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**Mediation of Intergenerational Trauma Transmission by Family Variables in Children of
Rwandan Survivors of the 1994 Genocide against the Tutsi**

A DISSERTATION

Submitted to the Faculty of
Montclair State University in partial fulfillment
of the requirements
for the degree of Doctor of Philosophy

by

Jessica L. Bonumwezi

Montclair State University

Montclair, NJ

May 2022

Dissertation Chair: Dr. Sally Grapin

MONTCLAIR STATE UNIVERSITY
THE GRADUATE SCHOOL
DISSERTATION APPROVAL

We hereby approve the Dissertation

**Mediation of Intergenerational Trauma Transmission by Family Variables
in Children of Rwandan Survivors of the 1994 Genocide against the Tutsi**
of

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Abstract

Twenty-eight years after the 1994 genocide against the Tutsi in Rwanda, children of survivors are being increasingly documented to show increased risk for adverse mental health outcomes. However, no studies in Rwanda have empirically explored psychosocial factors underlying this intergenerational transmission of trauma. We investigated family factors that could underlie this transmission in 285 adult Rwandan children of survivors (mean age = 23.31; 50.2% female) who completed an online survey. We found that 42.2% of participants had clinically significant secondary PTSD symptoms and 37.8% had clinically significant symptoms of depression or anxiety. For participants with survivor mothers ($n = 187$), we found that maternal trauma communication (specifically, nonverbal and guilt-inducing communication) mediated the effect of maternal trauma exposure and maternal PTSD on children's PTSD and that family communication styles mediated the effect of maternal PTSD on all child mental health outcomes. For participants with survivor fathers ($n = 170$), we found that paternal parenting styles (specifically, abusive and indifferent parenting) mediated the effect of paternal PTSD symptoms on children's anxiety and depression symptoms. These results reaffirm the importance of looking at mass trauma in a family context and suggest that intergenerational trauma interventions should focus on addressing these mediators.

Keywords: intergenerational trauma, genocide survivors, Rwanda, genocide against the Tutsi

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Dedication

This dissertation is dedicated to the loved ones who were so cruelly taken from us in the 1994 genocide against the Tutsi. It is dedicated to the memory of the relatives who were gone too soon and whom I never got to meet. *On vous pleure encore, 28 ans plus tard. Turabibuka.* I also dedicate this work to children of survivors who, like me, were born in the aftermath of the genocide. *Amashami yashibutse mw'ishavu mukanga mugashisha.* I hope that this work will help you make sense of the expectant silences, unanswered questions, and utter confusion that filled our childhoods. I dedicate this to our uprooted families and our discontinuous legacies, but also to our flourishing despite the odds.

I want to dedicate this work to my community, whose wounds and suffering was my inspiration to pursue psychology. My father saw it fit to name me “*Bonumwezi*,” which translates to “seeing light after the darkness.” My greatest dream is for my work to be this light and bring you healing. This is also dedicated to my parents, my sisters, and my brother. You were my earliest model of resilience and I strive to emulate your example every day. Lastly, I dedicate this to my nieces; to them being part of a better future untarnished by our past, but instead fortified by the lessons we learned from it. *Twibuke abacu twubaka ejo hazaza hacu n'ah'abazadukomokaho.*

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Chapter I: Introduction

The 1994 Genocide against the Tutsi and its Aftermath

Twenty-eight years ago, in 1994, one of the deadliest genocides in recent history was perpetrated against the Tutsi in Rwanda, claiming the lives of about 800,000 to 1,000,000 people in the span of three months (Dyregrov et al., 2000; Prunier, 2010; République du Rwanda, 2004). According to a census of the victims conducted by the Rwandan government, the majority (53.77%) of the victims killed in the genocide were children and youth under the age of 24, and victims were disproportionately male (République du Rwanda, 2004). The viciousness of this genocide is evidenced by the same census, which reported that most victims were killed using machetes and that a sizeable portion of victims were killed in churches. Additionally, most people were killed by neighbors and community members with whom they were acquainted (Dyregrov et al., 2000). It is also noteworthy that this genocide was the culminating point of a long period of violence that had started earlier in 1990 and had led to the murders of thousands and to the false imprisonment of an estimated 10,000 people of Tutsi ethnicity (Uvin, 1999). However, the country had also seen previous episodes of violence against the Tutsi dating as far back as 1959 (Uvin, 1999).

Over 300,000 people of Tutsi ethnicity survived the genocide according to a report by the Rwandan government (National Institute of Statistics of Rwanda, 2008). Of this number, 21% were children orphaned by the genocide and 10.3% were widowed. About 16% of survivors became disabled as a result of the genocide. In a study that examined the genocide experiences of Rwandan children a year after they survived the genocide, results revealed that 95.5% had witnessed violence, 90.3% had believed that they were going to die, 79.7% hid to protect themselves, 78.3% had experienced death in their immediate family, 35.6% witnessed family

members be killed, 16% had to hide under dead bodies, and 12.7% were physically injured (Dyregrov et al., 2000). As for adults, Pham et al. (2004) reported that 75.4% had to flee their homes, 73% had a close family member who was killed, and 70.9% lost property. Another study on genocide survivors found that their participants lost an average of seven immediate family members during the genocide (Gishoma et al., 2014). Following the genocide, an estimated 37% of households were headed by children (Ng et al., 2015), and thousands of children were living in child-headed households (Schaal & Elbert, 2006). A study of children heads of households found that 45.9% were unemployed and had no source of income; as many as 94.8% reported not having enough food (Ng et al., 2015). These staggering statistics illustrate the shocking experiences of genocide survivors in Rwanda and the enormous impact that the genocide had on their lives.

The Mental Health of Genocide Survivors in Rwanda

Because of the extreme violence that characterized the genocide against the Tutsi, it continues to have a considerable psychological toll for the survivors of this horrifically traumatic event. Although studies on this population have reported different prevalence rates of various mental health disorders, they have all indicated high levels of symptoms. Most epidemiological studies in Rwanda did not specifically focus on survivors, but nonetheless found high prevalence rates for different disorders in the general Rwandan population. For example, Pham et al. (2004) found a posttraumatic stress disorder (PTSD) prevalence rate of 24.8% in a community sample in Rwanda. Similarly, Munyandamutsa et al. (2012) found a PTSD prevalence rate of 26.1% and a depression prevalence rate of 22.7%. More recently, Rugema, Mogren, et al. (2015) found a PTSD prevalence of 13.6%, a generalized anxiety disorder (GAD) prevalence of 36.5%, a major depressive disorder (MDD) prevalence of 19.6%, and a suicidality prevalence of 16% in a

population study.

Studies that have specifically focused on the mental health of survivors consistently show that many of these individuals continue to be affected by mental health conditions. An epidemiological study of two Rwandan survivor youth samples conducted one year after the genocide found PTSD prevalence rates of 62% and 54%, respectively (Neugebauer et al., 2009). Subsequently, Schaal, Weierstall, and colleagues (2012) found a PTSD prevalence rate of 46% in a sample of survivors, and Blackie and colleagues (2015) found a PTSD prevalence rate of 58.9% and a depression prevalence rate of 69% in another sample. Studies focused on specific subgroups of survivors have also reported extremely high prevalence rates of various mental health disorders. For example, Jacob (2009) found a PTSD prevalence of 34.7% in general survivors, 41.4% in survivor widows, and 28.2% in survivor orphans. Hagengimana et al. (2003) found a prevalence rate of 35% for panic disorder in widows. In another study of survivors widowed or orphaned by the genocide, Schaal et al. (2011) found that 41% of widows and 29% of orphans suffered from PTSD, 48% of widows and 34% of orphans suffered from depression, 59% of widows and 42% of orphans suffered from anxiety, and 38% of widows and 39% of orphans reported suicidality. Schaal et al. (2010) also found that 8% met criteria for prolonged grief disorder. Schaal and Elbert (2006) found that 44% of children living in child-headed households or in orphanages had probable PTSD. In a study specifically focused on children who were heads of household, Ng and colleagues (2015) found that 82% had probable PTSD.

Musanabaganwa and colleagues (2020) conducted a meta-analysis of studies published between 2004 and 2018 that assessed the prevalence of PTSD in Rwanda. Their analyses yielded a pooled PTSD prevalence of 37% in genocide survivors and 15% in the general population. This meta-analysis also found that even though the prevalence rates of PTSD in genocide survivors

have declined over time, they still remain high. These findings were corroborated by a nationwide epidemiological study conducted by the Rwanda Biomedical Center in 2018. This study sampled 1,271 genocide survivors between the ages of 24 and 65 years old and revealed a depression prevalence of 35.0%, PTSD prevalence of 27.9%, and a panic disorder prevalence of 26.8% among these genocide survivors (Rwanda Biomedical Center, 2018). In contrast, in the same study, these three disorders were found to be present in 11.9%, 3.6%, and 8.1% of the general Rwandan population that was not directly affected by the genocide, respectively. This study also found considerable comorbidity in the genocide survivor sample, with 68.4% of those who met criteria for PTSD also meeting criteria for depression and 52.8% also meeting criteria for panic disorder. Lastly, this study found that 48.8% of male genocide survivors and 53.3% of female genocide survivors had some kind of mental disorder.

Furthermore, studies have documented frequent experiences of “*ihahamuka*,” or severe trauma reactions, among genocide survivors during the annual genocide commemoration period in April (Gishoma et al., 2014; Hagengimana et al., 2003; Hagengimana & Hinton, 2009; Kabakambira et al., 2018; Kayitshonga, 2012). One of the main symptoms associated with these acute crises, which affect thousands of survivors in Rwanda every year, is vividly re-experiencing the genocide trauma. These episodes often take on a collective nature as they easily spread to multiple individuals at the same commemoration event (Gishoma et al., 2014, Mohand et al., 2014).

Statement of the Problem

Studies conducted on survivors of other genocides and instances of mass violence have shown that the psychological consequences of these atrocities can extend beyond the generation of survivors and to their descendants. Compelling evidence has come from studies on children of

Holocaust survivors (e.g., Dashorst et al., 2019), children of survivors of the Khmer Rouge genocide in Cambodia (e.g., Field et al., 2011), and various groups of refugees (e.g., Sangalang & Vang, 2016). Despite this significant evidence of intergenerational trauma transmission in other contexts and consistent reports of adverse mental health outcomes in Rwandan survivors, the literature on intergenerational trauma in Rwanda is nascent. As a result, very little is known about the mental health of children of survivors. Additionally, no evidence-based interventions have been implemented to attempt to prevent or reverse the effects of intergenerational trauma in this community. Mental health professionals in Rwanda have expressed that the lack of services focused on intergenerational trauma is a “major gap” in the country’s mental health policy and have voiced the urgent need for family-focused interventions addressing the intergenerational transmission of trauma (Sabey, 2019, p. 74).

In order to fill this gap, this dissertation aimed to assess the intergenerational transmission of trauma in children of genocide survivors in Rwanda and to shed light on mechanisms that may underlie this transmission. Specifically, it emphasized psychosocial family-level factors that may mediate this transmission and could potentially be addressed through intervention. Therefore, a secondary goal of this dissertation was to offer research-based suggestions and recommendations for creating or adapting interventions to address the problem of intergenerational trauma in the Rwandan context.

Chapter II: Literature Review

Background on the Intergenerational Transmission of Trauma

The topic of intergenerational trauma was first investigated over 50 years ago following clinical observations of disproportionately high mental health concerns in children of Holocaust survivors (Chou & Buchanan, 2021; Kellermann, 2001). In the initial account that spurred this

area of study, Rakoff (1966) described children of survivors who, despite being born after the Holocaust, displayed far more severe psychiatric symptoms than their parents, almost as if they themselves had experienced and survived the Holocaust. Since this time, this phenomenon has been given multiple names across the literature, including transgenerational trauma, multi-generational trauma, cross-generational trauma, and secondary traumatization (Baranowsky et al., 1998; Danieli, 1998; Kellermann, 2001). The concept of intergenerational trauma has also since been expanded and applied to populations exposed to more distant forms of oppression and race-based historical trauma (Brave Heart & DeBruyn, 1998; Sotero, 2006).

Intergenerational trauma has now been documented in descendants of survivors exposed to a variety of atrocities, including “the troubles” in Northern Ireland (Downes et al., 2012; Fargas-Malet & Dillenburger, 2016), the Secret War of Laos (Lee & Clarke, 2013), the Korean war (Liem, 2007), Japanese American internment camps (Nagata & Cheng, 2003), the Israel-Palestine conflict (Atallah, 2017; Dalgaard et al., 2019), Indian Residential Schools (Bombay et al., 2014; Elias et al., 2012; Cromer et al., 2018), and more broadly, the historical trauma perpetrated against Indigenous communities in Canada and the U.S. (Ehlers et al., 2013; O’Neill et al., 2018). Intergenerational trauma has also been documented in families of refugees (Dalgaard & Montgomery, 2015; Flanagan et al., 2020; Sangalang & Vang, 2016), combat veterans (Dekel & Goldblatt, 2008), torture survivors (Daud et al., 2015), and former child soldiers (Song et al., 2013).

Intergenerational Transmission of Trauma in Children of Genocide Survivors

The strongest evidence for the transmission of trauma across generations comes from the extensive literature on children of Holocaust survivors (Baranowsky et al., 1998). This literature has provided robust evidence that children of Holocaust survivors experience difficulties related

to mood, identity development, and interpersonal functioning (Barocas & Barocas, 1979; Kellermann, 2001) and display a higher vulnerability to stress (Dashorst et al., 2019; Kellermann, 2001). This research has also documented other clinical phenomena in children of Holocaust survivors, such as over-identification with parents, self-esteem problems, anxiety and catastrophizing, fears of another Holocaust, hypervigilance, nightmares, guilt, anger, and feelings of loss or mourning (Kellermann, 2001; Yehuda & Lehrner, 2018).

In a systematic review of the mental consequences of the Holocaust for children of survivors, Payne and Berle (2021) found elevated levels of PTSD symptoms in children of survivors compared to controls. They also found that survivor offspring whose parents had PTSD had even higher rates of PTSD than survivor offspring with no parental PTSD. A systematic review by Dashorst and colleagues (2019) found further evidence of trauma transmission to the second generation and reported that several factors influenced children's risk of psychopathology, including the number of parents who were Holocaust survivors, the gender of the survivor parent, parents' mental health difficulties, parenting, and parent-child attachment.

Moreover, research in this area has demonstrated that adult children of Holocaust survivors exhibit a significantly higher prevalence of current and lifetime PTSD, depression, anxiety, eating disorders, and substance abuse disorders as compared to demographically matched Jewish individuals of the same age, despite not having experienced a higher number of or more severe traumatic events in their lifetime (Yehuda, Halligan, & Bierer, 2001; Yehuda, Halligan, & Grossman, 2001; Yehuda et al., 1998). A few studies have also found evidence of intergenerational trauma in children of survivors of the genocide perpetrated by the Khmer Rouge regime in Cambodia (Burchert et al., 2017; Field et al., 2011; Field et al., 2013; Lin & Suyemoto, 2016; Mak et al., 2021; Münyas, 2008). Similar results have been reported by the few

studies on children of survivors of other genocides, such as the Armenian genocide (Karenian et al., 2011) and the Holodomor in Ukraine (Bezo & Maggi, 2015).

Intergenerational Transmission of Trauma in Children of Survivors of the 1994 Genocide against the Tutsi in Rwanda

To my knowledge, only five studies have directly documented evidence of an intergenerational transmission of trauma symptoms in descendants of survivors of the 1994 genocide against the Tutsi in Rwanda. First, Perroud et al. (2014) investigated this transmission in a sample of 25 widows of Tutsi ethnicity (all of whom were pregnant during their exposure to the genocide) and their respective children 17 years after the genocide. They compared these mother-child dyads to dyads in which mothers were also Tutsi and pregnant during the genocide but lived abroad at the time and thus were not exposed to it. The authors found that the exposed mothers and their children displayed higher PTSD and depression symptoms than the non-exposed mothers and their children. Additionally, they found that PTSD and depression severity in mothers and their children were significantly correlated. In a secondary analysis of Perroud et al.'s (2014) data, Rudahindwa et al. (2019) expanded on these findings by examining PTSD symptom domains in the exposed mothers and their children. Results indicated that intergenerational trauma transmission was associated with different symptoms in genocide survivors and their children. Specifically, mothers displayed more reexperiencing symptoms (e.g., nightmares, intrusive thoughts, and flashbacks) than symptoms from other PTSD domains (i.e., avoidance, alterations in cognition and mood, and alterations in arousal and reactivity), whereas their children did not experience symptoms from any one PTSD domain more than the others.

In another study, Shrira et al. (2019) explored PTSD and complex PTSD in a sample of

60 genocide survivors and their offspring in Rwanda. They found that PTSD and complex PTSD symptoms in parents were positively correlated with secondary trauma symptoms in children. They also found that children whose parents suffered from PTSD or complex PTSD had significantly more secondary trauma symptoms than children without exposure to either form of parental PTSD. Similar results were reported by Rieder and Elbert (2013), who examined the relationship between trauma exposure and PTSD and depression symptoms in a sample of genocide survivors and formerly imprisoned genocide perpetrators as well as their respective children. Their findings showed that the survivors and their children reported a higher number of traumatic events and psychological symptoms than perpetrators and their children.

Mutuyimana and colleagues (2019) further investigated intergenerational trauma in Rwanda by comparing the prevalence rates of PTSD in children of three categories of mothers: (a) mothers who survived the genocide, (b) mothers who lived in Rwanda in 1994 but were not targeted, and (c) mothers who lived abroad in 1994 and who returned to the country after the genocide. They found that children of survivors had 66% higher odds of developing PTSD compared to children of mothers who were not targeted, and 73% higher odds compared to children of returnee mothers.

However, one study conducted in Rwanda failed to find evidence of intergenerational trauma transmission. Roth et al. (2014) surveyed 125 mothers who lived in Rwanda during the genocide, regardless of their ethnic group membership, and their children. The authors did not find a significant association between the number of traumatic events experienced by the mothers during the genocide and their children's anxiety, depression, or antisocial symptoms. Furthermore, they found no differences in symptoms between children whose mothers had PTSD and those whose mothers did not have PTSD. On the other hand, their findings indicated that

children's symptoms were significantly predicted by the children's experience of violence by their mothers. With the exception of this study, existing research on intergenerational trauma in Rwanda has consistently provided evidence of trauma transmission to children of genocide survivors, which echoes findings from the broader literature on survivors of other genocides.

Finally, intergenerational trauma has been investigated in a unique subgroup of children of genocide survivors: children born of rapes that occurred during the genocide. The exceptional challenges faced by the estimated 2,000 to 10,000 children born of genocidal rape in Rwanda (Bijleveld et al., 2009; Denov et al., 2020) have been described by several qualitative studies and include severe difficulties with identity, belonging, stigma, marginalization, abandonment, and strained mother-child relationships (Denov, 2015; Denov et al., 2020; Kagoyire & Richters, 2018; Kahn & Denov, 2019). Uwizeye and colleagues (2021) compared the mental and physical health of 31 children of survivors, 30 children of survivors conceived by genocidal rape, and 30 non-exposed individuals whose mothers were living abroad at the time of the genocide. All participants were the same age and were conceived during the genocide. Their results indicated that prenatal exposure to the genocide was associated with higher risk for PTSD, depression, and anxiety as well as worse physical functioning, pain intensity, and sleep disturbance. They also found that conception via genocidal rape was associated with higher symptoms of PTSD and depression than general prenatal exposure to the genocide or no exposure.

Mechanisms of Transmission

In addition to documenting the phenomenon of intergenerational trauma, researchers have examined the mechanisms linking parental trauma and PTSD to children's psychopathology. Although most of the recent, extant empirical research in this area has focused on biological mechanisms, it has also implicated several psychosocial factors related to the

family environment as potential facilitators of trauma transmission. Mechanisms of transmission are described in further detail below.

Biological Mechanisms

Intergenerational trauma transmission has been linked to several biological changes in trauma-affected parents that are subsequently passed on to their offspring (Bowers & Yehuda, 2016; Lehrner & Yehuda, 2018a). The general biological correlates of PTSD are thought to cause a dysregulation of the hypothalamic–pituitary–adrenal (HPA) axis, which plays a critical role in an individual’s stress response (Blacker et al., 2019; Speer et al., 2019). Most of the early studies on these biological mechanisms investigated cortisol levels as a potential correlate of this transmission. In one of these early studies, Yehuda and colleagues (2000) found that offspring of Holocaust survivors had lower cortisol levels than demographically similar individuals without parental Holocaust exposure. They also found that parental PTSD was associated with lower cortisol levels but that parental exposure to the Holocaust in the absence of PTSD was not. Yehuda et al. (2002) expanded on these findings by demonstrating that parental PTSD and children’s own PTSD were associated with lower cortisol levels, while children’s depression was associated with higher cortisol levels.

In addition to cortisol levels, some studies investigated other indicators of HPA axis functioning. Lehrner and colleagues (2014) investigated the effects of parental PTSD on glucocorticoid sensitivity in Holocaust survivor offspring. Their results indicated that maternal PTSD was associated with higher glucocorticoid sensitivity in offspring while paternal PTSD was associated with lower glucocorticoid sensitivity. Additionally, their results showed that maternal PTSD moderated the effects of paternal PTSD on cortisol suppression following ingestion of a drug called dexamethasone. Offspring with both paternal and maternal PTSD had

the highest degree of suppression, whereas offspring with paternal PTSD alone had the lowest.

However, epigenetic changes, which are alterations to the genome that affect gene expression without a change in the DNA sequence, are the most well studied of these biological markers (Blacker et al., 2019). Specifically, one of the most widely researched epigenetic changes is DNA methylation, which involves the addition of a methyl group (chemical compound) to genes that usually deactivates them (Zovkic & Sweatt, 2013). For instance, Perroud and colleagues (2014) examined the effects of the methylation status of the *NR3C1* gene, the gene that codes for the glucocorticoid receptor. In particular, this study measured the link between glucocorticoid receptor (GR) levels, cortisol levels, methylation status of the *NR3C1* gene, and depression and PTSD severity in dyads of Rwandan mothers exposed to the genocide and their children. They found that exposed mothers and their children had higher *NR3C1* methylation status, lower GR levels, and lower cortisol levels than the non-exposed mothers and children. Additionally, they found that *NR3C1* methylation status was correlated with cortisol levels and GR levels. Similar findings have been reported regarding *NR3C1* methylation status, *NR3C1* expression, and cortisol levels in children of Holocaust survivors (Yehuda et al., 2014). Furthermore, Rudahindwa et al. (2019) reanalyzed the data collected by Perroud et al. (2014) for evidence of a link between *NR3C1* methylation and three PTSD symptom domains: re-experiencing symptoms, avoidance symptoms, and numbing symptoms. The authors reported that re-experiencing symptoms had the strongest association with DNA methylation in the survivor mothers but had the lowest association with DNA methylation in the children of survivors, suggesting once again that intergenerational trauma transmission is associated with different symptoms in genocide survivors and their children. A recent study in Rwanda investigated the epigenetic changes associated with genocide exposure and

intergenerational trauma transmission in a sample of exposed mothers and their children (Musanabaganwa et al., 2021). The authors found higher levels of methylation in genocide exposed mothers and children compared to their unexposed counterparts in various regions of the genome.

Lastly, Yehuda and colleagues (2016) investigated another gene that may also be involved in this transmission: the *FKBP5* gene, which regulates the functioning of the glucocorticoid receptor. The study sample included mother-child dyads with and without exposure to the Holocaust. The authors found that Holocaust survivors, regardless of PTSD status, showed higher methylation of this gene than the control parents. On the other hand, offspring of survivors showed lower methylation than the comparison offspring. Additionally, parental exposure to the Holocaust was more important in predicting offspring methylation status than parental PTSD, and *FKBP5* methylation status was negatively correlated with cortisol levels.

Taken together, studies on biological correlates of intergenerational trauma transmission indicate that it is associated with lower cortisol levels, lower levels of the glucocorticoid receptor, changes in glucocorticoid sensitivity, higher methylation of the *NR3C1* gene, and lower methylation of the *FKBP5* gene. This research also suggests that both parental PTSD and parental trauma exposure are associated with some of these biological markers.

Psychosocial Mechanisms

In addition to epigenetic changes, psychosocial factors may also facilitate trauma transmission. When the field of intergenerational trauma emerged, it was mostly dominated by psychoanalytic and psychodynamic theories that emphasized unconscious processes, such as the unconscious absorption of parents' repressed emotions (e.g., grief) by their children

(Kellermann, 2001). Sociocultural and social learning theories, on the other hand, have posited that parents' child-rearing behaviors act as a potential mode of trauma transmission by communicating explicit and implicit messages of fear and distrust to children (Bowers & Yehuda, 2015; Kellermann, 2001). These problematic child-rearing behaviors have been noted to include rejecting parenting, overprotectiveness, harsh parenting, as well as parents' reduced ability to be role models for their children. Lastly, family systems models have also been used to suggest that dysfunction in family dynamics, especially regarding individuation and attachment (e.g., enmeshed family systems, parent-child role diffusion), and family communication serve to transmit trauma from parents to children (Bar-On et al., 1998; Kellermann, 2001).

Using in-depth qualitative interviews and focus groups with children born of genocidal rape in Rwanda and their mothers, Kahn and Denov (2022) tested a new theory for explaining pathways of intergenerational trauma transmission. This theory integrated a revised model of Bronfenbrenner's bioecological systems theory with existing theories of intergenerational trauma transmission, including psychodynamic, sociocultural, and family systems models. Findings from this study described several themes related to the parent-child relationship, including distant and ambivalent relationships, rejecting and abusive relationships, and open versus closed communication.

Based on the extant literature from survivors of the Holocaust and the Khmer Rouge genocide in Cambodia, as well as the limited evidence from children born of genocidal rape in Rwanda, this dissertation focused on three factors related to family functioning that have been implicated in trauma transmission from parents to offspring, namely: (a) parenting styles, (b) family communication styles, and (c) parental trauma communication. Relevant research on each of these factors is described below.

Parenting Styles. First, suboptimal parenting styles have been found to be related to the intergenerational transmission of trauma. In a qualitative study of six female offspring of Nazi concentration camp survivors, Rowland-Klein and Dunlop (1998) found indirect evidence for the role of parenting styles in intergenerational trauma. Specifically, participants described their parents as either having an overprotective parenting style or being emotionally unavailable and absent. More direct evidence for the mediating role of parenting styles comes from studies on survivors of the Khmer Rouge genocide. A study of 200 Cambodian high school students investigated the role of three parenting styles (overprotective parenting, rejecting parenting, and role-reversing parenting) in intergenerational trauma (Field et al., 2011). Overprotective parenting was defined as the degree to which parents controlled rather than gave autonomy to their children, and rejecting parenting was defined as a lack of warmth and affection by the parent. Role-reversing parenting was defined as a parenting style in which children were burdened with a disproportionate responsibility to care for the emotional welfare of their parents. This study found that role-reversing parenting from either parent as well as overprotective parenting from mothers mediated the impact of parental PTSD symptoms on their children's depression and anxiety symptoms. Expanding on these findings, Field et al. (2013) recruited pairs of Cambodian and Cambodian American mothers who had survived the Khmer Rouge regime and their adolescent children. They found again that role-reversing parenting styles significantly mediated the relationship between mothers' PTSD symptoms and children's anxiety and depression symptoms.

Jensen et al. (2021) investigated the relationship between parental trauma and parenting styles in a Rwandan sample that was not restricted to genocide survivors. In this longitudinal study, they examined the impact of cumulative lifetime trauma, rather than genocide exposure specifically, in a sample of caregivers of young children in rural parts of Rwanda. Although they

did not directly investigate symptoms in children, they found that parents' cumulative trauma exposure was associated with rejecting parenting indirectly via elevated internalizing and PTSD symptoms in the parent. These findings are similar to those from studies that have investigated the effects of lifetime trauma exposure on parenting styles in the general population (e.g., Schwerdtfeger et al., 2013).

Scharf (2007) investigated a closely related construct, parenting representations, as a potential mediator of intergenerational transmission of trauma in a sample of children and grandchildren of Holocaust survivors in Israel. Parenting representations included parents' views of their own parenting, of their child, and of their relationship with their child (Scharf et al., 2015). Results indicated that parenting representations mediated the relationship between the degree of Holocaust exposure in parents or grandparents and children's attachment style and self-perceptions. A few other studies have also investigated family factors that are closely related to parenting styles. For instance, Palgi et al. (2015) investigated family involvement, a measure of how much children feel a responsibility to care for the emotional health of their parents, in a sample of Holocaust survivor offspring. They found that children of Holocaust survivors reported higher family involvement than unexposed children, which was deemed to be related to intergenerational trauma. In a similar study, Letzter-Pouw et al. (2014) found that perceived parental burden (i.e., children's perception that their parents had transmitted their inner emotional burdens to them) was significantly associated with PTSD symptoms in a sample of children and grandchildren of Holocaust survivors.

Finally, one study investigated the effects of the broader concept of family functioning on the mental health of children of Holocaust survivors (Fossion et al., 2015). Family functioning was defined as a combination of family cohesion, the strength of a family's emotional bonds, and

adaptability (i.e., a family's ability to cope with challenges). The authors investigated this concept in a sample of Belgian families of former hidden children, children who were hidden in Europe during World War II, and their offspring. Family functioning was conceptualized as ranging from balanced or positive to extreme or negative. Results revealed that these families showed a higher prevalence of extreme family functioning than families in the general population; moreover, children from extreme families had higher levels of depression and anxiety.

Family Communication Styles. Research has also implicated family communication styles in trauma transmission (Sorscher & Cohen, 1997). Giladi and Bell (2012) investigated this factor in a sample of children and grandchildren of Holocaust survivors and demographically matched control groups. Their results showed that both groups of descendants of Holocaust survivors reported significantly more secondary traumatization and significantly poorer family communication than controls. They also found that open verbal family communication was associated with fewer secondary trauma symptoms. A qualitative study of 15 adult offspring of Holocaust survivors in Brazil found further support for the role of family communication styles in the transmission of trauma across generations (Braga et al., 2012). This study similarly found that open, loving family communication styles were associated with resilience, whereas communication styles characterized by silences, secrets, a lack of communication appeared to negatively affect these children of survivors.

In focus groups of refugee youth from different ethnic backgrounds, McCleary et al. (2020) further explored family communication patterns in children whose parents were exposed to trauma. The authors found that most of these refugee children reported that they did not verbally discuss their feelings with their parents frequently. They reported that family communication often took indirect and non-verbal forms and that their knowledge of their parents' trauma was also mostly

acquired indirectly and non-verbally. These participants reported that factors that affected family communication included parental availability, generational differences (e.g., stigma in parent generation regarding mental health), children's fears that their parents would not understand them (e.g., that they will dismiss their concerns as trivial), and children's worries about overburdening their parents.

Parental Trauma Communication. In addition to family communication styles in general, parents' specific approaches to communicating about their traumatic experiences with their children have long been theorized to have an effect on the transmission of trauma from parents to their offspring (Lichtman, 1984). Parental communication about genocide trauma has been found to often involve either excessive sharing or complete silence, both of which can lead to psychopathology in their offspring (Baranowsky et al., 1998). This silence, sometimes referred to as a "*conspiracy of silence*" (Danieli, 1998), is described in the literature on Holocaust survivors (Bar-On et al., 1998), refugee communities (Rousseau & Drapeau, 1998), and Cambodian genocide survivors (Lin & Suyemoto, 2016; Lin et al., 2008); it has also been reported in a few studies on genocide survivors in Rwanda (Eichelsheim et al., 2019; Rieder, 2014).

Wiseman et al. (2002) found that genocide survivor offspring who reported a lack of verbal communication about parental trauma experienced greater interpersonal distress than offspring of survivors who reported open verbal communication. Specifically, a pattern of communication that combined the nonverbal presence of the trauma in the family and a lack of open communication about the trauma, which the authors called "*knowing and not knowing*," was associated with adverse outcomes (Wiseman et al., 2002). Additionally, Shrira (2015) explored profiles of parental trauma communication in a sample of Holocaust survivor offspring using latent profile analysis. Results highlighted two profiles of parental communication about

the Holocaust, namely: intrusive communication and informative communication. Shrira (2015) further found that offspring who reported intrusive parental communication had significantly higher secondary trauma symptoms than offspring who reported informative parental communication. However, none of these studies have investigated parental trauma communication as a mediator of the effect of parental trauma exposure or PTSD on children's psychopathology.

In Rwanda specifically, a few studies have examined the concept of parental trauma communication. To my knowledge, the only study of parental trauma communication in a sample of genocide survivors was conducted by Kahn and Denov (2022). This qualitative study noted the positive effects of open communication about mothers' genocide experiences for children born of rape in Rwanda. Benefits of this communication included meaning-making, mutual understanding, and forgiveness.

A few other studies have explored this topic in Rwanda; notably, while they have not focused exclusively on genocide survivors, they have included sizeable genocide survivor samples. First, two qualitative studies investigated pathways of intergenerational trauma transmission in the same sample of 41 mother-child dyads with different degrees of exposure to the genocide (Eichelsheim et al., 2019; Berckmoes et al., 2017). These studies found that communication about the genocide, or lack thereof, was one of the ways that intergenerational trauma was transmitted and described two patterns of communication in their sample: verbal communication and silence. In another qualitative study, Rieder (2014) examined patterns of parental communication about the genocide in 129 parent-child dyads from families of genocide survivors and families of genocide perpetrators. Among the survivors, 43% reported that they never or rarely talked to their children about their experiences during the genocide, while 31%

reported that they did so often or very often. When children of these parents were asked about this, their accounts closely mirrored these numbers.

A recent study further explored Rwandan parents' cultural practices around communication about the genocide and how these practices related to child mental health outcomes (Williamson Sinalo et al., 2020). They found that children were exposed to information about the genocide both at home and in the community. At home, 28.1% of the parents interviewed reported never discussing their experiences during the genocide with their children or only doing so rarely or once in a while, whereas 32.5% reported doing so frequently. The mean age at which parents reported starting to share their genocide experiences with their children was 11.74 years. Although this study was not limited to genocide survivors, the authors found a significant positive correlation between parents' reported level of trauma disclosure and children's mental health problems. The authors suggested that this detrimental effect of disclosure may be due to discrepancies between what children are told in their families and what they learn from the community.

Additionally, the harmful effects of the absence of a "coherent narrative" of parental trauma have been underscored in research on children of other groups of trauma survivors (Downes et al., 2012; Kellermann, 2001). Kellerman (2001) suggested that in the absence of verbal communication about the parental trauma, children have difficulties reconciling emotions of fear, vulnerability, and loss transmitted by their parents with their lack of knowledge about the trauma, which can lead to confusion. Another recent study of parental trauma communication in Rwandan children of genocide survivors and perpetrators described exactly this confusion (Ingabire et al., 2022). Dalgaard and colleagues (2019) conceptualized this phenomenon as an incongruence between "stories told" and "stories lived," explaining that these discrepancies lead

to confusion in children and a fragmented understanding of their parents' experiences. Theorists have noted that this incongruence might explain the deleterious effects of parents' silence about their trauma, as attempts to hide their trauma can be punctuated by inadvertent or unplanned revelations as well as children's exposure to information through the community. In the absence of a coherent understanding of their parents' experiences, children may fill in the details themselves (Dalgaard et al., 2015; Downes et al., 2012; Lin & Suyemoto, 2016).

Limitations of the Extant Literature

The literature on the transmission of trauma in families of genocide survivors has several notable limitations. First, the literature on mechanisms of intergenerational trauma transmission has not always been clear as to whether it is parental genocide exposure or the parent's resulting psychological symptoms that lead to transmission. In the broader intergenerational trauma literature, both parents' exposure to genocide trauma and the presence of parental PTSD as a result of a genocide have been linked to mental health symptoms in offspring. Yehuda, Halligan, and Bierer (2001) directly compared the effects of parental trauma exposure and parental PTSD on the mental health of offspring and found that they were associated with different mental health outcomes. Specifically, parental PTSD was associated with PTSD in offspring, while parental trauma exposure was associated with depression in offspring. However, some studies have failed to find an effect of parental genocide exposure on offspring psychopathology. For instance, Field et al. (2011) found that parental trauma exposure was unrelated to parenting styles, but that parental trauma symptoms were significantly associated with children's symptoms via parenting styles. Overall, few studies have investigated both parental trauma exposure and PTSD symptoms, and none have tested parental PTSD symptoms as a mediator of the effect of parental trauma exposure on children's symptoms. Although mediation is assumed

in this literature, it has not been empirically tested (Lehrner & Yehuda, 2018b).

The majority of the literature on intergenerational trauma transmission has also been solely focused on mothers. Some of the few studies that have investigated the impact of paternal trauma exposure and trauma symptoms failed to find a direct effect (e.g., Yehuda et al., 2009) while others have (e.g., Vaage et al., 2011). Therefore, more research is needed to elucidate the differential contributions of maternal and paternal factors in the intergenerational transmission of trauma. This study addresses these limitations.

Furthermore, no studies of intergenerational trauma in children of genocide survivors have explored the contribution of all three potential family mediators (parenting styles, family communication styles, and parental trauma communication) concurrently. Therefore, their relative contributions remain largely unknown. A broader limitation is that no research has quantitatively investigated psychosocial predictors of intergenerational trauma transmission in children of Rwandan survivors of the 1994 genocide against the Tutsi. The only studies to investigate the mechanisms of trauma transmission in Rwanda have used qualitative methodologies or have been focused on epigenetic mechanisms. However, as recommended by Kellermann (2001) nearly 20 years ago and advocated by others since (e.g., Perroud et al., 2014), research on intergenerational trauma transmission should account for both the biological and psychological factors that affect this transmission as these factors are likely to both interact and have independent contributions.

Significance of the Current Study

The urgent need to investigate psychosocial mediators of intergenerational trauma transmission in Rwanda is further amplified by findings from the Holocaust survivor literature that have indicated that mothers who were exposed to the Holocaust as children were most likely

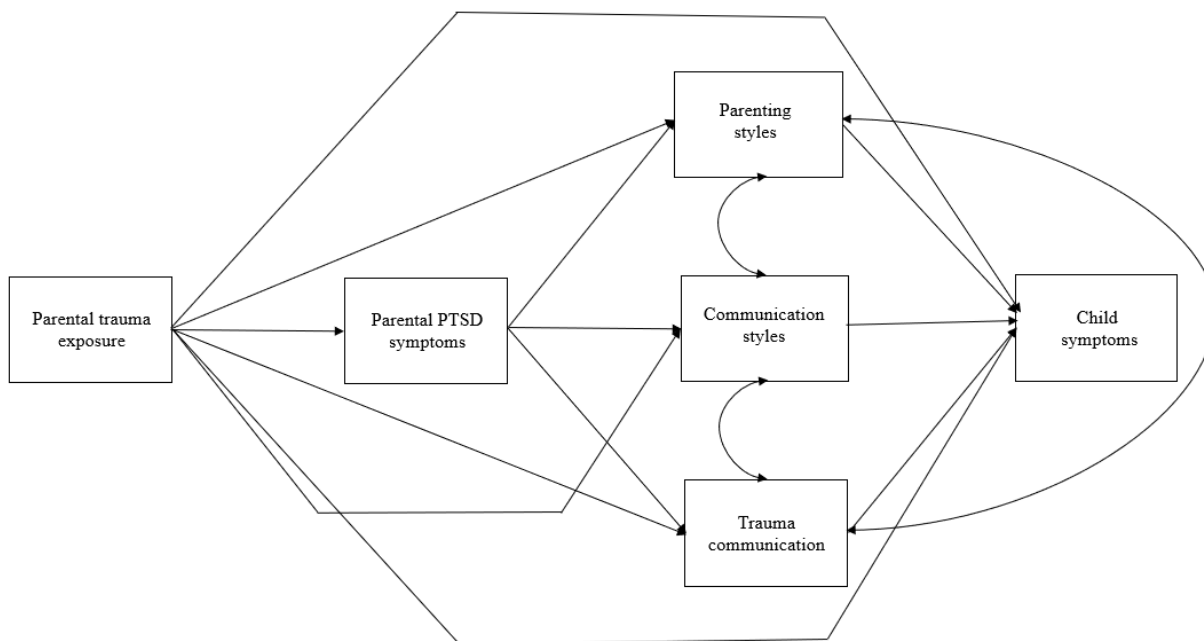
to transmit their trauma to their offspring (Yehuda & Lehrner, 2018). This suggests that the number of affected children of survivors in Rwanda may continue to increase as more survivors who were children at the time of their exposure begin to have children themselves. A census conducted by the Rwandan government 13 years after the genocide reported that 66% of genocide survivors were between the ages of 13 and 35 (National Institute of Statistics of Rwanda, 2008). This population is now between the ages of 28 and 50, which suggests that they are reaching maturity and potentially having children. Consequently, levels of intergenerational trauma in Rwanda may continue to rise.

Moreover, despite the significant need for mental health services in Rwanda, there is a severe shortage of mental health services (Mohand et al., 2014; Rugema, Krantz, et al., 2015). A qualitative study in Rwanda described the process of accessing mental health care in the country as a “constant struggle” (Rugema, Krantz, et al., 2015, p. 4). The country counts about two mental health professionals for every 100,000 people including psychologists, psychiatrists, social workers, mental health nurses, and more (World Health Organization, 2017a). This number is about 135 times smaller than in the US (World Health Organization, 2017b). Furthermore, the insufficient training of many mental health providers in Rwanda has been noted (Kalisa et al., 2019; Mohand et al., 2014). There is also significant stigma associated with seeking mental health care in Rwanda, as accessibility and acceptability of mental health services have been repeatedly cited as some of the greatest barriers to seeking help (Rugema, Krantz, et al., 2015; Umubyeyi et al., 2016). A population-based study of help-seeking attitudes and behaviors in Rwandan youth found that only 2% of individuals who met criteria for a mental health condition had received help from a mental health care professional (Umubyeyi et al., 2016). Similarly, a nationwide epidemiological study found that only 5.3% of the population

used mental health services (Rwanda Biomedical Center, 2018).

In addition to the rising trend in intergenerational trauma and a lack of access to mental health services, several other factors threaten to increase the public health risk that intergenerational trauma poses for Rwanda in the near future. An additional reason for concern is the size of Rwandan families, with each woman having on average about four children (National Institute of Statistics of Rwanda, 2015). This suggests that the population of children of survivors who could be impacted by intergenerational trauma is likely to be high. Lastly, research from the Holocaust survivor literature has indicated the potential for trauma transmission to reach grandchildren of survivors (Giladi & Bell, 2012; Scharf, 2007), suggesting that multiple generations could be impacted over time. Therefore, predictions of the public health impact of intergenerational trauma in Rwanda are dire. Given the extremely small number of mental health providers available in Rwanda and the country's mounting mental health needs, preventative services to stop this transmission from occurring and interventions to address its effects once it has occurred are critical for promoting the well-being of Rwandan youth and families.

In light of these considerations, the current study aimed to explore three potential psychosocial mediators of intergenerational trauma transmission in adult children of survivors of the 1994 genocide against the Tutsi in Rwanda. These mediators were parenting styles, family communication styles, and parental communication about the genocide. We hypothesized that these variables would mediate the relationship between parental genocide exposure and children's psychopathology as well as the relationship between parental PTSD symptoms and children's psychopathology. Additionally, we hypothesized that parental PTSD symptoms would mediate the relationship between parental trauma exposure and these three family functioning variables. Figure 1 displays the hypothesized path model.

Figure 1*Hypothesized Path Model*

Chapter III: Methodology

Participants and Procedures

We recruited Rwandan citizens who were at least 18 years old and identified as children of survivors of the 1994 genocide against the Tutsi. Individuals living in Rwanda as well as those living abroad were eligible to participate. Participants were recruited through Groupe des Anciens Etudiants Rescapés du Génocide (GAERG), a nationwide Rwandan youth organization of college graduates who identify as genocide survivors or descendants of survivors. The mission of this organization is to advocate for and empower survivor youth, as well as to provide genocide prevention education. GAERG members, many of whom were orphaned in the genocide, are organized in families each with a member who acts as the head of the family. GAERG leadership sent information about this study to a sample of heads of families and asked them to disseminate it to the members of their respective families. During the sampling of the

families to contact, efforts were made to sample members from all the provinces in Rwanda as well the city of Kigali, and to capture a range of socioeconomic backgrounds. To get a broader age range and capture younger offspring of survivors who were still in school, GAERG leadership used a similar recruitment strategy with members of their school-based sister organization, Association des Étudiants et Elèves Rescapés du Génocide (AERG). A total of 315 individuals opened the survey. Among these, 10 were not allowed to proceed with the survey because they indicated that they did not identify as children of genocide survivors. Out of the 305 children of survivors, 20 were not allowed to continue the survey because our set maximum sample size, due to funding restrictions, had been reached. Therefore, a total of 285 offspring of survivors completed our survey.

These participants received the equivalent in Rwandan Francs of \$10 as compensation through the Mobile Money application, a service that is free to enroll and widely used in Rwanda. This study was conducted through a Qualtrics online survey that was developed in collaboration with GAERG. The survey took approximately 30 minutes to complete, and all study materials were provided in Kinyarwanda, the local language. Study materials were translated and back translated by a GAERG collaborator and this author. The procedures in this study were approved by the Yale University Institutional Review Board, the Montclair State University Institutional Review Board, the Rwanda National Ethics Committee, the Rwandan National Council for Science and Technology, and the Rwandan National Commission for the Fight Against Genocide (see Appendix 4).

Measures

Parental Trauma Exposure

Parental exposure to the genocide was assessed using a series of 12 Yes/No single item

questions developed for this study. These items were derived from prior research on the 1994 genocide against the Tutsi (e.g., Gishoma et al., 2014; Schaal & Elbert, 2006) and were designed to capture common experiences during the genocide. Participants were asked to indicate whether each of their parents or primary caretakers had experienced a series of potentially traumatic events during the genocide. In this study, primary caretakers were defined as the people who played the greatest part in the day-to-day care and rearing of the participant as a child. Examples of the potentially traumatic events included on this list were being “hunted by killers,” being “tortured or wounded,” “witnessing the death, injury, or rape of a loved one,” or “losing a family member.” A count of affirmative responses was then calculated.

Parental PTSD Symptoms

The Parental PTSD Questionnaire (PPQ; Yehuda et al., 2000) was used to measure parental PTSD symptoms. Participants completed separate questionnaires for their maternal and paternal primary caregivers. Participants were asked to rate from 0 (*not at all*) to 3 (*very often*) how much each of their parents or primary caretakers experienced different trauma-related symptoms. This scale is based on the 17 DSM-IV symptoms of PTSD and was developed to assess parental PTSD symptoms in studies of children of Holocaust survivors. It has shown evidence of convergent validity for PTSD diagnosis (Yehuda et al., 2007) and was found to lead to similar results as directly interviewing the parents using the Clinician Administered PTSD Scale (CAPS; Yehuda et al., 2000; Yehuda et al., 2006). In the current study, Cronbach’s alpha of internal consistency for this measure was .91 for female caregivers and .94 for male caregivers.

Parenting styles

The Measure of Parenting Style (MOPS; Parker et al., 1997) was used to assess the

parenting styles of both of the participant's parents or primary caregivers. This 15-item questionnaire was administered separately for maternal and paternal caregivers and measures three parenting styles: indifference, abuse, and overcontrol. The MOPS is a retrospective measure of parenting styles and asks participants to rate how true different statements about their parents' behavior during their first 16 years are from 0 (*not true at all*) to 3 (*extremely true*) (e.g., "uncaring of me," "physically violent or abusive of me," "overprotective of me"). The MOPS has demonstrated good construct validity and good convergent validity with the Parental Bonding Instrument (PBI), a commonly used measure of parenting styles with good psychometric properties (Parker et al., 1979; Parker et al., 1997). Translated versions of the MOPS have demonstrated similar psychometric properties (e.g., Picardi et al., 2013). Cronbach's alpha for this measure was .86 for both male and female caregivers.

Family Communication Styles

Family communication styles were evaluated using the Family Communication Scale (FCS; Olson & Barnes, 2010). This 10-item scale is a section of the Family Adaptability and Cohesion Evaluation Scale (FACES-IV; Olson, 2011). Participants are asked to indicate on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*) their agreement with 10 statements about their family communication patterns (e.g., "family members can calmly discuss problems with each other," "family members express their true feelings to each other"). This scale has demonstrated excellent validity and reliability (Olson, 2011). Cronbach's alpha for this measure was .91.

Parental Trauma Communication

Parents' communication about their genocide trauma was assessed using a modified version of the Communication of Holocaust Experience Questionnaire (Lichtman, 1983). On this

scale, participants rated different statements regarding their parents' or caregivers' communication about the genocide. The questions on this scale include five questions about general communication about the genocide in the home (e.g., "at what age do you recall having first heard about the *genocide* experiences of your mother and/or father") as well as seven questions about each caregiver's approach to communicating about the genocide (e.g., "how often did you and your mother discuss her experiences during the *genocide*?"). Each item is rated on a five-point Likert-type scale, with response options depending on the nature of the question (e.g., frequency items are rated from "*practically/actually never*" to "*usually*"). This scale includes subscales measuring five types of trauma communication: nonverbal communication (i.e., a lack of verbal communication), frequent and willing communication (i.e., open communication), guilt-inducing communication (i.e., communication that puts undue blame on the children for their parents' experiences), indirect communication (i.e., children overhearing conversations about the trauma between adults), and affective communication (i.e., communication accompanied by emotional expressions). Although the psychometric properties of this measure have not been explored, it has been widely used in research on Holocaust survivor offspring (e.g., Giladi & Bell, 2012; Sorscher & Cohen, 1997; Wiseman et al., 2002) and has been used at least once with genocide survivors in Rwanda (Rieder, 2014). In previous research, both the total score (e.g., Field & Chhim, 2008; Rieder, 2014) and different subscale or dimension scores (e.g., Shrira, 2015; Wiseman et al., 2002) have been used. Therefore, in this study, both a total score and subscale scores were computed. Cronbach's alpha for this measure was .76 for both male and female caregivers.

Offspring PTSD Symptoms

Participants' PTSD symptoms were measured using the 18-item Modified Secondary

Trauma Scale (STS; Motta et al., 2001). This scale asks participants to report on their symptoms in regard to a traumatic event experienced by a loved one. In this study, participants were specifically instructed to answer based on their parents' or caregivers' genocide experience. The STS is based on the DSM-IV PTSD criteria and the items mirror PTSD symptoms (e.g., "I am losing sleep over thoughts of their experiences" and "I force myself to avoid certain thoughts or feelings that remind me of their difficulties"). Participants rate the frequency of their symptoms on a scale from 1 (*rarely/never*) to 5 (*very often*). The recommended cutoff for probable PTSD is a score of 38 (Bride, 2007). This scale has demonstrated good internal consistency, convergent validity, and discriminant validity (Motta et al., 2001). Cronbach's alpha for this measure in the current study was .89.

Offspring Major Depressive Disorder and Generalized Anxiety Disorder Symptoms

MD and GAD symptoms were assessed using the Hopkins Symptom Checklist-25 (HSCL-25; Derogatis et al., 1974), a measure that is extensively used in international contexts that has been previously used with Rwandan samples (e.g., Heim & Schaal, 2014; Roth et al., 2014; Schaal, Dusingizemungu, et al., 2012). This scale includes 15 items that assess depression symptoms and 10 items that assess anxiety symptoms. Participants are asked to rate how bothersome each symptom has been for them during the past month from 1 (*not at all*) to 4 (*extremely*). In previous studies, a mean score per item higher than 1.75 has been used as the cutoff for clinically significant symptoms of depression or anxiety (Hinton et al., 1994). The measure has demonstrated good psychometric properties (Derogatis et al., 1974; Glaesmer et al., 2014). Cronbach's alpha for this measure in the current study was .94.

Covariates

Participants' age, gender, and socioeconomic status were added to the models as predictors of the offspring symptoms. Participants were asked to report their age in years. At the

suggestion of GAERG, gender was assessed as a categorical variable with three levels: “male,” “female,” and “another gender.” Lastly, socioeconomic status was assessed using a Rwandan national category system known as “*ibyiciro by’ubudehe*” that has four levels and is used locally in the allocation of financial assistance and social services (Rutikanga, 2019). The first and lowest category includes individuals who cannot independently meet their basic necessities, do not own a home, and cannot afford to rent adequate housing (Rutikanga, 2019). People in the second category are those who can meet their basic necessities with difficulties, own a home or can afford to rent adequate housing, but hold employment that does not offer a consistent livelihood (Rutikanga, 2019). Finally, those in the third and fourth categories can reasonably meet all their basic necessities and differ in the amount of assets they own and the degree to which they can afford to make choices about their lifestyle (Rutikanga, 2019). Participants were asked to select the category that they had been assigned to by the government.

Data analysis

Before running the mediation analyses, preliminary analyses were run using SPSS 25.0 (IBM Corp., 2017). These analyses included descriptive statistics (means and standard deviations for continuous variables and frequencies for categorical variables) and a correlation analysis between all the variables. Additionally, a missing data analysis assessed for the frequency of missingness for each variable as well as the percentage of missingness for all variables in the models. Missing data on endogenous variables was handled using full-information maximum likelihood (FIML) in Mplus 8 (Muthén & Muthén, 1998–2018); participants with missing data on the exogenous variable (i.e., parental trauma exposure) were dropped from the analyses. Bonferroni-corrected independent-samples *t* tests and chi-square (χ^2) tests were then run to identify potential differences between the analytic sample and the participants dropped from the analyses.

Following these analyses, the hypothesized path analytic model (Figure 1) was tested in Mplus 8 (Muthén & Muthén, 1998–2018) for each offspring mental health outcome (PTSD, MD, and GAD symptoms). The analyses were run separately for participants whose mothers were survivors and participants whose fathers were survivors in order to compare the effects of mother survivor status vs. father survivor status. In these analyses, the Root Mean Square Error of Approximation (RMSEA) and its 90% confidence interval (CI), and the Comparative Fit Index (CFI) were used to evaluate goodness of fit. The criteria described by Hu & Bentler (1999) were used to determine acceptable model fit (i.e., RMSEA and its 90% CI upper limit close to or below 0.06 and CFI close to or above 0.95). If we found poor model fit, we planned to review modification indices and run models with additional paths that both substantively improved model fit and were theoretically plausible. In addition to the model fit statistics, the estimates, standard errors, and significance levels of all hypothesized paths were also assessed, and the significance of indirect effects was computed. 5000 bootstrapped samples were used to test the indirect effects. Each indirect path was computed as the product of the direct paths comprising it. For example, the indirect path from A to C via B was computed as the product of the direct path from A to B and the direct path from B to C. The indirect effects that were tested were the paths from parental trauma to children's mental health outcomes via parental PTSD; the paths from parental trauma to children's mental health outcomes via parental PTSD and then via each of the three mediators (parenting styles, communication styles, trauma communication); and lastly, the paths from parental PTSD to children's mental health outcomes via each of the three mediators. The total effect, direct effect, and total indirect effect for each path were calculated.

Chapter IV: Results

Preliminary Analyses

Of the 285 participants who completed the survey, those who did not provide complete data on at least 90% of all variables ($n = 34$) were dropped from all further analyses. We conducted Bonferroni-corrected independent-samples t tests and chi-square tests to compare these participants to the participants who were retained in our sample and found a few significant differences. These two groups of participants differed on maternal trauma exposure ($t(283) = -4.51, p < .001$), paternal trauma exposure ($t(283) = -5.17, p < .001$), paternal parenting styles ($t(218) = 2.21, p = .029$), maternal indifferent parenting ($t(246) = 2.08, p = .039$), paternal indifferent parenting ($t(220) = 2.47, p = .014$), maternal indirect trauma communication ($t(259) = -2.37, p = .018$), and paternal indirect trauma communication ($t(258) = -2.01, p = .046$). The 34 excluded participants reported lower maternal and paternal trauma exposure severity, more negative paternal parenting, more maternal and paternal indifferent parenting, and less maternal and paternal indirect trauma communication. For the participants in our analytic sample, missing values for all variables in our analyses ranged between 0% and 8%.

After excluding these participants, 251 participants remained in our sample. The sample ranged in age between 18 and 32 ($M = 23.31, SD = 2.40$), with only 12 participants being above 27 years old. The sample was 50.2% female. The most commonly reported socioeconomic category was the third category which was reported by 53.4% of participants, but 45.7% of our sample belonged to the lowest 2 categories. Less than 1% belonged to the highest category. Our participants reported that their mothers experienced an average of 4.63 traumatic events during the genocide ($SD = 3.14$) while their fathers experienced an average of 4.83 ($SD = 3.23$). In our sample, 145 participants reported that both of their parents were exposed to the genocide, while 106 reported only having one survivor parent. Detailed descriptive statistics for the sample are reported in Table 1.

Table 1*Descriptive Statistics for All Variables in the Analyses (N = 251)*

	<i>M (SD) or % (n)</i>
<i>Demographics</i>	
Age	23.31 (2.40)
Gender	
Male	49.4% (122)
Female	50.2% (124)
Another gender	0.4% (1)
Socioeconomic group	
First (lowest) category	4.5% (11)
Second category	41.3% (102)
Third category	53.4% (132)
Fourth (highest) category	0.8% (2)
<i>Predictors</i>	
Maternal trauma score	4.63 (3.14)
Paternal trauma score	4.83 (3.23)
Maternal PTSD score	34.89 (9.42)
Paternal PTSD score	34.92 (11.09)
<i>Mediators</i>	
Family communication styles score	37.55 (7.60)
Maternal parenting styles score	24.38 (6.67)
Paternal parenting styles score	23.97 (7.58)
Maternal trauma communication score	34.62 (6.79)
Paternal trauma communication score	33.56 (7.04)
<i>Child mental health outcomes</i>	
Posttraumatic stress symptoms	39.19 (12.61)

Major depression symptoms	26.97 (7.94)
Generalized anxiety symptoms	17.28 (5.59)

In our correlational analyses, maternal trauma exposure was significantly associated with maternal trauma communication and offspring PTSD. Similarly, paternal trauma exposure was associated with paternal trauma communication and offspring PTSD. However, neither was associated with parental PTSD, family communication styles, parenting styles, or offspring depression and anxiety. On the other hand, maternal PTSD was significantly associated with family communication styles, maternal parenting styles, maternal trauma communication, and offspring PTSD, depression, and anxiety. Likewise, paternal PTSD was also associated with family communication styles, paternal parenting styles, paternal trauma communication, and offspring PTSD, depression, and anxiety. There were also significant correlations between maternal and paternal trauma exposure, PTSD symptoms, parenting styles, and trauma communication styles. The bivariate correlations between all the variables in our analyses are displayed in Table 2.

Table 2

Correlation Matrix for All Variables Included in the Analyses (N = 251)

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	--												
2. Maternal trauma	-.15*	--											
3. Paternal trauma	-.13*	.82***	--										
4. Family communication	-.18**	-.02	-.02	--									
5. Maternal parenting	.07	-.05	.01	-.35***	--								
6. Paternal parenting	.13	-.05	-.05	-.33***	.68***	--							
7. Maternal trauma communication	.02	.33***	.28***	.06	.10	.05	--						
8. Paternal trauma communication	-.01	.24***	.28***	.12	.09	.04	.78***	--					
9. Maternal PTSD	.15*	.08	.09	-.19**	.28***	.29***	.41***	.35***	--				
10. Paternal PTSD	.10	.07	.09	-.22**	.27***	.35***	.34***	.32***	.78***	--			
11. Child PTSD	.12	.17**	.20**	-.25***	.26***	.31***	.33***	.29***	.63***	.61***	--		
12. Child anxiety	.01	.08	.11	-.27***	.25***	.37***	.23***	.23**	.57***	.58***	.66***	--	
10. Child depression	.09	.10	.11	-.34***	.30***	.38***	.19**	.18**	.52***	.51***	.64***	.84***	--

* $p < .05$, ** $p < .01$, *** $p < .001$

Descriptive analyses were also performed to determine the proportion of the sample that displayed clinically significant symptoms. Results showed that 42.2% of the 251 participants reported secondary PTSD symptoms in relation to their parents' genocide-related trauma that met the cutoff for probable PTSD whereas 37.8% reported clinically significant symptoms of depression or anxiety. Lastly, participants with missing data on the exogenous variable (i.e., parental trauma exposure) were dropped from the main analyses. In our sample, 187 participants had complete data on maternal trauma exposure and were included in the analyses for survivor mothers while 170 participants had complete data on paternal trauma exposure and were included in the analyses for survivor fathers.

Main Analyses for Mothers

Posttraumatic Stress Disorder

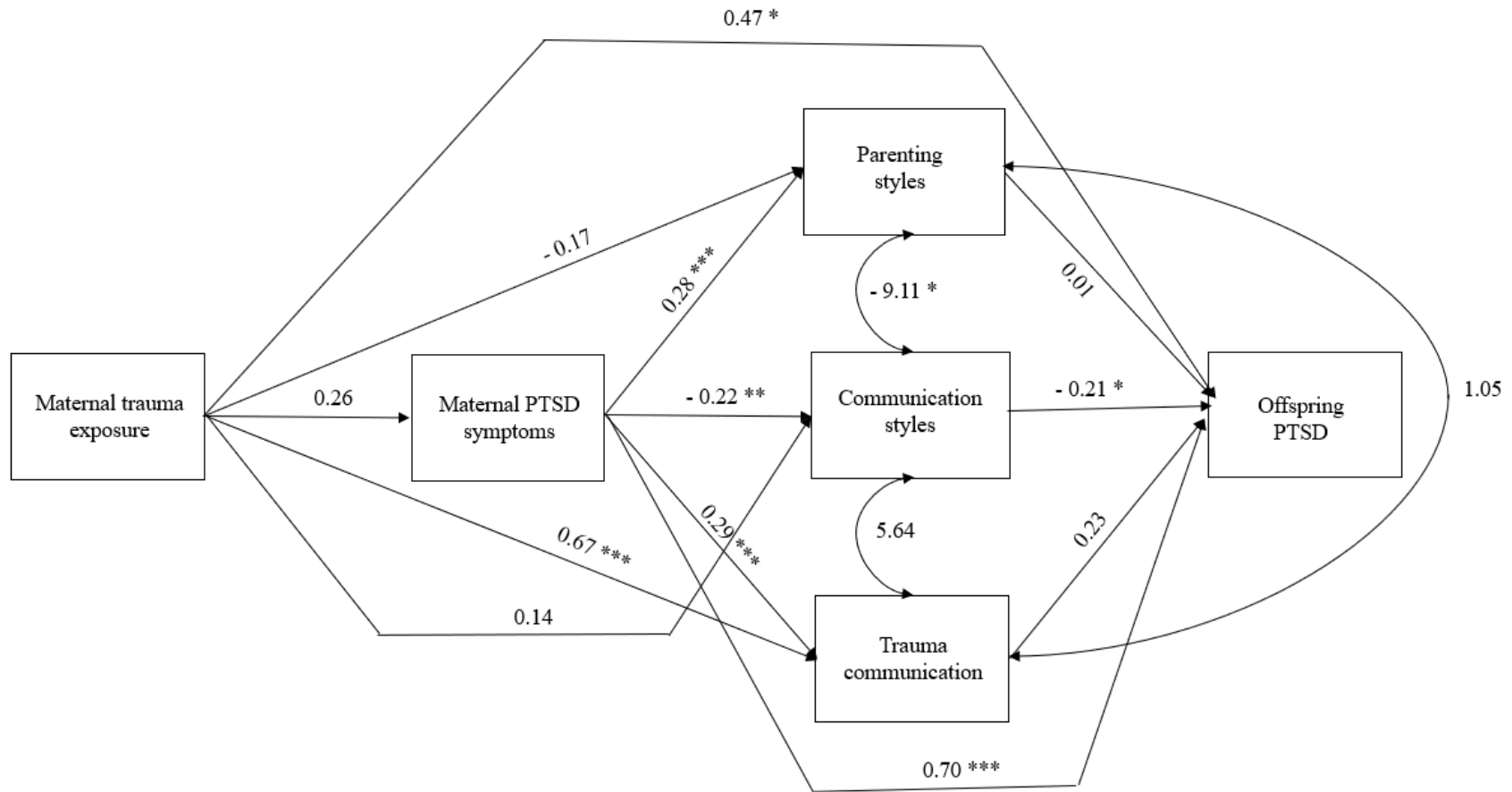
The model predicting PTSD symptoms in children with survivor mothers ($n = 187$) had good fit with the data, $\chi^2(12) = 17.30$ ($p = .139$), RMSEA = 0.05 (90% CI < 0.00 - 0.10), CFI = 0.97. The results of this model are displayed in Figure 2. For participants with survivor mothers, we found that maternal trauma exposure ($B = 0.47$, $SE = 0.22$, $p = .034$) and maternal PTSD ($B = 0.70$, $SE = 0.10$, $p < .001$) were significantly and positively associated with offspring PTSD. Among the mediators, only family communication styles were directly associated with offspring PTSD ($B = -0.21$, $SE = 0.10$, $p = .034$), although the path from maternal trauma communication to offspring PTSD approached significance ($B = 0.23$, $SE = 0.12$, $p = .062$). We also found that maternal trauma exposure was associated with maternal trauma communication ($B = 0.67$, $SE = 0.14$, $p < .001$), but was not associated with the other two mediators, while maternal PTSD was significantly associated with all three: maternal trauma communication ($B = 0.28$, $SE = 0.05$, $p < .001$), maternal parenting styles ($B = 0.28$, $SE = 0.06$, $p < .001$), and family communication

styles ($B = -0.22$, $SE = 0.07$, $p = .001$). The covariance between maternal parenting styles and family communication styles was also significant ($B = -9.11$, $SE = 4.31$, $p = .035$). All the other direct paths and covariances, including the path from maternal trauma exposure to maternal PTSD, were not statistically significant.

As for indirect effects, there were three significant indirect paths in this model. The first significant indirect path was the path from maternal PTSD to offspring PTSD through family communication styles ($B = 0.05$, $SE = 0.03$, $95\% CI = 0.01 - 0.11$). There were also two significant indirect paths through maternal trauma communication: the path from maternal trauma exposure to offspring PTSD through maternal trauma communication ($B = 0.15$, $SE = 0.09$, $95\% CI = 0.01 - 0.35$) and the path from maternal PTSD to offspring PTSD through maternal trauma communication ($B = 0.07$, $SE = 0.03$, $95\% CI = 0.01 - 0.14$). These indirect effects were statistically significant as their 95% confidence interval do not include 0. Results of all the indirect effects in the main analyses are displayed in Table 3.

Figure 2

Results of Mediation Analysis Predicting Posttraumatic Stress Symptoms in Children of Survivor Mothers (n = 187)



Note. Unstandardized estimates are listed. Analysis controlled for the effects of age, gender, and socioeconomic status on offspring posttraumatic stress symptoms.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 3

Results for All the Indirect Paths in the Mediation Analyses for Survivor Mothers (n = 187) and for Survivor Fathers (n = 170)

	Posttraumatic stress symptoms		Major depression symptoms		Generalized anxiety symptoms	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
<i>Analyses for mothers</i>						
Maternal trauma → Parenting styles	> - 0.01	0.03	- 0.02	0.03	- 0.01	0.01
Maternal trauma → Communication styles	- 0.03	0.05	- 0.04	0.05	- 0.02	0.03
Maternal trauma → Trauma communication	0.15*	0.09	0.04	0.06	0.04	0.04
Maternal PTSD → Parenting styles	< 0.01	0.03	0.04	0.03	0.01	0.02
Maternal PTSD → Communication styles	0.05*	0.03	0.05*	0.02	0.03*	0.02
Maternal PTSD → Trauma communication	0.07*	0.03	0.02	0.02	0.02	0.02
Maternal trauma → Maternal PTSD → Parenting styles	< 0.01	0.01	0.01	0.01	< 0.01	0.01
Maternal trauma → Maternal PTSD → Communication styles	0.01	0.02	0.01	0.02	0.01	0.01
Maternal trauma → Maternal PTSD → Trauma communication	0.02	0.02	0.01	0.01	< 0.01	0.01
<i>Analyses for fathers</i>						
Paternal trauma → Parenting styles	- 0.02	0.04	- 0.02	0.03	- 0.02	0.03
Paternal trauma → Communication styles	< 0.01	0.04	- 0.03	0.05	< 0.01	0.02
Paternal trauma → Trauma communication	0.09	0.07	< 0.01	0.05	0.03	0.03
Paternal PTSD → Parenting styles	0.03	0.03	0.03	0.02	0.03*	0.02
Paternal PTSD → Communication styles	> - 0.01	0.03	0.03	0.02	> - 0.01	0.01

MEDIATION OF INTERGENERATIONAL TRAUMA

Paternal PTSD → Trauma communication	0.03	0.02	< 0.01	0.02	0.01	0.01
Paternal trauma → Paternal PTSD → Parenting styles	0.01	0.02	0.01	0.02	0.01	0.02
Paternal trauma → Paternal PTSD → Communication styles	< 0.01	0.01	0.01	0.02	> - 0.01	0.01
Paternal trauma → Paternal PTSD → Trauma communication	0.01	0.01	< 0.01	0.01	< 0.01	0.01

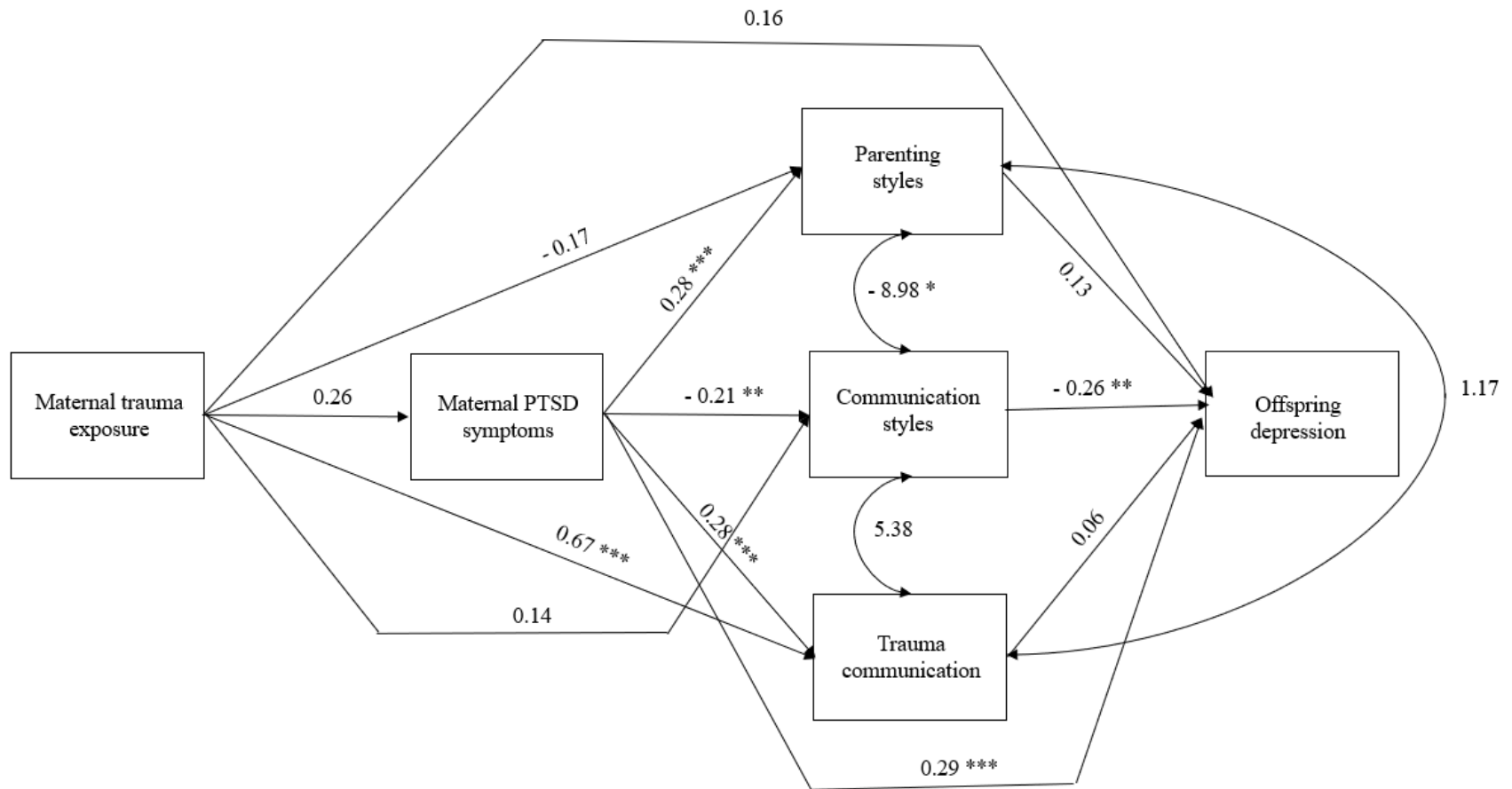
* Indirect effects whose 95% confidence interval do not include 0

Major Depressive Disorder

The model predicting MD symptoms in children with survivor mothers also had good fit with the data, $\chi^2(12) = 17.29$ ($p = .139$), RMSEA = 0.05 (90% CI < 0.00 - 0.10), CFI = 0.97 (Figure 3). We found that maternal PTSD was directly associated with offspring depression ($B = 0.29$, $SE = 0.08$, $p < .001$) but maternal trauma exposure was not. Family communication styles were also directly associated with offspring depression ($B = -0.26$, $SE = 0.08$, $p = .001$), as was gender ($B = 2.17$, $SE = 0.99$, $p = .028$). As for the previous model, the only mediator directly associated with maternal trauma exposure was maternal trauma communication ($B = 0.67$, $SE = 0.14$, $p < .001$), whereas maternal PTSD was significantly associated with maternal trauma communication ($B = 0.28$, $SE = 0.05$, $p < .001$), maternal parenting styles ($B = 0.28$, $SE = 0.06$, $p < .001$), and family communication styles ($B = -0.21$, $SE = 0.07$, $p = .002$). Once again, maternal parenting styles and family communication styles were also significantly associated with each other ($B = -8.98$, $SE = 4.33$, $p = .038$), whereas all other direct paths were non-significant. The only significant indirect path in this model was the path from maternal PTSD to offspring depression through family communication styles ($B = 0.05$, $SE = 0.02$, 95% CI = 0.02 - 0.11).

Figure 3

Results of Mediation Analysis Predicting Major Depression Symptoms in Children of Survivor Mothers (n = 187)



Note. Unstandardized estimates are listed. Analysis controlled for the effects of age, gender, and socioeconomic status on offspring major depression symptoms.

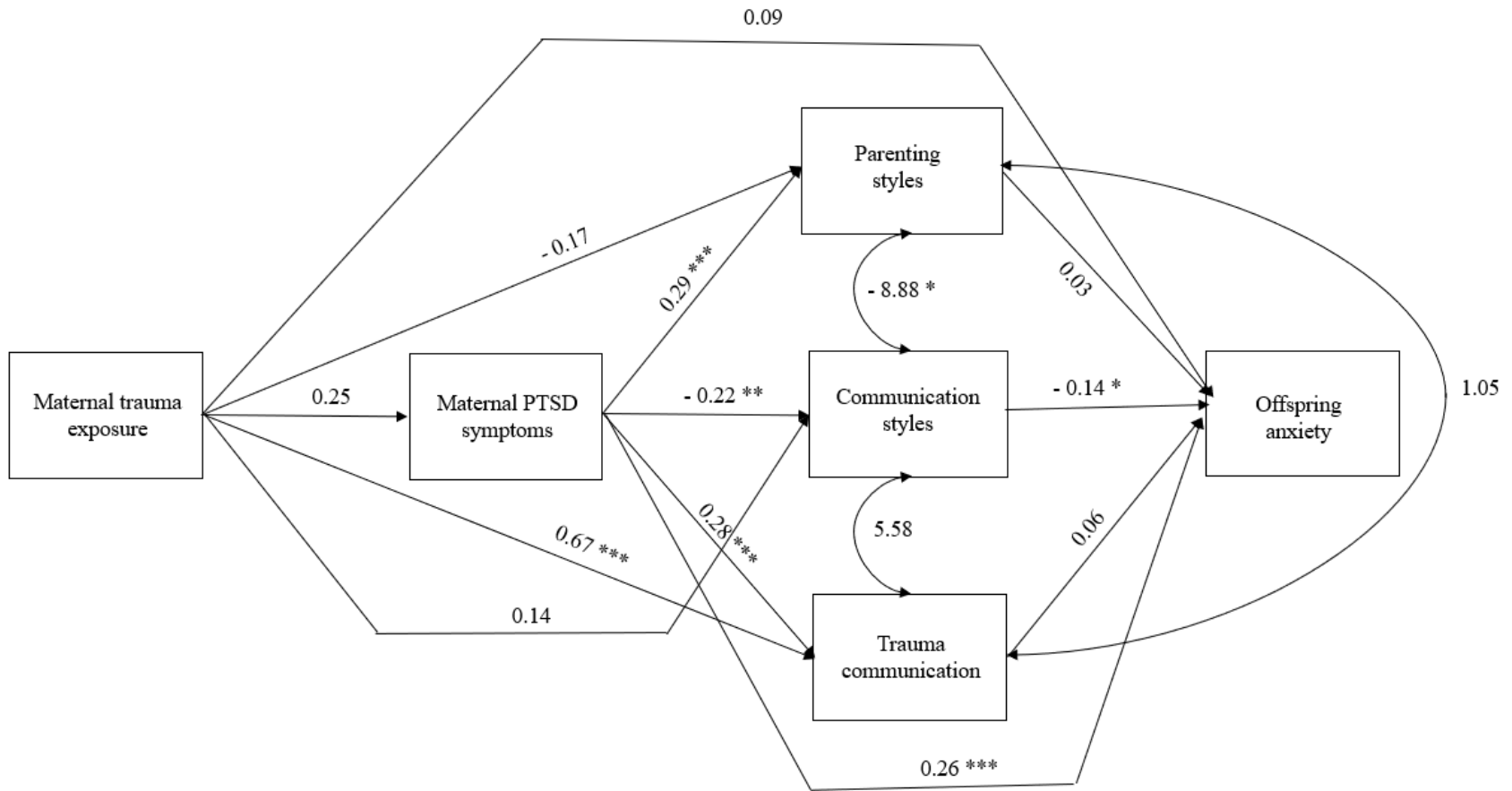
* $p < .05$, ** $p < .01$, *** $p < .001$

Generalized Anxiety Disorder

This model also had good fit with the data, $\chi^2(12) = 17.66$ ($p = .127$), RMSEA = 0.05 (90% CI < 0.00 - 0.10), CFI = 0.97 (Figure 4). For participants with survivor mothers, maternal PTSD ($B = 0.26$, $SE = 0.06$, $p < .001$), family communication styles ($B = -0.14$, $SE = 0.05$, $p = .011$), and gender ($B = 1.73$, $SE = 0.66$, $p = .009$) were the only variables directly associated with offspring anxiety. As for the other models, maternal trauma exposure was only associated with maternal trauma communication ($B = 0.67$, $SE = 0.14$, $p < .001$), but maternal PTSD was associated with maternal trauma communication ($B = 0.28$, $SE = 0.05$, $p < .001$), maternal parenting styles ($B = 0.28$, $SE = 0.06$, $p < .001$), as well as family communication styles ($B = -0.22$, $SE = 0.07$, $p = .001$). Lastly, maternal parenting styles and family communication styles had a significant covariance ($B = -8.88$, $SE = 4.29$, $p = .038$) while all other direct paths were non-significant. As for the model predicting offspring depression, the only significant indirect path in this model was the path from maternal PTSD to offspring anxiety through family communication styles ($B = 0.03$, $SE = 0.02$, 95% CI = 0.01 - 0.07).

Figure 4

Results of Mediation Analysis Predicting Generalized Anxiety Symptoms in Children of Survivor Mothers (n = 187)



Note. Unstandardized estimates are listed. Analysis controlled for the effects of age, gender, and socioeconomic status on offspring generalized anxiety symptoms.

* $p < .05$, ** $p < .01$, *** $p < .001$

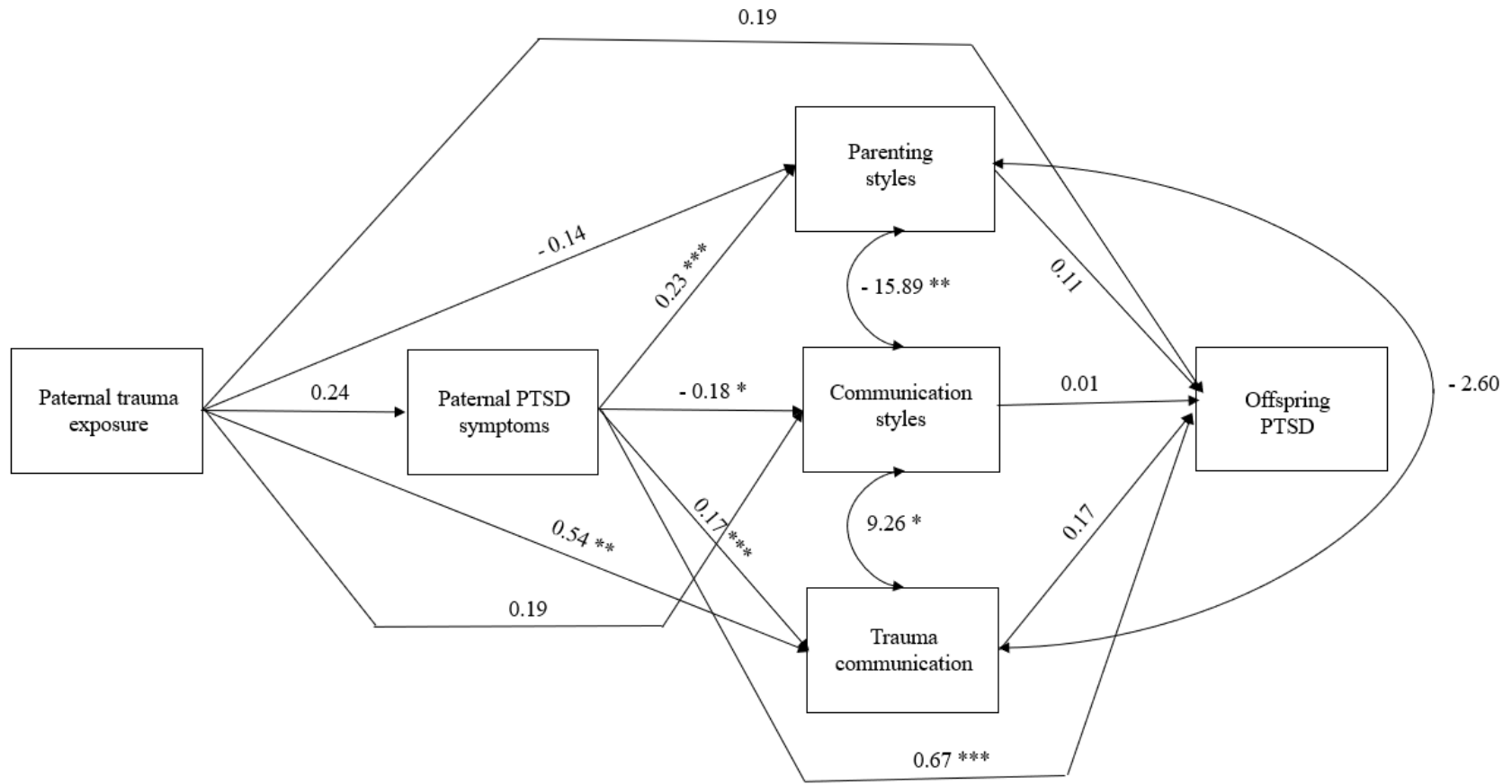
Main Analyses for Fathers

Posttraumatic Stress Disorder

The model predicting PTSD symptoms in participants with survivor fathers ($n = 170$) had excellent fit with the data, $\chi^2(12) = 13.99$ ($p = .301$), RMSEA = 0.03 (90% CI < 0.00 - 0.09), CFI = 0.99 (Figure 5). In this model, the only variable that had a significant direct relationship with offspring PTSD was paternal PTSD ($B = 0.67$, $SE = 0.10$, $p < .001$). As with the maternal models, paternal trauma exposure was only directly associated with paternal trauma communication ($B = 0.54$, $SE = 0.16$, $p = .001$), while paternal PTSD was directly associated with all three mediators: paternal trauma communication ($B = 0.17$, $SE = 0.05$, $p < .001$), paternal parenting styles ($B = 0.23$, $SE = 0.06$, $p < .001$), and family communication styles ($B = -0.18$, $SE = 0.07$, $p = .011$). There were also significant covariances between family communication styles and paternal parenting styles ($B = -15.89$, $SE = 4.95$, $p = .001$) as well as between family communication styles and paternal trauma communication ($B = 9.26$, $SE = 3.74$, $p = .013$). No other direct paths were statistically significant. There were also no significant indirect paths in this model.

Figure 5

Results of Mediation Analysis Predicting Posttraumatic Stress Symptoms in Children of Survivor Fathers (n = 170)



Note. Unstandardized estimates are listed. Analysis controlled for the effects of age, gender, and socioeconomic status on offspring posttraumatic stress symptoms.

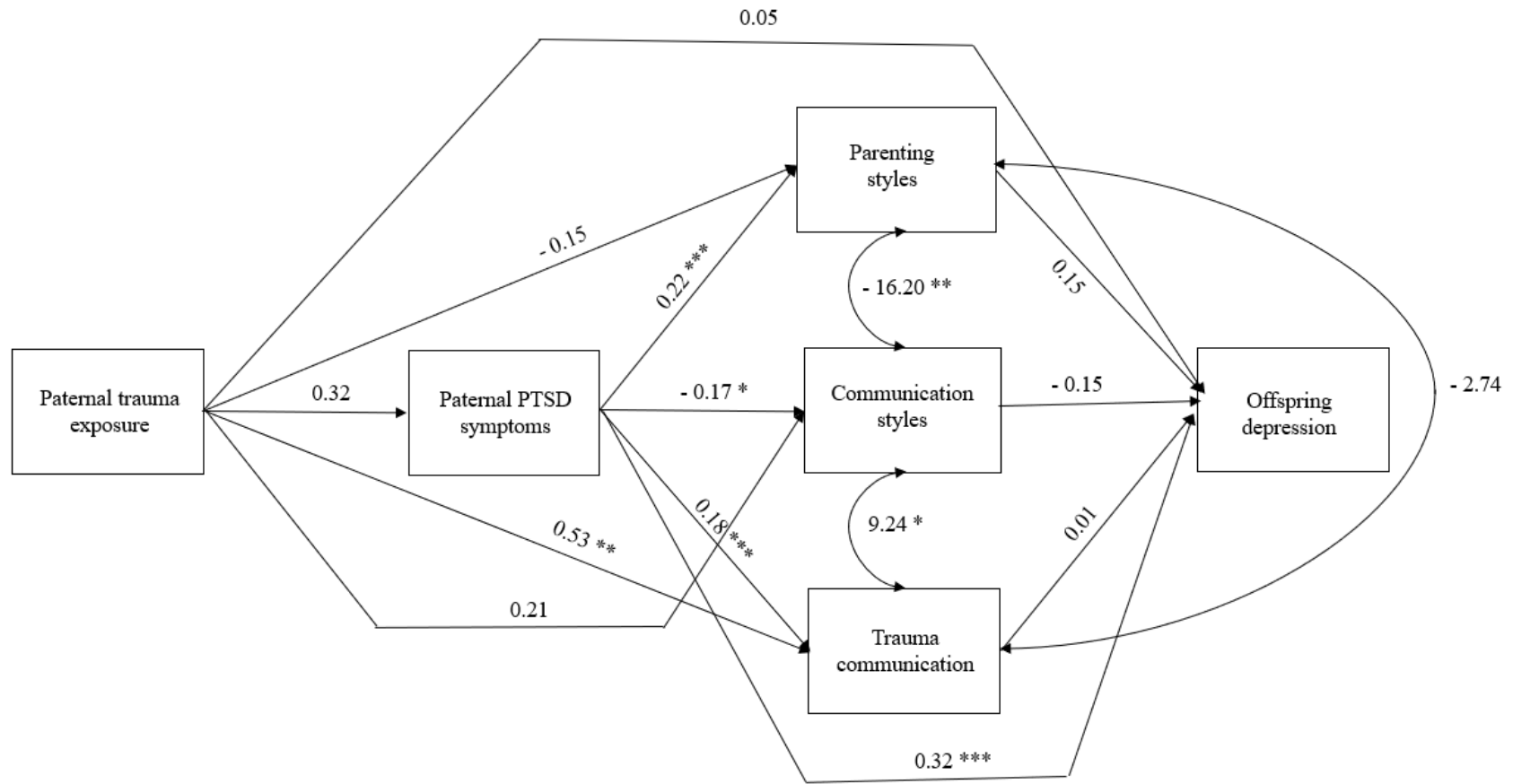
* $p < .05$, ** $p < .01$, *** $p < .001$

Major Depressive Disorder

The model for offspring depression in children with survivor fathers also had excellent fit with the data, $\chi^2(12) = 12.98$ ($p = .370$), RMSEA = 0.02 (90% CI < 0.00 - 0.08), CFI = 0.99 (Figure 6). Paternal PTSD was the only variable directly associated with offspring depression ($B = 0.32$, $SE = 0.08$, $p < .001$). Among the mediators, only paternal trauma communication was significantly associated with paternal trauma exposure ($B = 0.53$, $SE = 0.16$, $p = .001$) whereas all three were associated with paternal PTSD (paternal trauma communication: $B = 0.18$, $SE = 0.05$, $p < .001$; paternal parenting styles: $B = 0.22$, $SE = 0.06$, $p < .001$; family communication styles: $B = -0.17$, $SE = 0.07$, $p = .015$). Both paternal trauma communication ($B = 9.24$, $SE = 3.76$, $p = .014$) and paternal parenting styles ($B = -16.20$, $SE = 4.98$, $p = .001$) were significantly associated with family communication styles. There were no other significant direct or indirect paths in this model.

Figure 6

Results of Mediation Analysis Predicting Major Depression Symptoms in Children of Survivor Fathers (n = 170)



Note. Unstandardized estimates are listed. Analysis controlled for the effects of age, gender, and socioeconomic status on offspring major depression symptoms.

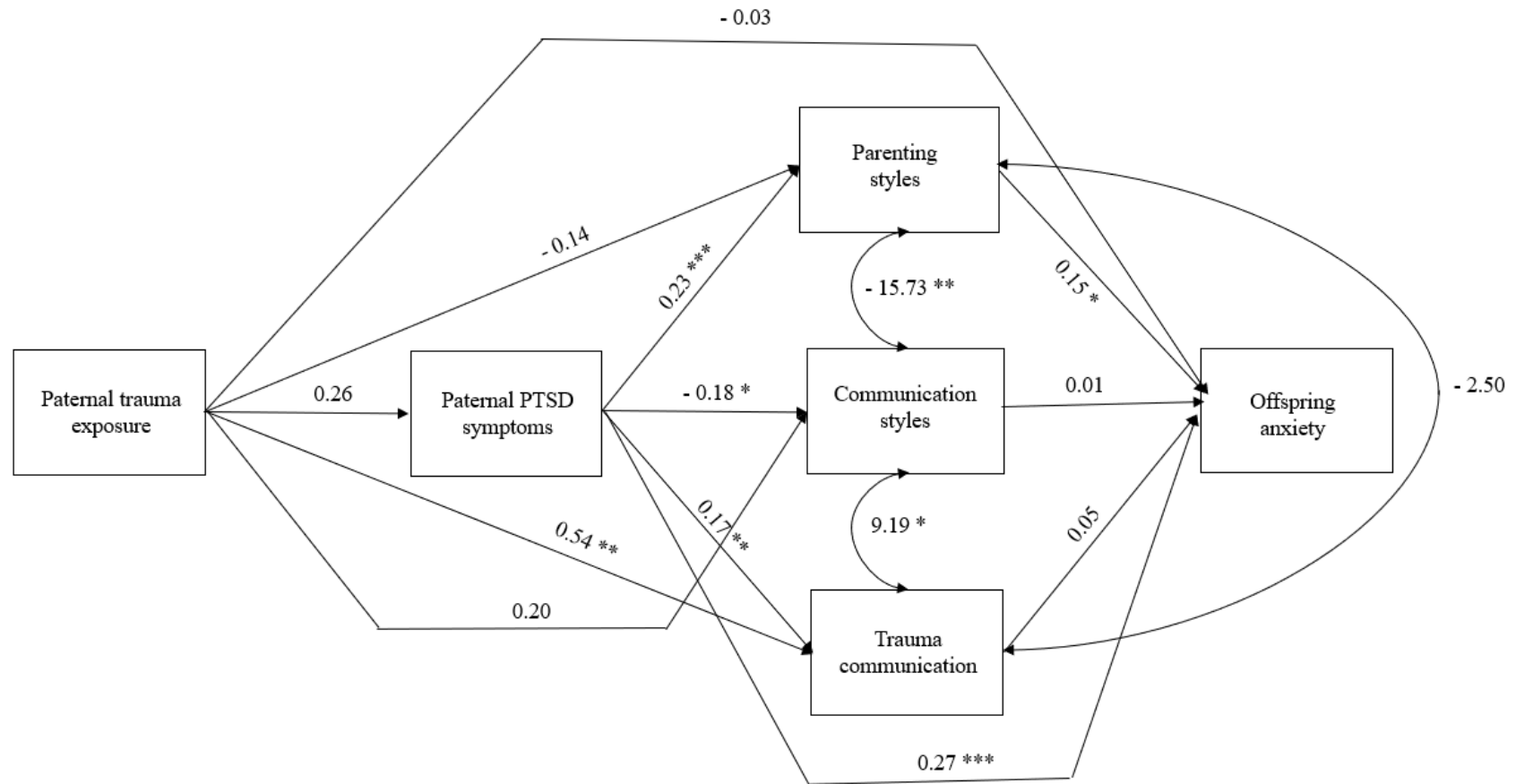
* $p < .05$, ** $p < .01$, *** $p < .001$

Generalized Anxiety Disorder

The model predicting anxiety symptoms in children with survivor fathers also had excellent fit with the data, $\chi^2(12) = 12.60$ ($p = .399$), RMSEA = 0.02 (90% CI < 0.00 - 0.08), CFI = 1.00 (Figure 7). In this model, paternal PTSD ($B = 0.27$, $SE = 0.06$, $p < .001$) and paternal parenting styles ($B = 0.15$, $SE = 0.06$, $p = .016$) were directly associated with offspring anxiety. As was the case for all the other models, paternal trauma exposure was associated with paternal trauma communication ($B = 0.54$, $SE = 0.16$, $p = .001$) and paternal PTSD was associated with paternal trauma communication ($B = 0.17$, $SE = 0.05$, $p = .001$), paternal parenting styles ($B = 0.23$, $SE = 0.06$, $p < .001$), and family communication styles ($B = -0.18$, $SE = 0.07$, $p = .012$). There were also significant covariances between family communication styles and paternal parenting styles ($B = -15.73$, $SE = 4.97$, $p = .002$) and between family communication styles and paternal trauma communication ($B = 9.19$, $SE = 3.74$, $p = .014$). There were no other significant direct paths. There was only one significant indirect path in this model, paternal PTSD was indirectly associated with offspring anxiety via paternal parenting styles ($B = 0.03$, $SE = 0.02$, 95% CI = 0.01 - 0.07).

Figure 7

Results of Mediation Analysis Predicting Generalized Anxiety Symptoms in Children of Survivor Fathers (n = 170)



Note. Unstandardized estimates are listed. Analysis controlled for the effects of age, gender, and socioeconomic status on offspring generalized symptoms.

* $p < .05$, ** $p < .01$, *** $p < .001$

Post-hoc Exploratory Analyses

To identify which specific facets of parental trauma communication and parenting styles were driving the effects we saw in these analyses, we reran all of our models keeping all other variables constant and replacing either parental trauma communication or parenting styles with their various components in each new analysis. Five different modes of parental trauma communication were investigated: nonverbal communication (e.g., the nonverbal presence of the genocide in the home), frequent and willing communication (e.g., parents willingly and frequently communicating with their children about the genocide), guilt-inducing communication (e.g., children being told they had an easy life compared to their parents because of the genocide), indirect communication (e.g., children overhearing parents' conversations about the genocide), and affective communication (e.g., parents being distraught when talking about the genocide). Three different parenting styles were assessed: overcontrolling parenting, indifferent parenting, and abusive parenting.

In the secondary analyses with children of survivor mothers, we found that guilt-inducing communication was a significant mediator of both the effect of maternal trauma exposure ($B = 0.11$, $SE = 0.06$, $95\% CI = 0.02 - 0.28$) and maternal PTSD ($B = 0.10$, $SE = 0.04$, $95\% CI = 0.03 - 0.19$) on offspring PTSD symptoms. Similarly, nonverbal communication was a significant mediator of both the relationship between maternal trauma exposure ($B = 0.14$, $SE = 0.08$, $95\% CI = 0.03 - 0.34$) and maternal PTSD ($B = 0.06$, $SE = 0.03$, $95\% CI = 0.01 - 0.12$) and offspring PTSD symptoms. Like maternal trauma communication in the original models, these forms of trauma communication were not significantly associated with offspring anxiety and depression. Additionally, no other forms of trauma communication and no types of parenting styles were significant mediators in any of the new maternal models.

In the secondary analyses with children of survivor fathers, we found that abusive ($B = 0.05$, $SE = 0.02$, $95\% CI = 0.02 - 0.09$) and indifferent ($B = 0.03$, $SE = 0.02$, $95\% CI = 0.01 - 0.06$) parenting styles were significant mediators of the relationship between paternal PTSD and offspring anxiety. In addition to that, even though parenting styles were not a significant mediator in the original model for offspring depression, abusive parenting became a significant mediator of the relationship between paternal PTSD and offspring depression ($B = 0.04$, $SE = 0.02$, $95\% CI = 0.01 - 0.09$). There were no other significant indirect paths in the secondary analyses for children of survivor fathers.

Chapter V: Discussion

The main goal of the current study was to investigate the role of three psychosocial factors in facilitating the intergenerational transmission of trauma from parents exposed to the 1994 genocide against the Tutsi to their adult children. In our analyses, maternal trauma communication emerged as a mediator of the relationship between both maternal trauma exposure and maternal PTSD and children's PTSD symptoms. We also found that family communication styles mediated the relationship between maternal PTSD and all three of the child mental health outcomes we assessed. For fathers, our results indicated that paternal parenting styles were a significant mediator of the relationship between paternal PTSD and anxiety in their offspring. In more detailed analyses, we found that guilt-inducing and nonverbal communication about trauma specifically mediated the effect of maternal trauma exposure and maternal PTSD on PTSD symptoms in children of survivor mothers. We also found that indifferent parenting mediated the effect of paternal PTSD on anxiety symptoms, while abusive parenting mediated the effect of paternal PTSD on both anxiety and depression symptoms in children of survivor fathers. Throughout all of our analyses, a noteworthy result is that all three

of our mediators were impacted by parental PTSD symptoms in both mothers and fathers, but only parental trauma communication was also impacted by parental trauma exposure for both mothers and fathers.

Psychosocial Mediators of Intergenerational Trauma Transmission

Parenting styles were the only psychosocial mediator investigated in this study that had previously been tested as mediator of intergenerational trauma transmission in prior research. Our finding that parenting styles significantly mediated the relationship between parental PTSD symptoms and children's symptoms for offspring of survivor fathers is in line with previous findings in offspring of Cambodian genocide survivors (Field et al., 2011; Field et al., 2013). However, the specific parenting styles that we found to mediate this relationship differ from this previous research. These studies had investigated the effects of role-reversing, rejecting, and overprotective parenting styles and found that role-reversing from either parent (Field et al., 2011; Field et al., 2013) and overprotective parenting from mothers (Field et al., 2011) impacted children's secondary trauma symptoms. However, they failed to find an effect for rejecting parenting. In the current study, even though the instrument we used did not include role-reversing parenting, it measured three parenting styles: overcontrolling parenting (similar to overprotective parenting), indifferent parenting (similar to rejecting parenting, as they were both measured as lack of warmth), and abusive parenting. In our analyses, we failed to find the effect of overcontrolling parenting from either parent that we had expected to find in mothers, based on previous findings (Field et al., 2011). On the other hand, we found an effect for indifferent parenting, even though these previous studies had not found an effect for rejecting parenting (Field et al., 2011; Field et al., 2013). Lastly, abusive parenting had not been investigated in prior research, but we found that it mediated the effect of paternal PTSD on children's depression and

anxiety symptoms. This new finding is an important addition to the literature and is consistent with findings by Yehuda, Halligan, and Grossman (2001) that children of Holocaust survivors who reported higher levels of childhood abuse displayed more severe psychopathology as well as findings by Lehrner et al. (2014) and Yehuda et al. (2014) that family conflict and abuse were associated with paternal PTSD but not maternal PTSD in children of Holocaust survivors.

A surprising finding in the current study was that parenting styles were only a significant mediator in analyses restricted to the effects of paternal trauma exposure, even though previous research had found this effect for survivor mothers as well (Field et al., 2011; Field et al., 2013). Potential reasons for this discrepancy include the use of different measures to assess parenting styles. This is unlikely given that the measure used in this study, the Measure of Parenting Style (MOPS; Parker et al., 1997), was directly derived from the measure used in these previous studies, the Parental Bonding Instrument (PBI; Parker et al., 1979), by the original authors of the scale in an effort to include a measure of abusive parenting. These two measures have also demonstrated good convergent validity and the authors even suggested that the MOPS could be used as a shortened version of the PBI (Parker et al., 1997). Another potential reason for these divergent findings is culture and context. As the evidence of mediation for parenting styles in intergenerational trauma transmission only comes from research in Cambodia, it is unclear whether the same relationships would hold in other places. Previous studies have noted that there can be significant differences in behaviors related to parent-child interactions across cultures (Dalgaard & Montgomery, 2015; Gielen & Roopnarine, 2004; Lansford, 2022). Some studies have also reported that the effect of parenting on child outcomes shows cross-cultural variability (Ho et al., 2008).

We found that family communication styles had some significant relationships with all

three offspring mental health outcomes, but only for analyses on the effects maternal trauma exposure. This partially corroborates findings from previous research that found a significant association between family communication styles and children's mental health outcomes in families of genocide survivors (e.g., Braga et al., 2012, Giladi & Bell, 2012). However, these previous studies did not investigate the differential effects of family communication styles based on the gender of the survivor parent. Additionally, no study to our knowledge has directly tested a mediation hypothesis for this variable.

Although a mediation pathway had not previously been tested for parental trauma communication, we found compelling evidence for this mediator. Our results showed that trauma communication had an impact on children's PTSD symptoms by mediating the effect of both mothers' trauma exposure and mothers' PTSD symptoms. This is consistent with several studies that have demonstrated an association between parental communication about genocide trauma and children's symptoms (e.g., Wiseman et al., 2002). Furthermore, the specific components of parental trauma communication that emerged as significant mediators of this transmission in secondary analyses closely map onto previous research. For instance, Shrira (2015) found that intrusive communication, which corresponds to guilt-inducing communication in this study, was associated with higher levels of intergenerational trauma symptoms while informative communication, which is the opposite of nonverbal communication, was associated with lower odds of intergenerational trauma transmission in descendants of Holocaust survivors.

These results also align with the existing qualitative evidence on parental trauma communication patterns in Rwanda. Examples of guilt-inducing communication have been cited in previous studies on parental trauma communication in Rwanda. For instance, one mother describing her relationship with her child stated: "I would not tolerate any mistake however

small it might be. I would immediately insult him, saying: ‘Shit! Dead people are better than you’ (Berckmoes et al., 2017). As for nonverbal communication, multiple studies have noted the lack of verbal communication about the genocide in many survivor families in Rwanda (Eichelsheim et al., 2019; Rieder, 2014).

The findings about general family communication styles and parents’ communication about their trauma highlight the importance of communication patterns in the intergenerational transmission of trauma, especially from mothers to their children. These two mediators related to parent-child communication were the only ones that were associated with PTSD symptoms in survivor offspring. This is particularly important because the experience of secondary PTSD symptoms in children of trauma survivors is how intergenerational trauma transmission has been classically defined. Additionally, the finding that parental trauma communication is associated with both parental PTSD and parental trauma is compelling and makes this variable even more important to investigate. Unfortunately, there is still a lot that remains unknown about the ways in which genocide survivors communicate their traumatic experiences to their offspring.

Research from other trauma-exposed populations has investigated this topic in slightly more depth. For instance, two systematic reviews explored different patterns of parental trauma communication in refugee families and found that modulated disclosure, defined as “parental disclosure that is developmentally timed and carried out in a sensitive manner,” was associated with the best outcomes for children and was more protective than silence or avoidance (Dalgaard & Montgomery, 2015; Flanagan et al., 2020; Measham & Rousseau, 2010). Dalgaard and colleagues (2019) also investigated the contents of parental trauma communication and their relationship with children’s psychopathology in a qualitative study of 170 war-exposed Palestinian families. They found seven categories of content areas communicated by parents

along with the category of silence. These communication categories were “violence and aggression,” “facts and reasons of wars,” “mental suffering and humiliation,” “physical suffering and life-threat,” “material and immaterial losses,” “positive resources and future prospects,” and “political lessons and moral messages” (p. 15). They found that children in families that communicated facts, meaning, and explanations displayed a lower likelihood of experiencing PTSD symptoms or overall psychological distress. The authors recommended that parents’ trauma communication should provide “reasons, meanings, and comprehensive narratives for making sense of the family’s traumatic history” (Dalgaard et al., 2019, p. 5).

Some of the studies in Rwanda have described children’s eagerness to learn about their families’ traumatic histories, especially around the annual commemoration (Eichelsheim et al., 2019; Ingabire et al., 2022; Kahn & Denov, 2022; Rieder, 2014). Others have noted that Rwandan survivor parents want to tell their children about the genocide but experience difficulties in doing so (Ingabire et al., 2022; Williamson Sinalo et al., 2020). Rwandan parents’ reasons for their lack of disclosure have been cited to include a desire to protect their children from being traumatized by their experiences, a belief that silence helps them to cope with their trauma, an effort to let go of the past, as well as a fear of creating hatred and divisionism in their children (Eichelsheim et al., 2019; Ingabire et al., 2022; Rieder, 2014; Williamson Sinalo et al., 2020). Despite willingness on the part of both the parents and the children, the “conspiracy of silence” persists in many Rwandan families and leads to adverse outcomes in many children of survivors, as evidenced by our findings regarding the harmful effect of nonverbal communication. In qualitative interviews, some Rwandan survivor parents have expressed a need for advice and support around knowing how to communicate their experiences in the genocide with their children (Williamson Sinalo et al., 2020). Researchers should therefore endeavor to

provide the practical guidance needed to facilitate these necessary family discussions.

Given how much remains to be explored on this topic, we suggest that future work use qualitative approaches to explore in more detail what styles, content, and timing of parental trauma communication lead to the best outcomes for children of genocide survivors. Additionally, qualitative studies would allow for a more fine-grained inquiry into the other psychosocial mediators explored in this study such as parenting styles. For instance, it would be helpful to investigate the whole spectrum of parenting styles (including optimal or beneficial parenting styles) through qualitative methodologies rather than focusing primarily on negative parenting styles, which are commonly emphasized in parenting questionnaires and as result have dominated this area of research. It would also be helpful to ascertain each parent's unique contribution to family communication to bring further clarity to our findings on the mediating role of family communication styles for mothers but not for fathers.

Parental Trauma Exposure vs. Parental PTSD

On the question of whether parental trauma exposure or parental PTSD underlies intergenerational trauma transmission, data suggest that both do; however, our analyses also yield a more nuanced picture. Parental trauma exposure and parental PTSD were both directly related to offspring symptoms in the analyses, even though most indirect paths through the mediators were from parental PTSD. Therefore, parental trauma exposure and parental PTSD appear to be associated with different psychosocial mediators which, in turn, are associated with offspring mental health outcomes. In our analyses, parental trauma exposure was consistently only associated with parental trauma communication, while parental PTSD was consistently associated with all three mediators. These differences in psychosocial correlates associated with parental trauma exposure compared to parental PTSD have not been previously documented,

although they echo previous studies that reported that these two variables affect outcomes in children of survivors differently (Yehuda, Halligan, & Bierer, 2001). However, we did not find the specific differences in mental health outcomes previously reported, namely that parental PTSD is associated with PTSD in offspring while parental trauma exposure is associated with depression in offspring (Yehuda, Halligan, & Bierer, 2001).

These findings provide additional clarity on the differential roles that parental trauma exposure and parental PTSD play in this transmission while also indicating that they affect different psychosocial mediators involved in this transmission. Interestingly however, we did not find the mediation relationship we hypothesized between parental trauma exposure and child mental health outcomes via parental PTSD symptoms.

Limitations

Although this study provides important new insights into the process of intergenerational trauma transmission, it has a few notable limitations. The first limitation is the use of a convenience sample. Our sample was recruited from the membership of the survivor organization we collaborated with as well as their sister organization, and this group may not be representative of all children of survivors. In addition to that, the use of an online data collection method likely prevented individuals without access to the internet or smart devices from being able to participate in the study. Therefore, the results of this study cannot be assumed to generalize to all children of genocide survivors in Rwanda.

The second set of limitations is related to the assessment measures we used in this study. First, we used questionnaires rather than clinical interviews to measure mental health outcomes; although this is common in the peer-reviewed literature, it is nonetheless a limitation. In addition, it is worth noting that the two measures that we used to assess PTSD symptoms in this study, the Modified Secondary Trauma Scale and the Parental PTSD Questionnaire, were both

based on DSM-IV criteria and may not represent the most up to date knowledge on this disorder. It would be ideal to use measures with updated DSM-5 criteria for PTSD. Unfortunately, there are no validated measures of parental PTSD symptoms and secondary PTSD symptoms that use DSM-5 criteria yet. Lastly, although the measure we used to assess parental trauma communication has been widely used, it has several drawbacks. Despite the fact that this measure demonstrated acceptable internal consistency in this study, the psychometric properties of this measure are largely unknown because it has not been previously validated. Furthermore, this measure is very specific to communication patterns used in Holocaust survivor communities. Therefore, some of the communication patterns it assesses may not have been applicable to the Rwandan context, and it may have missed some culturally specific ways in which Rwandan parents communicate about their genocide experiences. Future research should address these limitations.

Additionally, future studies should attempt to study these factors longitudinally to ascertain causal relationships and directionality. A cross-sectional design is especially a limitation for mediation analyses which assume temporal precedence and should ideally be conducted on longitudinal data. Another limitation that should be addressed in further research is the retrospective nature of this study. To avoid a recollection bias, it would be preferable to assess these variables using a prospective study design. It would also be ideal to assess these factors from the perspectives of both the parents and the children in future research.

Future work should also investigate the interaction of biological and psychological factors in contributing to intergenerational trauma. For instance, a potential future direction could be to investigate the relationship between these psychosocial mediators and levels of DNA methylation. Researchers might explore a possible mediation or moderation of the effects of psychosocial factors on mental health by epigenetic mechanisms or vice versa. Furthermore,

examining the impact that interventions that target these psychosocial factors have on epigenetic mechanisms could provide important insights. Clinical studies with war-exposed veterans with PTSD have found evidence that some psychotherapy interventions, such as eye movement desensitization processing (EMDR) and prolonged exposure (PE), have an effect on DNA methylation that is associated with reduced PTSD symptoms (Vinkers et al., 2019; Yehuda et al., 2013). Research from animal models of intergenerational trauma has also provided preliminary evidence that changes to environmental factors can lead to the reversal of epigenetic alterations and prevent them from being passed down to offspring (Gapp et al., 2016).

Lastly, a fruitful avenue for further research could be to expand beyond the intergenerational transmission of trauma and also investigate whether resilience can be transmitted intergenerationally. Only a limited number of studies, most of them qualitative, have documented intergenerational resilience so far (e.g., Atallah, 2017; Braga et al., 2012; Fossion et al., 2015; Mak et al., 2021; Shrira et al., 2019) due to challenges in conceptualizing and measuring resilience in an intergenerational context (Lehrner & Yehuda, 2018a). More research is therefore needed to determine what factors promote this intergenerational resilience in children of genocide survivors.

Implications

Despite these limitations, this study addresses considerable gaps in the current literature on intergenerational trauma such as the lack of clarity on the effects of parental trauma exposure vs. parental PTSD and the lack of research on psychosocial mediators of this transmission, especially in Rwandan families that survived the 1994 genocide against the Tutsi. Additionally, given that most research on intergenerational trauma has been focused on mothers and that some of the studies that investigated fathers failed to find an effect, this study provides an important

contribution by adding to our understanding of the role that parental trauma exposure and parental PTSD for both mothers and fathers have on children's symptoms and by providing a more detailed account of mechanisms of intergenerational trauma transmission that includes fathers. However, future research should advance the current findings by investigating the cumulative effects of having both parents exposed to a genocide or suffer from PTSD. For example, Yehuda et al. (2009) found evidence that maternal PTSD moderates the effects of paternal PTSD on offspring mental health. Therefore, the interaction between parents' exposures and symptoms warrants further investigation.

Furthermore, like the few other studies conducted on intergenerational trauma in Rwanda, this study gives us the rare opportunity to examine the numerous findings from the literature on intergenerational trauma in descendants of Holocaust survivors in families exposed to a very different genocide. Some of the main differences between the Holocaust and the genocide against the Tutsi include: (a) who perpetrated these atrocities (a military power vs. ordinary citizens with whom victims were often acquainted); (b) the methods used in the killings (modern weapons vs. mostly rudimentary and traditional weapons); (c) the length of exposure (several years vs. about 100 days); and (d) whether most survivors remained in the communities where they had been victimized and coexisted with the perpetrators (Nikuze, 2016). These comparative inquiries bring much needed clarity to the generalizability of the phenomenon of intergenerational trauma to different contexts and exposures.

Our findings reaffirm the importance of looking at the consequences of genocides in a family context. They also highlight a need for community interventions focused on how parents, especially mothers exposed to genocide trauma communicate to their children about the trauma they experienced. However, further research is needed in order to develop more conclusive

recommendations that would be useful for guiding these interventions efforts. Our findings also suggest that these interventions should address family communication styles and parenting styles; they also point to a specific need for targeted interventions for mothers with PTSD focused on these family communication styles and for fathers with PTSD focused on abusive and indifferent parenting styles.

Given the severe shortage of mental health providers in Rwanda (Rugema, Krantz, et al., 2015) and the concerning finding from the Holocaust survivor literature that survivors who were exposed as children have the highest likelihood of transmission (Yehuda & Lehrner, 2018), intergenerational trauma transmission represents a considerable public health concern in Rwanda and could soon constitute a mental health crisis. Therefore, knowledge of family variables that mediate this transmission is crucial, as these variables could be potential targets for treatment and could help guide intervention efforts aimed at improving the mental health and resilience of children of genocide survivors in Rwanda.

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Appendix 1: Survey**A. Eligibility**

1. Do you identify as a Rwandan citizen?
2. Are you between the ages of 18 and 40?
3. Do you identify as:
 - a. A genocide survivor
 - b. The child of a genocide survivor or victim who was not alive during the genocide
 - c. None of the above

B. Demographic information

1. What is your age in years?
2. What is your gender?
 - a. Male
 - b. Female
 - c. Another gender
3. What is the highest level of education you have completed? Circle the letter that applies.
 - a. None
 - b. Some years of primary school
 - c. Primary school graduate
 - d. Some years of secondary school
 - e. Secondary school graduate
 - f. Some years of college
 - g. College graduate
 - h. Graduate school: Master's or Doctorate degree
4. What socioeconomic category (icyiciro cy'ubudehe) do you belong to?
 - a. 1st category
 - b. 2nd category
 - c. 3rd category
 - d. 4th category
5. Who were your primary caretakers when you were growing up, until the age of 18? (*By "primary caretakers," we mean the people who had the greatest responsibility for your daily care and rearing when you were a child*)
 - a. Biological mother
 - b. Biological father
 - c. Adoptive mother
 - d. Adoptive father
 - e. Stepmother
 - f. Stepfather
 - g. Grandmother
 - h. Grandfather
 - i. Other family member (such as an uncle, aunt, older sibling, or cousin)

- j. Other (specify in text box)
6. Who among your primary caretakers was a genocide survivor?
- a. Biological mother
 - b. Biological father
 - c. Adoptive mother
 - d. Adoptive father
 - e. Stepmother
 - f. Stepfather
 - g. Grandmother
 - h. Grandfather
 - i. Other family member (such as an uncle, aunt, older sibling, or cousin)
 - j. Other (specify in text box)

C. Parental genocide exposure

1. During the 1994 genocide against the Tutsi, did/were your mother or other female caretaker ...: (Yes/No)
- Hunted by killers
 - Forced to flee
 - Tortured or wounded
 - Held captive or kidnapped
 - Witness the death, injury, or rape of a loved one
 - Witness a stranger, acquaintance, or community member's death, injury, or rape
 - Threatened with a weapon
 - Raped or subject to sexual violence
 - See a dead body
 - Lose a family member
 - Learn that a close friend or relative was injured, tortured, or raped
 - Have their home destroyed
2. During the 1994 genocide against the Tutsi, did/were your father or other male caretaker ...: (Yes/No)
- Hunted by killers
 - Forced to flee
 - Tortured or wounded
 - Held captive or kidnapped
 - Witness the death, injury, or rape of a loved one
 - Witness a stranger, acquaintance, or community member's death, injury, or rape
 - Threatened with a weapon
 - Raped or subject to sexual violence
 - See a dead body
 - Lose a family member
 - Learn that a close friend or relative was injured, tortured, or raped
 - Have their home destroyed

D. Family functioning

- *Family communication styles: Family Communication Scale (Olson & Barnes, 2010)*

- 1 – Strongly Disagree
- 2 – Generally Disagree
- 3 – Undecided
- 4 – Generally Agree
- 5 – Strongly Agree

1. Family members are happy with how they communicate with each other.
2. Family members are very good listeners.
3. Family members enjoy talking to each other.
4. Family members are able to ask each other for what they want.
5. Family members can calmly discuss problems with each other.
6. Family members discuss their ideas and beliefs with each other.
7. When family members ask questions of each other, they get honest answers.
8. Family members try to understand each other's feelings
9. When angry, family members seldom say negative things about each other.
10. Family members express their true feelings to each other.

- *Parenting styles:*

- Measure of Parenting Style – MOPS (Parker et al., 1997)

During your first 16 years how 'true' are the following statements about your MOTHER's behavior towards you. (*By "mother," we mean a female caretaker or mother figure. If you were raised by adoptive parents, stepparents, or other family members, please fill out this measure about your female caretaker. If you did not have a female caretaker, please skip this part of the measure*)

Rate each statement either as:

- 0 - not true at all
- 1 - slightly true
- 2 - moderately true
- 3 - extremely true

1. Overprotective of me
2. Verbally abusive of me
3. Over controlling of me
4. Sought to make me feel guilty
5. Ignored me
6. Critical of me
7. Unpredictable towards me

8. Uncaring of me
9. Physically violent or abusive of me
10. Rejecting of me
11. Left me on my own a lot
12. Would forget about me
13. Was uninterested in me
14. Made me feel in danger
15. Made me feel unsafe

During your first 16 years how ‘true’ are the following statements about your FATHER’s behavior towards you. (*By “father,” we mean a male caretaker or father figure. If you were raised by adoptive parents, stepparents, or other family members, please fill out this measure about your male caretaker. If you did not have a male caretaker, please skip this part of the measure*)

Rate each statement either as:

- 0 - not true at all
- 1 - slightly true
- 2 - moderately true
- 3 - extremely true

1. Overprotective of me
2. Verbally abusive of me
3. Over controlling of me
4. Sought to make me feel guilty
5. Ignored me
6. Critical of me
7. Unpredictable towards me
8. Uncaring of me
9. Physically violent or abusive of me
10. Rejecting of me
11. Left me on my own a lot
12. Would forget about me
13. Was uninterested in me
14. Made me feel in danger
15. Made me feel unsafe

- *Parents’ approach to talking about the genocide: Communication of Holocaust Experience Questionnaire (Lichtman, 1983) – [Modified]*
(By “mother” and “father,” we mean a female caretaker or mother figure and a male caretaker or father figure. If you were raised by adoptive parents, stepparents, or other family members, please fill out this measure about your

female and male caretaker)

1. At what age do you recall having first heard about the *genocide* experiences of your mother and/or father?
 - (1) around the time I was in high school
 - (2) sometime in junior high school
 - (3) in elementary school
 - (4) before I started school
 - (5) I somehow had always known about it
2. How much more aware of the *genocide* were you, as a child, as compared to your friends/classmates who were not children of survivors?
 - (1) less aware
 - (2) equally aware
 - (3) somewhat more aware
 - (4) much more aware
 - (5) no comparison—I felt I was reliving it
3. How often were *genocide* experiences discussed when your parents got together with friends or relatives, and you were within earshot?
 - (1) practically/actually never
 - (2) rarely
 - (3) occasionally
 - (4) frequently
 - (5) usually
4. How often have you been made to feel guilty for having such an “easy life” compared to your parents’ ordeals at your age, or for complaining about things that they consider inconsequential? (i.e., “You think you have it bad? You don’t know what it is to really suffer!”)
 - (1) practically/actually never
 - (2) rarely
 - (3) occasionally
 - (4) frequently
 - (5) usually
5. “The gloomy, stressed atmosphere that permeated my parents’ home as I was growing up made me feel that, in some way, the *genocide* was constantly with us.” How often did you have this feeling, while living with your parents?
 - (1) practically/actually never
 - (2) rarely
 - (3) occasionally
 - (4) frequently
 - (5) usually
6. How often did you and your mother discuss her experiences during the *genocide*?
 - (1) practically/actually never
 - (2) rarely
 - (3) from time to time
 - (4) frequently

- (5) persistently
7. How would you evaluate your mother's willingness to tell you about her experiences during the *genocide*?
- (1) preferred not to tell at all
 - (2) not so willing to tell
 - (3) sometimes willing to tell, and sometimes not willing to tell
 - (4) willing to tell
 - (5) very much wants to tell
8. How often have you heard statements akin to this one from your mother: "I survived for this!" in response to something you do (did) which upset her?
- (1) practically/actually never
 - (2) rarely
 - (3) occasionally
 - (4) frequently
 - (5) usually
9. How often have you felt like you were being lectured at, rather than spoken to, when your mother spoke to you of their *genocide* experiences?
- (1) practically/actually never
 - (2) rarely
 - (3) occasionally
 - (4) frequently
 - (5) usually
10. How often does your mother refer back to her *genocide* experiences as they relate to everyday life? (i.e., "It was thundering like this, the day we were chased")
- (1) practically/actually never
 - (2) rarely
 - (3) occasionally
 - (4) frequently
 - (5) usually
11. When my mother spoke of her *genocide* experiences, she would usually:
- (1) make light of it/stress the comical or heroic aspects
 - (2) speak of it in a matter-of-fact way
 - (3) sound very sad and angry
 - (4) be on the verge of tears
 - (5) cry
12. Which of the following reflects in the best way your knowledge about your mother's experiences during the *genocide*?
- (1) I only vaguely know what happened to her
 - (2) I have a general idea of her experience, but I am unsure as to the details or the order of events
 - (3) her general experience is known to me, but I am unsure about the specific details
 - (4) both her general experience is known to me as well as the major important details
 - (5) I have a clear picture of her experiences including also the details and

their chronological order

13. How often did you and your father discuss her experiences during the *genocide*?

- (1) practically/actually never
- (2) rarely
- (3) from time to time
- (4) frequently
- (5) persistently

14. How would you evaluate your father's willingness to tell you about her experiences during the *genocide*?

- (1) preferred not to tell at all
- (2) not so willing to tell
- (3) sometimes willing to tell, and sometimes not willing to tell
- (4) willing to tell
- (5) very much wants to tell

15. How often have you heard statements akin to this one from your father: "I survived for this!" in response to something you do (did) which upset him?

- (1) practically/actually never
- (2) rarely
- (3) occasionally
- (4) frequently
- (5) usually

16. How often have you felt like you were being lectured at, rather than spoken to, when your father spoke to you of their *genocide* experiences?

- (1) practically/actually never
- (2) rarely
- (3) occasionally
- (4) frequently
- (5) usually

17. How often does your father refer back to his *genocide* experiences as they relate to everyday life? (i.e., "It was thundering like this, the day we were chased")

- (1) practically/actually never
- (2) rarely
- (3) occasionally
- (4) frequently
- (5) usually

18. When my father spoke of his *genocide* experiences, he would usually:

- (1) make light of it/stress the comical or heroic aspects
- (2) speak of it in a matter-of-fact way
- (3) sound very sad and angry
- (4) be on the verge of tears
- (5) cry

19. Which of the following reflects in the best way your knowledge about your father's experiences during the *genocide*?

- (1) I only vaguely know what happened to him

- (2) I have a general idea of his experience, but I am unsure as to the details or the order of events
- (3) his general experience is known to me, but I am unsure about the specific details
- (4) both his general experience is known to me as well as the major important details
- (5) I have a clear picture of his experiences including also the details and their chronological order

E. Parental mental health

- *Parents' distress/trauma symptoms: Parental PTSD Questionnaire (Yehuda et al., 2000)*
(By "mother" and "father," we mean a female caretaker or mother figure and a male caretaker or father figure. If you were raised by adoptive parents, stepparents, or other family members, please fill out this measure about your female and male caretaker)

Please rate how often your parents experienced the following symptoms when you were growing up

- 0 – Not at all
- 1 – Sometimes
- 2 – Often
- 3 – Very often
- 9 – Don't know

My mother:

1. Experienced recurrent distressing thoughts about the trauma/genocide
2. Showed distress when exposed to events that symbolized aspects of the trauma/genocide
3. Suddenly acted as if the traumatic event were recurring (flashbacks)
4. Had distressing dreams of the event
5. Tried to avoid thinking about the trauma/genocide
6. Stayed away from activities or situations that may remind her of the trauma/genocide
7. Was unable to recall important aspects of the trauma
8. Showed markedly diminished interest in significant activities compared to others in her peer group
9. Was detached or estranged from others
10. Was emotionally numb or had trouble experiencing/expressing feelings such as love or happiness
11. Felt there was no need to plan for the future, because somehow the future would be cut short
12. Had difficulty sleeping
13. Was irritable or had outbursts of anger

14. Had difficulty concentrating
15. Was especially alert or watchful even when there was no obvious reason to be
16. Experienced strong startle reactions to loud unexpected noises
17. Experienced physical reactions when she was reminded of the trauma/genocide
18. Talked about the trauma/genocide

My father:

1. Experienced recurrent distressing thoughts about the trauma/genocide
2. Showed distress when exposed to events that symbolized aspects of the trauma/genocide
3. Suddenly acted as if the traumatic event were recurring (flashbacks)
4. Had distressing dreams of the event
5. Tried to avoid thinking about the trauma/genocide
6. Stayed away from activities or situations that may remind him of the trauma/genocide
7. Was unable to recall important aspects of the trauma
8. Showed markedly diminished interest in significant activities compared to others in his peer group
9. Was detached or estranged from others
10. Was emotionally numb or had trouble experiencing/expressing feelings such as love or happiness
11. Felt there was no need to plan for the future, because somehow the future would be cut short
12. Had difficulty sleeping
13. Was irritable or had outbursts of anger
14. Had difficulty concentrating
15. Was especially alert or watchful even when there was no obvious reason to be
16. Experienced strong startle reactions to loud unexpected noises
17. Experienced physical reactions when he was reminded of the trauma/genocide
18. Talked about the trauma/genocide

F. Offspring mental health

- *Posttraumatic stress disorder scale:*
 - Secondary Trauma Scale - STS (18 items; Motta et al., 2001)

For the items below, write in the number that best describes how you think and feel about the *events experienced by your parent(s) or caregiver(s) during the genocide.*

1 - Rarely/Never

2 - At Times

3 - Not Sure

4 - Often

5 - Very Often

1. I force myself to avoid certain thoughts or feelings that remind me of (person above's) difficulties.
2. I find myself avoiding certain activities or situations because they remind me of their problems.
3. I have difficulty falling or staying asleep.
4. I startle easily.
5. I have flashbacks (vivid unwanted images or memories) related to their problems.
6. I am frightened by things that he or she said or did to me.
7. I experience troubling dreams similar to their problems.
8. I experience intrusive, unwanted thoughts about their problems.
9. I am losing sleep over thoughts of their experiences.
10. I have thought that I might have been negatively affected by their experience.
11. I have felt on edge and distressed and this may be related to thoughts about their problem.
12. I have wished that I could avoid dealing with the person or persons named above.
13. I have difficulty recalling specific aspects and details of their difficulties.
14. I find myself losing interest in activities that used to bring me pleasure.
15. I find it increasingly difficult to have warm and positive feelings for others.
16. I find that I am less clear and optimistic about my future life than I once was.
17. I have had some difficulty concentrating.
18. I would feel threatened and vulnerable if I went through what the person above went through.

- *Major depressive disorder scale & Generalized anxiety disorder scale: Hopkins Symptom Checklist-25 (HSCL-25; Degoratis et al., 1974)*

Listed below are some symptoms of strain that people sometimes have. Please read each one carefully and check the answer which best reflects how much that symptom has bothered you during the past month.

- 1 - Not at all
- 2 - A little
- 3 - Quite a bit
- 4 - Extremely

1. Suddenly scared for no reason
2. Feeling fearful
3. Faintness, dizziness, or weakness
4. Nervousness or shakiness inside

5. Heart pounding or racing
6. Trembling
7. Feeling tense or keyed up
8. Headaches
9. Spells of terror or panic
10. Feeling restless, can't sit still
11. Feeling low in energy--slowed down
12. Blaming yourself for things
13. Crying easily
14. Loss of sexual interest or pleasure
15. Poor appetite
16. Difficulty falling asleep, staying asleep
17. Feeling hopeless about the future
18. Feeling blue
19. Feeling lonely
20. Feeling trapped or caught
21. Worrying too much about things
22. Feeling no interest in things
23. Thoughts of ending your life
24. Feeling everything is an effort
25. Feelings of worthlessness

Appendix 2: Consent Form**CONSENT FOR PARTICIPATION IN A RESEARCH STUDY****YALE UNIVERSITY**

Study Title: “Coming of Age After the Genocide: Mental Health of Rwandan Young Adults”

Principal Investigator (the person who is responsible for this research): Sarah Lowe

Research Study Summary:

- We are asking you to join a research study.
- The purpose of this research study is to evaluate predictors of mental health outcomes in Rwandan youth who identify as survivors or children of survivors or victims of the 1994 genocide against the Tutsi.
- Study activities will include: completing a survey that contains questions asking for information about yourself such as your age and employment status, your exposure to the 1994 genocide against the Tutsi, your family, and your mental health.
- Your involvement will require about 30 minutes.
- There may be some risks from participating in this study, such as discomfort and possible loss of confidentiality.
- The study may have no benefits to you. However, your responses may improve our understanding of the predictors of positive and negative mental health outcomes in youth exposed to the 1994 genocide against the Tutsi and offspring of genocide survivors.
- Taking part in this study is your choice. You can choose to take part, or you can choose not to take part in this study. You also can change your mind at any time. Whatever choice you make will not have any effect on your relationship with GAERG.
- If you are interested in learning more about the study, please continue reading, or have someone read to you, the rest of this document. Ask the study staff questions about anything you do not understand. Once you understand the study, we will ask you if you wish to participate; if so, you will have to sign this form.

Why is this study being offered to me?

We are asking you to take part in a research study because we are interested in comparing the mental health of Rwandan youth who are genocide survivors and children of genocide survivors. We are looking for 500 participants to be part of this research study.

Who is paying for the study?

The Whitney and Betty MacMillan Center for International and Area Studies at Yale University.

What is the study about?

The purpose of this study is to evaluate predictors of mental health outcomes in Rwandan youth, specifically survivors of the 1994 genocide against the Tutsi and children of genocide survivors.

What are you asking me to do and how long will it take? If you agree to take part, your participation in this study will involve answering questions on:

- Demographic variables. You will be asked questions about yourself such as your age, gender, socioeconomic status, current place of residence, and employment status.
- Exposure to the genocide. You will be asked questions about whether you or your parents experienced certain events during the genocide such as the death of a loved one.
- Your family. You will be asked questions about your family's communication styles, your parents' styles of parenting, your relationship with your parents, and your parents' approach to communicating about the genocide.
- Mental health. You will be asked about your mental health and the mental health of your parents when you were growing up, as well as your thoughts about receiving mental health treatment.
- Protective factors. You will be asked about things such as social support, religiosity, forgiveness, meaning making, membership in genocide survivor organizations, and involvement in remembrance ceremonies

We think that the study will take 30 minutes of your time.

Are there any risks from participating in this research?

If you decide to take part in this study, you may experience discomfort over the nature of the questions. There is the possible risk of loss of confidentiality. We will do everything we can to protect your privacy. As part of this effort, no information that can allow anyone to identify you like your name will be linked to your answers. This form as well as information about your phone number (recorded for compensation purposes) will be kept separately from your responses and cannot be linked to them.

How can the study possibly benefit me or others?

You may not benefit from taking part in this study.

We hope that our results will add to the knowledge about psychological functioning after mass trauma. It will improve our understanding of the factors that predict mental health outcomes in youth that has been exposed to the 1994 genocide against the Tutsi and children of genocide survivors.

Are there any costs to participation?

You will not have to pay for taking part in this study. The only cost to you will be your time.

Will I be paid for participation?

You will be paid for taking part in this study. At the end of the survey, you will receive the equivalent of \$10 USD in Rwandan Francs in the form of Mobile Money for participating in this study. You will receive this monetary compensation regardless of whether you skip questions during the survey.

How will you keep my data safe and private?

All of your responses will be held **in confidence**. Only the researchers involved in this study and

those responsible for research oversight (such as representatives of the Yale University Human Research Protection Program, the Yale University Institutional Review Boards, and others) will have access to any information that could identify you that you provide. We will share it with others if you agree to it or when we have to do it because U.S. or State law requires it. For example, we will tell somebody if we learn that you are hurting a child or an older person.

Additionally, the information that could identify you will be kept separate from your survey responses and all your data will be kept on password-protected computers.

When we publish the results of the research or talk about it in conferences, we will not use your name. If we want to use your name, we would ask you for your permission. We will also share information about you with other researchers for future research but we will not use your name or other identifiers. We will not ask you for any additional permission.

What if I want to refuse or end participation before the study is over? Taking part in this study is your choice. You can choose to take part, or you can choose not to take part in this study. You also can change your mind at any time. Whatever choice you make will not have any effect on your relationship with GAERG.

If you choose to withdraw from the study, the information collected as part of the research will not be used or distributed for future research studies.

Who should I contact if I have questions?

Please feel free to ask about anything you don't understand.

If you have questions later or if you have a research-related problem, you can call the Principal Investigator at +1(203)737-7006 or a local member of the research team at 0788733276.

If you have questions about your rights as a research participant, or you have complaints about this research, you can call the Yale Institutional Review Boards at +1(203) 785-4688 or email hrpp@yale.edu.

If you experience psychological distress as a result of your participation in this study, please call the toll-free number 1024 to receive help.

Documentation of Informed Consent

Your signature below indicates that you read and understand this consent form and the information presented and that you agree to be in this study.

Please feel free to print a copy of this consent form

Participant Printed Name

Participant Signature

Date

Appendix 3: Recruitment Materials

Recruitment letter

Greetings,

I am part of a team of psychology researchers that has partnered with GAERG to conduct a research study on mental health in Rwandan young adults (aged 18-40) who identify as survivors or children of survivors or victims of the 1994 genocide against the Tutsi. The goal of this study is to investigate predictors of positive and negative mental health outcomes in Rwandan youth specifically by looking at youth who are genocide survivors and those who are children of genocide survivors.

This study will be conducted online, will take 30 minutes to complete, and participants will receive the equivalent of \$10 through Mobile Money for participating in this study. Participants responses will be completely anonymous and will be kept securely.

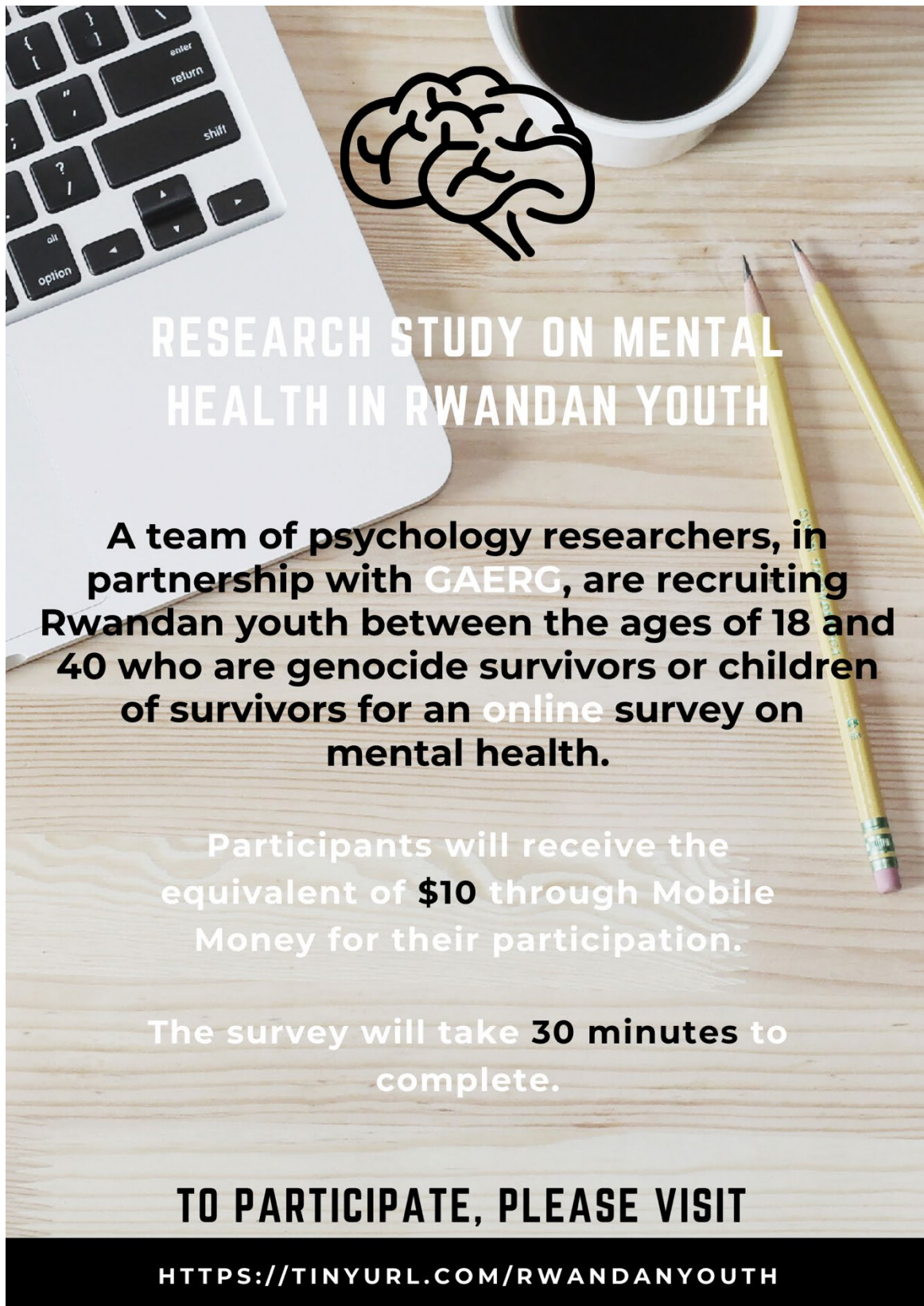
We would like to ask your help in recruiting members of your genocide survivor organization and other people you know who are survivors or are children of survivors to participate in this study. Please find attached our approvals from CNLG, Yale University, Rwanda National Ethics Committee, and National Council for Science and Technology.

Individuals interested in participating in this study can go to this link:

<https://tinyurl.com/RwandaYouth>

Thank you,
Jessica Bonumwezi

Recruitment flyer



RESEARCH STUDY ON MENTAL HEALTH IN RWANDAN YOUTH

A team of psychology researchers, in partnership with GAERG, are recruiting Rwandan youth between the ages of 18 and 40 who are genocide survivors or children of survivors for an online survey on mental health.

Participants will receive the equivalent of **\$10** through Mobile Money for their participation.


The survey will take **30 minutes** to complete.

TO PARTICIPATE, PLEASE VISIT

[HTTPS://TINYURL.COM/RWANDANYOUTH](https://tinyurl.com/rwandanyouth)

Appendix 4: Research Approvals

REPUBLIC OF RWANDA/REPUBLIQUE DU RWANDA



NATIONAL ETHICS COMMITTEE / COMITE NATIONAL D'ETHIQUE

Telephone: (250) 2 55 10 78 84
E-mail: info@rncrwanda.org
Web site: www.rncrwanda.org

Ministry of Health
P.O. Box. 84
Kigali, Rwanda.

FWA Assurance No. 00001973
IRB 00001497 of IORG0001100

November 13th, 2020
No.653/RNEC/2020

Principal collaborators and institutions:

- Sarah Lowe – Yale University
- Jessica Bonumwezi – Montclair State University
- D'Artagnan Habintwali – GAERG

Your research project: "Coming of Age After the Genocide: Mental Health of Rwandan Young Adults." has been evaluated by the Rwanda National Ethics committee.

Name	Institute	Involved in the decision		
		Yes	No (Reason)	
			Absent	Withdrawn from the proceeding
Dr. Jean-Baptiste MAZARATI	Biomedical Services (BIOS)	X		
Prof. Jean Paul RWABIHAMA	University of Rwanda		X	
Prof.Laetitia NYIRAZINYOYE	University of Rwanda	X		
Ass .Prof. Egide KAYITARE	University of Rwanda	X		
Mr. Spencer BUGINGO	Lawyer	X		
Ass. Prof. David K. TUMUSHIME	University of Rwanda	X		
Ass. Prof. Lisine TUYISENGE	Kigali Teaching Hospital	X		
Dr. Darius GISHOMA	University of Rwanda	X		
Sr.Epiphanie MUKABARANGA	Rwamagana Nursing and Midwife school		X	
Dr. Vedaste NDAHINDWA	University of Rwanda	X		
Prof. Claude MUVUNYI	Biomedical Services (BIOS)	X		

After review of the protocol and consent forms, during the RNEC meeting of July 17, 2020 where quorum was met, and revisions made on the advice of the RNEC submitted on 12th November 2020, we hereby provide approval for the above-mentioned protocol.

Please note that approval of the protocol and consent form both English and Kinyarwanda version is valid for 12 months.

You are responsible for fulfilling the following requirements:

1. Changes, amendments, and addenda to the protocol or consent form must be submitted to the committee for review and approval, prior to activation of the changes.
2. Only approved consent forms are to be used in the enrollment of participants
3. All consent forms signed by subjects should be retained on file. The RNEC may conduct audits of all study records, and consent documentation may be part of such audits.
4. A continuing review application must be submitted to the RNEC in a timely fashion and before expiry of this approval.
5. Failure to submit a continuing review application will result in termination of the study.
6. Notify the Rwanda National Ethics committee once the study is completed.

Sincerely,



Dr. Jean- Baptiste MAZARATI
Chairperson, Rwanda National Ethics Committee.

Date of Approval: November 13,2020
Expiration date: November 12,2021

C.C.

- Hon. Minister of Health.
- The Permanent Secretary, Ministry of Health.



REPUBLIKA Y'U RWANDA
National Commission for the Fight against Genocide
Commission Nationale de Lutte contre le Génocide
Komisiyo y'Igihugu yo Kurwanya Jenocide



-CNLG-

Kigali, 27 OCT 2020
 N° 0766/20/CNLG/SE

Executive Secretary
National Council for Science and Technology
 13th Floor, Grand Pension Plaza
 KN 2 Avenue, Nyarugenge, Kigali
 P.O. Box 2285
KIGALI

RE: Recommendation for research permit

Executive Secretary,

Dr. Sarah Lowe of Yale University, Ms. Jessica Bonumwezi of Montclair State University, and Mr. D'Artagnan Habintwali of GAERG Rwanda, would like to apply for a research permit, for a period of one year, starting January 2021, for their research project "Coming of Age After the Genocide: Mental Health of Rwandan Young Adults". CNLG supports Dr. Lowe, Ms. Bonumwezi and Mr. Habintwali's application as an affiliating institution.

Due to the Covid-19 pandemic, this present study will be conducted as an online survey on mental health in Rwandan youth who are genocide survivors or children of survivors. Researchers will recruit Rwandan citizens between the ages of 18 and 40 who identify as survivors or children of survivors or victims of the 1994 Genocide against the Tutsi.

The aim of the study is to evaluate trauma, resilience, and mental health among young adults who are survivors of the 1994 Genocide against the Tutsi and / or children of genocide survivors and victims. Moreover, the survey will evaluate mental health service need, mental health service use, and attitudes about seeking psychological help in this population. Mr. D'Artagnan Habintwali who is in Rwanda will use CNLG's library as well as other official sources available in the country to further inform their research.

Dr. Jean-Damascène Gasanabo, Director General of the Research and Documentation Center on Genocide at CNLG, has agreed to meet or to exchange emails regularly with researchers in order to supervise their research and ensure that it remains aligned with CNLG's institutional mandate. Therefore, CNLG supports their application for a research permit.

Sincerely,

Dr. BIZIMANA Jean Damascène
Executive Secretary



Digitally signed by CNLG
 (EXECUTIVE SECRETARY)
 Date: 2020.10.27
 09:43:13 +02'00'

REPUBLIC OF RWANDA



NATIONAL COUNCIL FOR
SCIENCE AND TECHNOLOGY

Ms. Jessica Laure BONUMWEZI
Passport No: PC327816

Kigali, on 19th January 2021

N°: NCST/482/214/2021



Dear Jessica,

RE: Approval to Conduct Research in Rwanda

I am pleased to inform you that your request to conduct research in Rwanda entitled: **“Coming of Age after the Genocide: Mental Health of Rwandan Young Adults”** in collaboration with Dr. Sarah Lowe (Yale University) and Mr. D’Artagnan Habintwali (GAERG Rwanda) to evaluate trauma, resilience and mental health among young adults who are survivors of the 1994 Genocide against the Tutsi, has been approved under research permit No: NCST/482/214/2021.

This permission covers research activities specifically related to the provided research project title, and project proposal submitted to the National Council for Science and Technology (NCST) for the period from 20th January 2021 to 31st January 2022.

The research will be carried out under the affiliation of **National Commission for the Fight against Genocide (CNLG)**, under the supervision of **Dr. Jean-Damascene Gasanabo (0786648776)**, DG-Research and Documentation Centre at CNLG, and will take place in Kigali City and the Northern, Southern, Eastern and Western provinces.

You are requested to submit both the progress and final report after completion of your research activities to the National Council for Science and Technology (NCST), Mayor of the city of Kigali, Governors of the Western, Southern, Eastern and Northern Provinces.

I wish you success in your research.

Sincerely,

Digitally signed
by NCST (ES)
Date: 2021.01.20
16:59:00 +02'00'

Dr. Eugene MUTIMURA
Executive Secretary

CC:

- Hon. Lord Mayor of the City of Kigali
- Hon. Governors of Northern, Southern, Eastern and Western Provinces
- Executive Secretary, CNLG
- Dr. Jean-Damascene Gasanabo, Supervisor of the study



Human Research Protection Program
Institutional Review Boards
FWA00002571
25 Science Park – 3rd Fl., 150 Munson St.
New Haven CT 06520-8327

Telephone: 203-785-4688
<http://www.yale.edu/hrpp>

December 31, 2020

APPROVAL OF SUBMISSION VIA EXPEDITED REVIEW

Approval Date: 12/31/2020

Investigator:	Sarah Lowe
Type of Review:	Modification/Update
Title of Study:	Coming of Age After the Genocide: Mental Health of Rwandan Young Adults
IRB Protocol ID:	2000027978
Submission ID:	MOD00033364

Research activities associated with this submission are approved and may begin consistent with the terms of IRB approval.

The modification request to limit the study to two groups, only provide the study in Kinyarwanda, add local contact numbers to the consent form, make changes to the survey, and provide approval from the local IRB, the Rwanda National Ethics Committee (RNEC), per your request submitted December 14, 2020, is approved.

IRB approval of research or proposed changes to previously approved research does NOT constitute institutional approval for initiating or resuming in-person research during a pandemic. It is your responsibility to comply with institutional, federal, state, and local requirements (including Centers for Disease Control (CDC) and State of Connecticut guidelines), and other applicable policies. Please review the Yale requirements for research reactivation on the Yale website: <https://research.yale.edu/phase-2-research-reactivation>.

See the next pages for important reminders and the list of IRB approved documents.

IRB #: IRB-FY20-21-2082
Title: RDF Rwandan survivor youth survey
Creation Date: 1-19-2021
End Date:
Status: **Approved**
Principal Investigator: Sally Grapin
Review Board: MSU Institutional Review Board
Sponsor: Yale University

Study History

Submission Type	Initial	Review Type	Exempt	Decision	No Human Subjects Research
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Key Study Contacts

Member	Sally Grapin	Role	Principal Investigator	Contact	grapins@mail.montclair.edu
Member	Jessica Bonumwezi	Role	Primary Contact	Contact	bonumwezij1@montclair.edu
