUs which have more households had higher probabilities of being selected (UNSD, 2008).[263] *Given the need to sample an adequate number of CSP communities from the national sample for analytical purposes, the file of PSUs was arranged in geographic sequence, i.e. CSP by community and within community by district, followed by non-CSP by community and within community by district. To achieve this, the estimation groups 'CSP' and 'non-CSP' were treated as major tabulation categories in the analysis, which resulted in much smaller sample sizes for each group than if each group were treated as a separate domain in the sample selection* (Turner, 2003).[264]

Using CSP and non-CSP communities as tabulation groups, EDs were selected proportionate to the number of households contained therein. This selection yielded a sample with 10 per cent and 90 per cent of the EDs coming from CSP communities and non-CSP communities, respectively. To ensure a sufficiently large sample size was drawn from the CSP communities, the probability of selection was then doubled, in effect leading to an oversampling of these communities, while the probability of selection of non-CSP communities was reduced by 0.89 (80/90). The resulting selection yielded a selection of 20 per cent of the sample represented by CSP communities and 80 per cent represented by non-CSP communities. This amounted to 127 EDs selected (26 CSP EDs and 101 non-CSP EDs) from a total of 2813 EDs.

In the second stage the SSUs will be selected using systemic sampling with a random start to select from a list frame. Fifteen 15 households will be selected from each of the selected EDs. In particular, the List Frame (as the Sample Frame in this stage) will be used to select every kth household from each of the EDs. The starting point will be a household randomly chosen from the first k households, where k is a positive integer, otherwise known as the sampling interval. In particular: k = (number of households in the particular PSU/ sample size, which in this stage is 15). The starting point, a, will be randomly selected from the first k households in the PSU, and then every kth household will be selected: a, a + k, a+2k, a +3k …a +14k."

Appendix 5

Copy of text from Stata 'do' file used to perform quantitative analysis in Chapter 3: Impact and mental health mediation of intimate partner violence on child behaviour: a cross-sectional study

```
**preparing data for complex survey design**

svyset PARISH_LOC_ED_O1 [pweight = pwt], strata(CSPstrata)

**Create dummy variables for economic assets**

tempvar water
tabulate Q1, generate(water)
tempvar toil
tabulate Q2, generate(toilet)
tempvar roof
tabulate Q3, generate(roof)
tempvar rooms
tabulate Q7,generate (rooms)
recode Q4_1 (1=1) (2=0), gen(electric)
recode Q4_2 (1=1) (2=0), gen(fridge)
recode Q4_3 (1=1) (2 8=0), gen(computer)
recode Q4_4 (1=1) (2 8=0), gen(aircon)
recode Q4_5 (1=1) (2 8=0), gen(dryer)
recode Q4_6 (1=1) (2 8=0), gen(internet)
recode Q4_7 (1=1) (2 8=0), gen(vehicle)

**pca to generate econindex from economic assets**

correlate water1 water2 water3 water4 water5 water6 water7 water8 toilet1 toilet2 toilet3 roof1 roof3 roof4
rooms1 rooms2 rooms3 rooms4 rooms5 rooms6 rooms7 rooms8 rooms9 electric fridge computer aircon dryer
internet vehicle
pca water1 water2 water3 water4 water5 water6 water7 water8 toilet1 toilet2 toilet3 roof1 roof3 roof4 rooms1
rooms2 rooms3 rooms4 rooms5 rooms6 rooms7 rooms8 rooms9 electric fridge computer aircon dryer internet
vehicle, component(1)
predict econindex
egen econindexcat = cut(econindex), group(3)
replace econindexcat = econindexcat+1
label variable econindex "Household economic index"
label variable econindexcat "SES"
label define econindexcat 1 Low 2 Medium 3 High
label values econindexcat

** Developing maternal anxiety score**

recode Q209_1 (1=1) (2=0), gen(anx)
recode Q209_2 (1=1) (2=0), gen(worry)
recode Q209_3 (1=1) (2=0), gen(worry2)
recode Q209_4 (1=1) (2=0), gen(notrelaxed)
recode Q209_5 (1=1) (2=0), gen(restless)
recode Q209_6 (1=1) (2=0), gen(annoyed)
recode Q209_7 (1=1) (2=0), gen(afraid)

**Developing maternal depression score**

recode Q209_8 (1=1) (2=0), gen(nopleasure)
recode Q209_9 (1=1) (2=0), gen(depressed)
recode Q209_10 (1=1) (2=0), gen(sleepproblems)
```

```
recode Q209_11 (1=1) (2=0), gen(tired)
recode Q209_12 (1=1) (2=0), gen(appetitepoor)
recode Q209_13 (1=1) (2=0), gen(feelbad)
recode Q209_14 (1=1) (2=0), gen(notconcentrate)
recode Q209_15 (1=1) (2=0), gen(slow)
recode Q209_16 (1=1) (2=0), gen(selfharm)

**Calculate composite anxiety score**

gen anx_comp = anx + worry + worry2 + notrelaxed + restless + annoyed + afraid

**calculate composite depression score**

gen depress_comp = nopleasure + depressed + sleepproblems + tired + appetitepoor + feelbad + notconcentrate
+ slow + selfharm

**recode of test variables**

recode Q417 (1 2 3 4 5=1) (0=0) (.a=.),gen(motherhood)
recode Q303 (1 2 3 4 5 6 7 8 9 11=1) (0=0) (.a=.), gen(motherhood2)
egen all = concat(emotvio physvio sexvio)
gen composite = strpos(all, "1") if all!=".a.a.a"
recode composite (1 2 3=1) (0=0),gen(everviol)
label variable everviol "everviol"
egen childhoodall = concat(cQ1006 cQ1006a cQ1006b)
gen compositechood = strpos(childhoodall, "1") if childhoodall!=".a.a.a"
recode compositechood (1 2 3=1) (0=0),gen(matchildhood)
label variable everviol "everviol"

tempvar childwithdrawn
recode Q420_3 (1=1) (2=0) (.a=.), gen(childwithdrawn)
tempvar childaggress
recode Q420_4 (1=1) (2=0) (.a=.), gen(childaggress)
egen behavall = concat(childwithdraw childaggress)
gen behavcomposite = strpos(behavall, "1") if behavall!=".."
recode behavcomposite (1 2 =1) (0=0),gen(behavprob)
egen agecat = cut(AGE_RESP), at(15,25,35,45,55,65)
egen agecat2 = cut(AGE_RESP), group(2) label
egen econindexcat2 = cut(econindex), group(2)
egen MHcat = cut(Q203), group(2)
recode edresp (0 1 2=1) (3=2), gen(edcat)
recode employstatus (1=1) (2=2) (3=3) (4=4) (5=.), gen(employstatus2)

**testing data distribution**

gen logdepress_comp=log(depress_comp+1)
gen loganx_comp=log(anx_comp+1)
histogram logdepress_comp, kdensity normal
pnorm logdepress_comp
histogram loganx_comp, kdensity normal
pnorm loganx_comp

**descriptive stats**

svy, subpop(if motherhood==1):tab everviol, count
svy, subpop(if motherhood==1):tab everviol
svy, subpop(if motherhood==1): mean depress_comp, over(everviol)
estat sd
svy, subpop(if motherhood==1): mean depress_comp, over(everviol) coeflegend
test  _b[c.depress_comp@0bn.everviol] = _b[c.depress_comp@1.everviol]
```

```
svy, subpop(if motherhood==1):tab everviol depress_comp
svy, subpop(if motherhood==1): mean anx_comp, over(everviol)
estat sd
svy, subpop(if motherhood==1): mean anx_comp, over(everviol) coeflegend
test  _b[c.anx_comp@0bn.everviol] = _b[c.anx_comp@1.everviol]
svy, subpop(if motherhood==1):tab everviol anx_comp
svy, subpop(if motherhood==1):tab everviol childwithdrawn
svy, subpop(if motherhood==1):tab everviol childaggress
svy, subpop(if motherhood==1):tab everviol behavprob
svy, subpop(if motherhood==1):logistic depress_comp everviol
svy, subpop(if motherhood==1):logistic anx_comp everviol
svy, subpop(if motherhood==1):logistic childwithdrawn everviol
svy, subpop(if motherhood==1):logistic childaggress everviol
svy, subpop(if motherhood==1):logistic behavprob everviol
svy, subpop(if motherhood==1):tab everviol behavprob, count
svy, subpop(if motherhood==1):tab everviol behavprob, row
svy, subpop(if motherhood==1):tab everviol agecat, count
svy, subpop(if motherhood==1):tab everviol agecat, row
svy, subpop(if motherhood==1):tab everviol RELIGION, count
svy, subpop(if motherhood==1):tab everviol RELIGION, row
svy, subpop(if motherhood==1):tab everviol ETHNICITY, count
svy, subpop(if motherhood==1):tab everviol ETHNICITY, row
svy, subpop(if motherhood==1):tab everviol edresp1, count
svy, subpop(if motherhood==1):tab everviol edresp1, row
svy, subpop(if motherhood==1):tab everviol EP3, count
svy, subpop(if motherhood==1):tab everviol EP3, row
svy, subpop(if motherhood==1):tab everviol URBANRURAL, count
svy, subpop(if motherhood==1):tab everviol URBANRURAL, row
svy, subpop(if motherhood==1):tab everviol employstatus2, count
svy, subpop(if motherhood==1):tab everviol employstatus2, row
svy, subpop(if motherhood==1):tab everviol SourceIncome, count
svy, subpop(if motherhood==1):tab everviol SourceIncome, row
svy, subpop(if motherhood==1):tab everviol econindexcat, count
svy, subpop(if motherhood==1):tab everviol econindexcat, row
svy, subpop(if motherhood==1): mean AGE_RESP, over(everviol)
estat sd
svy, subpop(if motherhood==1): mean AGE_RESP, over(everviol) coeflegend
test  _b[c.AGE_RESP@0bn.everviol] = _b[c.AGE_RESP@1.everviol]

**standardization of covariates**

gen AGESQ = AGE_RESP*AGE_RESP
gen ECONINDEXSQ = econindex*econindex
gen stdAGE = (AGE_RESP-35.90632)/7.435334
gen stdECONINDEX = (econindex-0.096008)/1.579994
gen stdEDRESP = (edresp-2.24607)/0.6395622
gen stdQ119 = (Q119-2.520446)/1.794708

**logistic regression of IPV and child behavioural symptoms without mediation**

svy, subpop(if motherhood==1):logistic behavprob everviol c.AGE_RESP c.econindex c.edresp
vce, corr
svy, subpop(if motherhood==1):logistic behavprob everviol
svy, subpop(if motherhood==1):logistic behavprob everviol Q119
svy, subpop(if motherhood==1):logistic behavprob everviol c.AGE_RESP c.econindex c.ECONINDEXSQ
c.edresp
svy, subpop(if motherhood==1):logistic behavprob everviol c.AGESQ c.AGE_RESP c.econindex c.edresp
svy, subpop(if motherhood==1):logistic behavprob everviol c.stdAGE c.stdECONINDEX c.stdEDRESP
c.stdQ119
vce, corr
```

```
svy, subpop(if motherhood==1):logistic behavprob everviol c.agecat c.econindex c.edresp
svy, subpop(if motherhood==1):logistic behavprob everviol c.agecat c.econindex c.edcat


** GSEM for composite depression symptoms as mediator**

svy, subpop(if motherhood==1): gsem (behavprob<-everviol depress_comp stdAGE stdECONINDEX
stdEDRESP, logit) (depress_comp<-everviol stdAGE stdECONINDEX stdEDRESP)

** Program for running GSEM with bootstrapping for depression composite as mediator**

capture program drop boot1
program boot1, rclass
svy, subpop(if motherhood==1): gsem (behavprob<-everviol depress_comp stdAGE stdECONINDEX
stdEDRESP, logit) (depress_comp<-everviol stdAGE stdECONINDEX stdEDRESP)
return scalar everviol_indirect= _b[depress_comp:everviol]*_b[behavprob:depress_comp]
return scalar everviol_direct= _b[behavprob:everviol]
return scalar everviol_total= _b[behavprob:depress_comp]*_b[depress_comp:everviol] +
_b[behavprob:everviol]
end
bootstrap r(everviol_indirect), seed(1234) reps(2000): boot1
noi estat bootstrap, bc percentile
bootstrap r(everviol_direct), seed(1234) reps(2000): boot1
estat boot, bc percentile
bootstrap r(everviol_total), seed(1234) reps(2000): boot1
estat boot, bc percentile

** GSEM for composite anxiety symptoms as mediator**

svy, subpop(if motherhood==1): gsem (behavprob<-everviol anx_comp stdAGE stdECONINDEX stdEDRESP,
logit) (anx_comp<-everviol stdAGE stdECONINDEX stdEDRESP)
capture program drop boot1
program boot1, rclass
svy, subpop(if motherhood==1): gsem (behavprob<-everviol anx_comp stdAGE stdECONINDEX stdEDRESP,
logit) (anx_comp<-everviol stdAGE stdECONINDEX stdEDRESP)
return scalar everviol_indirect=(_b[anx_comp:everviol]*_b[behavprob:anx_comp])
return scalar everviol_direct=_b[behavprob:everviol]
return scalar everviol_total=(_b[behavprob:anx_comp]*_b[anx_comp:everviol]) + _b[behavprob:everviol]
end
bootstrap r(everviol_indirect), seed(1234) reps(2000): boot1
estat bootstrap, bc percentile
bootstrap r(everviol_direct), seed(1234) reps(2000): boot1
estat boot, bc percentile
bootstrap r(everviol_total), seed(1234) reps(2000): boot1
estat boot, bc percentile
```

Appendix 6

FOCUS GROUP TOPIC GUIDE

Adverse parental experiences: Qualitative Study, PhD study, Trinidad and Tobago

Focus Group Discussion Guide: 2 groups of men (4-6 in each group); 2 groups of women (4-6 in each group)

Region: ____________________ Zone: _________________________ Facilitator:

Date: __________________ Start Time:_________ End Time: _________

(Note for facilitator/note taker please label your note with the above information and also include the above information in the record to identify it easily)

Participants' demographics –Facilitator will fill out the following chart by speaking with each participant prior to initiating the focus group discussion

Group #	No.	Participant ID	Sex	Age	Marital status	Current age(s) of children	Remarks
	1						
	2						
	3						
	4						
	5						
	6						
	7						
	8						
	9						
	10						
	11						
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						

Instruction for the facilitators: These questions are guides for the discussion. Ensure that by the end of the session you have covered all of the listed domains. Participants may take the

conversation in different directions; this is fine but you should gently bring the conversation back to questions in the guide.

Introductory text for group: Good morning (good afternoon). Thank you all for coming today and for agreeing to speak with me. I am conducting this research as part of an independent PhD project to understand how life experiences affect parents in Trinidad and Tobago. This discussion will last for approximately 60-90 mins. I'll ask the questions and my Research Assistant will take notes on whatever you say. However, in order not to lose details of the information provided by the discussion will be audio-recorded. I am here to facilitate/guide the discussion, but there are NO wrong answers. By choosing to participate today, you are agreeing to not discuss what we talk about with anyone outside of this room.

In order to protect your privacy, we ask you not to mention your name or anyone else's name during the session. Instead, please use the number that we just assigned to identify yourself when you want to speak. I thank you for volunteering your time for this research project, which I hope you will find interesting. My aim with this research is to inform the way parents are supported in places like T&T. As discussed, you will be reimbursed for your travel costs with a flat fee of 50.00 TTD. There are refreshments offered after the discussion for your enjoyment. If you have any questions or want some clarification about the above information you can do so. I hope this session is interesting for you also. Thank you very much for your time.

Theme	Questions	Summary
Parenting	READ ALOUD Introduction 1. How many children do you have, and what are their ages? 2. What are some of your children's favourite past-times? General beliefs around parenting roles 3. Describe the role of a parent in a child's life. 4. What are some of the most important things that a parent can give their child? Parent-child dynamic 5. What are some of the factors that affect the way we parent our children? (Probe: how we were parented) 6. What are some of the biggest challenges parents may face regarding their children's well-being? 7. Can you describe some ways in which parents may directly influence their children's well-being?	

Theme	Questions	Summary
	8. How would you know if your child is not doing well/not OK? (Probe: what are the signs?) 9. What are the most important discussions between parents and children about? Please give examples	
Adverse life experiences	READ ALOUD 1. What are some of the common challenges that Trinidadian parents face within their households? (Probe: for different forms of marital distress and violence) (Probe: different types of health issues such as: mental and physical health complaints). (Probe: for children's behavioural issues) (Probe: natural disasters, community violence, crime etc.) 2. Can you tell me about types of traumatic events that people experience in your community? Which are the most common? 3. What are some of the ways these difficult or traumatic experiences can impact parents' well-being? What about their health? 4. How can a parent protect their own well-being when facing serious life challenges?	
Adverse events and parenting	READ ALOUD *We're now going to talk a bit about family dynamics and parenting.* 1. How might a parent's negative experience affect other members of their family? Please give me some examples. *(Probe:* • Interpersonal relationships within family • Personal/spousal mental health • Personal/spousal physical health • Children's mental health • Children's physical health) *2. Explore:* i. Let's imagine this scenario: a parent is feeling stressed and overwhelmed by life's challenges, and their child has been performing poorly in school.	

Theme	Questions	Summary
	a. How do you think a parent should approach a conversation with their child about school performance? What is the ideal outcome of the conversation? b. Can you think of any difficulties that may arise during this conversation? ii. Now, let's imagine that a husband/wife has lost their home due to a flood. The family is now living with relatives and finances are very tight. How might this hardship affect a parent's ability to provide emotional and physical support to their children? iii. Last, let's think about a family where a parent has suffered a serious illness and one of their children is complaining of constant stomach aches (but the doctors cannot find a problem with the child's stomach). a. What are some potential explanations behind the child's symptoms? 3. What are some of the ways that parents can tell if their parenting behaviours are benefiting their child? 4. What advice would you give to parents who have recently faced hardships? 5. If you could give one gift to each parent in Trinidad, what would that be? 6. What are some of things you are proud of in your own parenting experience?	

Appendix 7

Government of the Republic of Trinidad and Tobago

Ministry of Health

OFFICE OF THE CHIEF MEDICAL OFFICER

#63 Park Street, Port of Spain

He: 3/13/441 Vol. II

February 7th, 2022

Ms. Jihana Mottley
London School of Hygiene and Tropical Medicine
Keppel Street, WC1E7HT
United Kingdom
Faculty of Epidemiology and Population Health

Dear Ms. Mottley

Re: Investigating the effect of parental trauma on child well-being in Trinidad and Tobago

The Ministry of Health thanks you for the submission of the research proposal for consideration by the Ethics Committee. After reviewing of the documents submitted for the conduct of this study, we are pleased to inform you that approval has been granted for the conduct of your study.

It is our sincere hope that the results obtained during your study will guide policy and practice in Trinidad and Tobago. In this regard, we would be grateful if the Ministry of Health can be made aware of the results when the study is complete.

Respectfully

Dr. Roshan Parasram
Chief Medical Officer

London School of Hygiene & Tropical Medicine
Keppel Street, London WC1E 7HT
United Kingdom
Switchboard: +44 (0)20 7636 8636

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Observational / Interventions Research Ethics Committee

Miss Jihana Mottley
LSHTM

15 October 2021

Dear Miss Jihana Mottley

Study Title: Investigating the Effect of Parental Trauma on Child Well-being in Trinidad and Tobago

LSHTM Ethics Ref: 21880

Thank you for responding to the Observational Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Conditions of the favourable opinion

Approval is dependent on local ethical approval having been received, where relevant.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document Type	File Name	Date	Version
Protocol / Proposal	Mottley_PhD_Secondary Data Analysis_IDB Project Profile	25/06/2014	Final
Protocol / Proposal	Mottley_PhD_Secondary Data Analysis_IDB Study Safety Protocols	01/11/2016	Final
Protocol / Proposal	Mottley_PhD_Qualitative Study_FGD Topic Guide_13.08.21	13/08/2021	1
Protocol / Proposal	Mottley_PhD_Qualitative Study_IDI Topic Guide_13.0.21	13/08/2021	1
Investigator CV	Mottley_CV_2021	13/08/2021	1
Other	Screenshot 2021-08-13 at 18.43.26 (2)	13/08/2021	1
Advertisements	Mottley_PhD_Qualitative Study_Recruitment Flyer	13/08/2021	1
Advertisements	Mottley_PhD_Qualitative Study_Recruitment email to send to study partner networks	13/08/2021	1
Protocol / Proposal	Mottley_PhD_Qualitative Study Protocol-Investigating the Effect of Parental Trauma in T&T	18/08/2021	1
Information Sheet	Mottley_PhD_Qualitative Study_Informed Consent_Participant	07/10/2021	2
Information Sheet	Mottley_PhD_Qualitative Study_Information Sheet	07/10/2021	2
Information Sheet	Mottley_PhD_Secondary Data Analysis_IDB Questionnaire and Consent form	07/10/2021	1