Fostering prosociality in refugee children: an intervention with Rohingya children

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Fostering Prosociality in Refugee Children: An Intervention With Rohingya Children

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Abstract Prosocial behavior is a distinguishing characteristic of human nature. Although prosocial behaviors emerge early in development, contextual factors play an important role in how these behaviors are manifested over development. A large body of research focuses on the trajectory of prosocial development across diverse cultures and investigating contexts that foster it. Against this backdrop of developmental research endeavoring to understand and enhance the cooperative side of humanity, is the catastrophic impact of profoundly negative forces on social-emotional development for children forced to flee from violent conflict. Close to half a million Rohingya children, whose families were forced to flee genocide in Myanmar, now live in the largest refugee camp in the world. To examine the resilience of human prosociality in the face of extreme adversity, we documented initial levels of

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prosociality in Rohingya refugee children living in a mega-camp (Cox's Bazar, Bangladesh) and the extent to which those levels were improved following a multifaceted intervention designed to foster prosociality. The research was a partnership between Rohingya community members with lived experience, humanitarian practitioners, and developmental researchers.

A sample of 152 Rohingya children (5–12 years) participated in pre- and postintervention assessments of prosocial behaviors and related cognitive-affective processes. The 10-day collaboration-based intervention was implemented between November 2021 and January 2022 by Rohingya researchers. Birthplace was used as a proxy measure of trauma level. Children born in Myanmar ($N = 88$) directly experienced relatively higher levels of trauma (genocide, forced migration) than children who were born in the camp after their families fled from Myanmar ($N = 64$). Children were individually tested pre- and postintervention with a task battery, including a helping (Origami) and two sharing tasks (Dictator Game [DG], Forced Choice sharing) measuring prosocial behavior. Assessments of related cognitive-affective processes included measures of empathic responding and emotion perspective-taking in story tasks (Imagine, Judgment) and executive function (EF) skills (Younger: Hearts & Flowers; Older: Dimensional Change Card Sorting). Small group intervention sessions conducted over 10 days targeted these prosocial behaviors and cognitive-affective processes and were based on collaborative activities, emotion perspective taking and EF skills training with the same partner throughout the intervention phase.

We used latent change modeling to examine initial levels (preintervention) and intervention-related changes in these measures from pre- to postintervention. Prosocial responding was found across all measures (preintervention) and improvements (pre- to postintervention change) were apparent across most measures. Age and birthplace variables were significant predictors of initial levels and intervention-related change. *Initial levels*: Regarding age, older children (9–12 years) showed higher levels than younger children (5–8 years) of sharing in the Forced Choice task but lower levels in the DG. Older children also showed higher levels of empathic responding when asked to report how they would feel and respond to another person's misfortune in the Imagine task. Regarding birthplace, prior to the intervention camp-born children showed higher levels than Myanmar-born children of helping in the Origami task and reported more behavioral responses indicating how they would respond to misfortune in the Imagine task. In contrast, Myanmar-born children had higher levels of sharing in the DG and consistently chose equality over inequality in the Forced Choice sharing task, even when their partner would receive more, indicating a pattern of generosity in these children. Myanmar-born children had lower levels than camp-born children on EF measures. *Intervention-related change*: Regarding age, older but not younger children were more likely to increase choices for equality over inequality on the Forced Choice sharing task following the

intervention. Regarding birthplace and helping, camp-born children increased behaviors that helped their partner make origami shapes themselves ("how-to" helping), whereas Myanmar-born children increased behavior that took over folding for their partner ("do-for" helping). For sharing tasks, Myanmar-born but not camp-born children increased sharing in the DG and showed an increased pattern of generosity in Forced Choice sharing task. In the Imagine story task, children born in Myanmar were more likely than those born in camp to increase empathic responding (i.e., imagining how they would feel). Children born in Myanmar showed less improvement on EF measures than children born in the camp. Taken together, these findings provide evidence that in a context of extreme adversity, Rohingya children exhibited prosociality and benefitted from a multifaceted intervention.

Our research adds credence to the view that human prosociality is a fundamental characteristic of humanity that not only survives but can be enhanced in even the most adverse of childhood environments. Our multifaceted intervention, which was implemented within a collaborative social context and targeted prosocial behaviors and related cognitive-affective processes, was designed to be easily implemented within existing psychosocial support programs in refugee contexts. As the numbers of children affected by violent conflict and forced migration rise alarmingly worldwide, there is a critical need to expand research partnerships that aim to improve developmental outcomes for these millions of children.

I. Introduction

Cooperation is a defining characteristic of human nature, one that develops early and is shaped by individual and cultural forces (Tomasello, 2009). Like kindness, it encompasses many prosocial human traits that represent the upside of humanity (Malti, 2021). There is also a downside of human social behavior, manifested in aggression, heartless violence, and hostility (Malti & Rubin, 2018). In the current study, we explored whether the prosociality inherent in human nature can survive and thrive despite exposure to the darkest of contexts for human development. Our research examines prosocial development and an intervention to support it in Rohingya refugee children whose families were forced to flee from genocidal violence in Myanmar, and now live in the largest refugee camp in the world.

The Rohingya Refugee Crisis

The United Nations High Commission on Refugees (UNHCR) estimates that at the end of 2022 there were 108 million people (40% children) worldwide who were displaced due to persecution, conflict, violence, human rights violations, and other crises (United Nations High Commission on Refugees, 2022). The exponential rise in refugee and migration crises is powerfully evident in the case of the Rohingya, the majority of whom live in the world's largest refugee camp, located near Cox's Bazar, Bangladesh (2023 population estimated at ~962,000). A predominantly Muslim ethnic minority of Myanmar, the stateless Rohingya have been described as one of the most persecuted minorities in the world (de Chickera, 2021). When large-scale genocidal violence erupted in Myanmar over the month of August in 2017, the majority of Rohingya fled to neighboring Bangladesh (~750,000), with significant numbers also fleeing to Malaysia (~100,000) and India (~18,000). Approximately 600,000 Rohingya remain in Rakhine State in Myanmar, 142,000 of whom live in increasingly crowded internal displacement camps (United Nations High Commission on Refugees, 2021). Currently, and for many decades before the 2017 genocide, the living conditions for Rohingya families in Myanmar have been characterized by severe restriction of movement and access to work, lack of basic medical or educational services, and perpetual insecurity with little to no legal recourse due to government policies that deny citizenship to Rohingya (Ibrahim, 2018; Steinberg, 2013). Rohingya children have experienced, and continue to experience, extreme adversity in Myanmar and in the camps to which their

families fled. UNHCR estimates that 52% of Rohingya refugees living in the sprawling complex of 32 camps in Bangladesh are children. A 2018 report by Save the Children (SC) revealed that over 6,000 acutely traumatized children arriving at the Bangladesh camp in the mass migration of 2017 were orphaned because of genocidal violence they experienced in Myanmar or in attacks as their families attempted to flee (Save the Children, 2018a).

Rohingya children are growing up in refugee camps and settlements that severely disrupt their social-emotional development, including the development of positive human values and prosocial relationships. Many children witnessed genocidal atrocities prior to their forced migration from Myanmar. A study of 3,300 Rohingya adults living in Bangladesh's Cox's Bazar refugee camps documented the extent of violence in Myanmar that led to the mass exodus of Rohingya in 2017 (Habib et al., 2018). Close to 90% of the participants reported their homes were burned down, nearly 27% watched a family member be thrown into a fire, over 30% were shot, and over 80% witnessed the death of a neighbor. The humanitarian response to children's needs in the Bangladesh camp is challenging and requires complex coordination of international and national NGOs to implement support for mental health, health and nutrition, education, and child protection, including gender-based violence (Khan & Kontinen, 2022; UNICEF, 2023).

With traumatic forced migration from conflict rising at alarming rates globally, it is critical to understand the psychological costs of conflict-related displacement and their solutions. The devastating impacts on mental health have been well documented in the humanitarian literature. In 2017, SC reported that a majority of Syrian children impacted by war live with persistent fear and uncontrollable outbreaks of anxiety, more aggressive behavior, very low self-confidence, and desensitization to violence (Save the Children, 2017b). In the same year, SC documented profound psychological trauma from Rohingya refugee children's testimonies shortly after they arrived in the Bangladesh camp (Save the Children, 2017a). A follow up study conducted a year later revealed that the children continued to identify concerns about mental health and safety, but also voiced concern over a lack of learning opportunities in their new environments (Save the Children, 2018b). Humanitarian agencies call for culturally sensitive responses to the complex issue of improving the social-emotional health of Rohingya, and other refugees (Tay et al., 2018). While the need has been clearly documented in humanitarian research, we also need to understand the impacts of war and forced migration on children's psychological development.

The Impact and Mitigation of War-Related Trauma on Social-Emotional Development

Psychological studies reveal that exposure to conflict-related violence and forced migration severely impedes children's mental health, which is closely linked to social-emotional development (Betancourt et al., 2013; Malti, 2020;

Masten, 2014; Masten et al., 2015). These studies typically focus on how exposure to trauma negatively affects mental health, such as with posttraumatic stress disorder (PTSD) or related symptoms (Betancourt et al., 2010; 2013; Bronstein & Montgomery, 2011; Masten et al., 2015; Mels et al., 2010; Yalın Sapmaz et al., 2017). The studies reveal a complex interplay of individual and contextual factors impacting mental health outcomes (Masten et al., 2015). For example, repeated exposure to trauma from war in early childhood has been linked to increased psychopathology during middle and late childhood (Alsayed & Wildes, 2018; Halevi et al., 2016; Hinchey et al., 2023; Zwi et al., 2018), which is exacerbated in the absence of protective factors (Elsayed et al., 2019). Other research investigating the cumulative impact of exposure to violence on Palestinian youth revealed increased posttraumatic stress symptoms and aggressive behavior over time, and development of world views that aggression toward outgroup members was acceptable (Dubow et al., 2010; Huesmann et al., 2023; Niwa et al., 2016).

Prosociality is considered a central component of social-emotional development having behavioral, cognitive and affective aspects (Malti, 2021). Research in the field focuses on positive, other-oriented behaviors, including helping, sharing, comforting, kindness and more (Dunfield & Kuhlmeier, 2013; Eisenberg et al., 2015; Malti, 2021; Malti et al., 2021; Warneken & Tomasello, 2009), and investigates the factors that motivate and promote these behaviors (Corbit et al., 2017; Eisenberg et al., 2010; Kärtner, 2018; Malti et al., 2009; Paulus, 2018; Vaish, 2018). Research consistently shows that prosociality is linked to positive mental health outcomes (Malti, 2021; Malti et al., 2021; Zuffiano et al., 2018) and is considered a central protective factor in contexts of violence (Malti, 2020). However, only a few studies have investigated the impact of war- and conflict-related violence on prosocial development per se. Those that do typically use self-report measures and find that children and adolescents report diminished levels of prosocial behavior in such contexts (Keresteš, 2006; Taylor et al., 2018). In one study, Keresteš (2006) found that Croatian children (12–14 years) with higher levels of exposure to war reported higher levels of aggression and lower levels of prosocial behavior than those with lower levels of exposure. Taylor et al. (2018) conducted a longitudinal study of Irish adolescents through 6-years of a political crisis, assessing prosociality with the prosocial subscale of the Strength and Difficulties Questionnaire (SDQ; Goodman, 2001). SDQ prosocial scores decreased over age and were lower for greater exposure to violence in this study. A recent study used behavioral measures, rather than self-reports, of helping, sharing, and comforting with Rohingya children living in an urban refugee settlement in India and those resettled in a Canadian city (Corbit et al., 2022). Overall prosocial scores for resettled Rohingya children were significantly higher than those for Rohingya children living in the refugee settlement, providing important

evidence that contextual and not cultural factors impacted the lower levels of prosocial behavior in children living in the refugee camp.

While these studies consistently find a detrimental impact of conflict-related violence on prosocial development, other studies suggest that prosocial behavior may be an adaptive response to trauma inherent in these contexts (Bauer et al., 2016). For example, a study of Syrian children living in an urban refugee settlement in Turkey reported equivalent prosocial scores on the SDQ compared to Turkish children and to the norms for US children (Alsayed & Wildes, 2018). Children in an Australian refugee detention center scored higher than community settled refugee children but lower than the Australian norms on the SDQ prosocial subscale (Zwi et al., 2018), consistent with a recent US-based study examining the impact of immigration detention centers on refugee children's mental health (MacLean et al., 2019). Malti et al. (2021) analyzed narratives about helping provided by resettled Syrian refugee children (5–12 years) and found that children reported instances of both providing and receiving help, and mostly sympathy-based motives. However, relationship-based motives for helping were also reported, suggesting these motives may be more salient for children developing in refugee contexts. A study of Burundian children living in refugee camps in Tanzania found that self-reported prosocial behavior was positively correlated with exposure to war but negatively related to exposure to maternal violence (Scharpf et al., 2021). This complex pattern is supported by related research indicating that sensitive maternal support can be a protective factor against war-related trauma for children (Eltanamly et al., 2021; Sloane & Shoshani, 2017).

In summary, while research suggests that exposure to conflict-related violence is detrimental to mental health, evidence of its impact on prosocial behavior and its growth is inconsistent (Malti & Speidel, 2024). Different conflict and cultural contexts are sampled across the studies, making it unclear as to how inconsistencies in reported levels of prosocial behavior across these studies are related to different factors (e.g., type of conflict, culture). Despite the inconsistent findings, we reasoned that fostering prosocial development may mitigate detrimental effects of war-related trauma in Rohingya refugee children, especially given its central role in positive social-emotional development and the lower overall levels of prosocial behavior for Rohingya children living in a refugee settlement in India that improved following brief intervention sessions (Corbit et al., 2022).

Interventions designed to mitigate the negative impacts of war-related trauma have primarily focused on improving mental health outcomes with training in techniques to foster effective coping strategies, problem solving, EF, and emotion regulation (Rousseau & Guzder, 2008; Ruf et al., 2010; Schottelkorb et al., 2012; Sirin et al., 2018). A recent systematic review found that such psychosocial supports generally do improve PTSD symptoms for children developing in war and conflict contexts (Purgato et al., 2018). However, the studies included in the review differed across many factors (e.g.,

type of intervention, age of target group, country, type of conflict experienced), making it impossible to identify without further study the specific psychological processes that underlie improvement in mental health outcomes.

A handful of studies have examined interventions that specifically aim to improve social-emotional functioning among war-affected children. An intervention with Palestinian youth (10–14 years) experiencing armed conflict focused on fostering peer relationships through developing cooperation and problem-solving skills (Peltonen et al., 2012). The study measured baseline and postintervention SDQ prosocial scores, which remained the same for children in the intervention group but decreased for children in the control group, suggesting that the intervention may have helped to prevent decline rather than improve children's prosocial scores. Using a multifaceted intervention (EF skills and language training, coding, digital game play) with Syrian refugee youth (9–14 years) living in Turkey, Sirin et al. (2018) found improvement relative to a waitlist control group on a social-emotional indicator (Beck's Hopelessness scale) and on EF skill measured with the Dimensional Change Card Sort (DCCS) task (Zelazo et al., 2013). Although the findings from these intervention studies suggest that interventions promoting cooperation, problem solving, and EF skills training within refugee contexts show promise, the many contextual, methodological, and developmental differences across the studies make it impossible to identify the factors responsible for the improvement. In the current study, we drew from existing theoretical perspectives on prosocial development and consulted empirical evidence relevant to the factors that improve prosocial behavior in nonrefugee children to establish a conceptual model that informed our design of an intervention to support prosocial development in Rohingya refugee children.

Conceptual Model of Prosocial Behavior and Supports

The conceptual model that underlies this study adopts the position that prosocial behavior is influenced by a complex interplay of other-oriented cognitive-affective processes with social contextual factors (Malti & Speidel, 2024). Prosocial behavior is generally used to refer to behavior that is voluntarily initiated to provide benefit to another person (Callaghan & Corbit, 2023; Eisenberg et al., 2015). A prominent conceptual approach in developmental studies identifies three core types of prosocial behavior (helping, sharing, and comforting), with each addressing a unique need in the recipient of the prosocial act (Dunfield, 2014; Dunfield et al., 2011; Dunfield & Kuhlmeier, 2013). In the current study, we focus on two prosocial behavior types (helping, sharing) and seek to gain new understanding into the cognitive-affective processes and social contextual factors that influence prosocial behavior in refugee children.

Cognitive-Affective Processes

In many cases prosocial behavior is motivated by an affective response to another's need (e.g., empathy or sympathy) and is enabled by cognitive skills (e.g., emotion perspective-taking, behavioral flexibility and inhibition) required to infer need, inhibit self-oriented concerns, and respond appropriately to address the needs of the other (Eisenberg et al., 2010; Kärtner, 2018; Malti, 2021; Malti et al., 2009; Paulus, 2018; Vaish, 2018). The complex interplay between affective states and cognitive processes in producing prosocial behavior is evident in the case of empathy. Although the affective state of empathy may motivate prosocial behavior (Malti, 2021; Malti et al., 2009), it also depends on cognitive abilities (e.g., inference of the emotional perspective of others, inhibition of self-oriented behavior), making it difficult to parse its unique role in prosocial behavior, separate from cognitive ability (Malti, 2021).

We acknowledge the influence of cognitive-affective processes in supporting prosocial behavior in our model. To examine their effects, we designed an intervention that invoked two cognitive-affective processes and assessed their levels pre- and postintervention. The intervention enlisted two cognitive-affective processes in activities that included discussion of stories depicting misfortune (emotion perspective-taking) and video EF skills games (behavioral inhibition and switching). The intervention also included other play-based games and activities and was implemented in the social context of peer collaboration as described below.

To measure the impact of the intervention on the cognitive-affective processes included in the intervention (i.e., emotion perspective-taking, EF behavioral flexibility and inhibition) we examined evidence for improvement in children's "empathic responding" to story scenarios and their ability to shift and inhibit responses in EF skills tasks from pre- to postintervention. We use the term empathic responding in this report as a general term to refer to responses in tasks where children have had to consider emotional perspectives of individuals and make a judgment and/or decide on a course of action that aims to appropriately address the needs of the affected individual (i.e., shows other-oriented concern and action that addresses the need). Empathic responding is measured here in two types of tasks requiring children to infer and/or decide on actions to address the emotional perspectives of story characters experiencing misfortune; one in which children judge characters who act or don't act prosocially (Judgment task) and another in which they imagine how they would feel and what they would do if they witnessed the misfortune of the child depicted in the story (Imagine task). Although there are emerging technologies to measure affect in developmental research (Gerdemann et al., 2022; Hepach et al., 2019), we did not directly measure empathy as an affective state in the current study but did ask children to prospectively imagine how they would feel if they witnessed others' misfortune, and coded children's verbal responses according to

whether they indicated feelings of concern for the other (i.e., empathy, sympathy). Inhibiting self-oriented behavior in favor of other-oriented behavior is another cognitive-affective ability that underlies prosocial behavior and undergoes significant change in the period of early to middle childhood. EF skill is measured as an outcome from our intervention in two types of tasks that tap behavioral flexibility and inhibition: Hearts & Flowers (younger children) and DCCS (older children).

Social Contextual Factors

Adding another layer of complexity to our model, we acknowledge that social contextual factors can impact cognitive-affective processes that in turn influence prosocial behavior. For example, a number of studies have shown the positive influence of the social context of peer collaboration on prosocial behavior and development (Corbit et al., 2017, 2021; Hamann et al., 2011, 2012; Warneken et al., 2011) and an increasing number of studies have documented the impact of sociocultural factors (Blake, McAuliffe, et al., 2015; Callaghan & Corbit, 2018; House et al., 2013, 2020; Kärtner et al., 2010). The pathways that link social contextual factors to cognitive-affective processes and on to production of behavior is not yet clear, even as it is clear that social context impacts prosocial behavior. We examined the impact of social context on prosocial behavior in our study through an intervention based on peer collaboration, and to achieve maximum impact, the intervention also included activities to invoke cognitive-affective processes known to foster prosocial behavior (emotion perspective-taking, EF skills of behavioral flexibility and inhibition), as described above. The primary aim of the current research was to assess intervention-related improvements from pre- to postintervention in tasks measuring prosocial behavior (Origami helping task; Dictator Game [DG] and Forced Choice sharing tasks) and cognitive-affective processes (Imagine and Judgment story tasks to assess empathic responding and EF tasks to assess behavioral shifting and inhibition).

Summary of the Conceptual Model

We acknowledge the complex interplay among cognitive-affective processes and social contextual factors in giving rise to prosocial behavior. We conceptualize prosociality as observed helping and sharing behaviors supported by cognitive-affective processes and influenced by social contextual factors. Table 1 presents an outline of the conceptual framework underpinning our study along with how our task measures and outcome variables map onto the framework, which are described in more detail in Chapters II and III. Evidence to support our model is discussed next.

TABLE 1

MEASURES OF PROSOCIAL BEHAVIOR AND COGNITIVE-AFFECTIVE PROCESSES ADMINISTERED PRE- AND POSTINTERVENTION, WITH TASKS AND OUTCOME VARIABLES FOR EACH TASK

	Prosocial Behavior		Cognitive-Affective Processes				
	Helping	Sharing	Empathic Responding & Emotion Perspective-Taking		Knowledge of Prosocial Norm	Executive Functions (Behavioral Shifting and Inhibition)	
Task	Origami	1. Dictator game 2. Forced choice	Imagine How would you feel?	Imagine What would you do?	Judgment Who did the right thing?	Hearts & Flowers (Younger)	DCCS (Older)
Outcome variable	Number occurrences 1. Behavior 2. Monitoring 3. Overtaking	1. Number shared /6 2. Proportion equal choice for trial type 1:0, 2:0, 1:2, 2:1	Score /2: Emotional	Score /3: Behavioral	Score /2:	RT (ms)	RT (ms)

Note. DCCS = dimensional change card sort task; EF = executive function, RT = reaction time.

Helping

By 14 months of age, toddlers provide instrumental help to adults who demonstrate their needs in a variety of novel scenarios (Warneken & Tomasello, 2007). At 18 months of age, children help in more situations (Brownell et al., 2013; Dunfield et al., 2011; Warneken & Tomasello, 2006, 2007) and across diverse societies (Callaghan et al., 2011; Kärtner et al., 2010). Finding that helping emerges early in development across diverse cultural contexts suggests there is a strong human predisposition for helping (Warneken, 2016). Further evidence for this comes from the finding that between 2 and 5 years of age children across diverse cultures help an adult who is unaware that they require help (proactive helping) and so is not displaying any social cues of a need (Aime et al., 2017; Warneken, 2013). However, the level of helping achieved by toddlers may differ depending on the type of helping measured and contextual factors. For example, younger toddlers provide help when an adult displays an instrumental need (e.g., tries to retrieve a pen that is out of reach) more readily than when an adult displays an emotional need (e.g., is sad because they have hurt themselves) (Svetlova et al., 2010), an effect reported across diverse societies (Corbit et al., 2020). Yet, experience with ownership further constrains helping; toddlers who own little to no items find it more difficult than those who own many items to help by giving up items they own (Corbit et al., 2020). In summary, while children engage in noncostly, instrumental helping at an early age across diverse cultural contexts, helping that addresses an emotional need or is costly appears somewhat later.

Sharing

Naturalistic observations suggest that as early as 8 months of age, infants will readily give toys in interactions with parents, siblings, and strangers (Hay, 1979), however, it is very likely that this form of early giving is motivated by a desire to share attention to the object rather than transfer ownership of the objects (Rochat, 2014; Salter & Carpenter, 2022). Later in development, when they are given the option to keep windfall resources (resources obtained without prior effort) or share them with an anonymous peer in the classic DG, children younger than 5 years tend to keep most of the resources for themselves and it is not until later (5–8 years) that they are more likely to split resources equally (Benenson et al., 2007; Blake, McAuliffe, et al., 2015; Rochat et al., 2009). Furthermore, House et al. (2013) reported that the shift in middle childhood, around 8 years of age, does not always follow equality norms but instead trends toward adult levels that are typical within the child's society. These findings suggest that societal norms may play a more influential role in fairness decisions as children reach middle childhood, a conclusion supported by studies of inequity aversion

(Blake, McAuliffe, et al., 2015). In general, measures of inequity aversion track a person's rejection of resource allocations between oneself and another person that are deemed unfair, in tasks that contrast equal allocations with unequal ones. In a developmental version of this sort of task, the Inequity Game, children have the option to accept or reject an adult's allocation of treats between them and their partner (Blake & McAuliffe, 2011). Two types of inequity trials are contrasted with equal allocation trials in this task. For disadvantageous inequity (DI) trials the partner is allocated more than the child who decides to accept or reject the allocation and in advantageous inequity (AI) trials the decider receives more than the partner. Blake and McAuliffe (2011) reported that US children rejected DI allocations more than equal ones as early as 4 years but did not reject AI relative to equal trials until 8–9 years. In a cross-cultural study, researchers found rejection of DI early in development across all cultures but rejection of AI in middle childhood in only a few, supporting the view that cultural factors may play an important role in the development of aversion to AI around middle childhood (Blake, McAuliffe, et al., 2015). These findings are supported by evidence from a number of other studies showing that children are less likely to choose equality options when it is costly for them (Fehr et al., 2008; House et al., 2013).

To summarize, research indicates that prosocial behavior emerges very early in development, is manifested in many forms (e.g., helping, sharing), and develops along a similar trajectory across diverse societies for some forms (e.g., noncostly helping and sharing), but diverges across societies for others (e.g., costly helping and sharing). Longitudinal research reveals that prosociality is a critical foundation of social-emotional wellbeing (Flynn et al., 2015; Malti & Dys, 2018), making it especially important to investigate the factors supporting its development in conflict-affected environments where devastating effects on social-emotional development and mental health have been well-documented.

Cognitive-Affective Processes and Social Contexts that Support Prosocial Behavior

Cognitive-Affective Processes Support Prosocial Behavior

Findings from research investigating whether children's appreciation of the emotional consequences of prosocial and antisocial behavior is related to prosocial behavior are inconsistent. A meta-analysis of studies that measured empathic responding (Eisenberg & Miller, 1987) found the relation between empathy and prosocial behavior depended on the way empathy was measured. When empathy was measured by self-report ratings of emotion after children listened to stories depicting arousing events there was no relation to prosocial action, however, low to moderate relations emerged with other measures like parental or teacher reports of empathy. In more recent studies focused on emotion perspective-taking, researchers reported that

preschoolers' ability to judge a story character's emotion and priming with the emotional consequences of sharing/not sharing were predictive of higher levels of sharing, especially when negative emotions of the character were primed or portrayed in story scenarios (Paulus & Moore, 2015; Paulus et al., 2017). In related research, children responded to witnessing others in pain by increasing sharing and exhibiting greater fairness concerns (Paulus & Leitherer, 2017). Thus, although limited in number and restricted to Western societies, studies to date do provide support for the view that emotion perspective-taking ability may increase children's fairness concerns in sharing tasks (Paulus & Moore, 2015; Paulus et al., 2017; Paulus & Leitherer, 2017). Whether they do so via the induction of the emotional state of empathy, which in turn motivates prosocial behavior (i.e., sharing), requires further clarification. Likewise, we need more evidence regarding the impact of emotion perspective-taking on helping behavior.

Similar to the findings for empathic responding and emotion perspective-taking, evidence for a relation between EF skills and prosocial behavior is mixed and depends on how prosocial behavior and EF skills are measured (Blake, 2018). Related to the EF skill of behavioral inhibition, studies report that emotion regulation, especially effortful control of negative emotions (Eisenberg et al., 2007), is linked to self-reports and teacher-reports of sympathetic behavior. In another study, researchers found a positive relation between parental reports of children's (6–13 years) behavioral inhibition and children's sharing in a DG task (Blake, Piovisan, et al., 2015). A longitudinal study reported links between working memory and inhibitory control at T1 and sharing at T2 (Paulus et al., 2015). The implication from these studies, that EF skills may promote higher levels of sharing, is challenged by research suggesting instead that prosocial behavior may promote EF skills. Moriguchi et al. (2020) reported no relation between EF at T1 and the SDQ prosocial subscale at T2 but did find that prosocial scores at T1 were linked to higher levels of inhibitory control but not working memory at T2. Another study examined the link between taxing behavioral control and sharing in 6- to 9-year-old children and found that when behavioral control was depleted children tended to share less of their resources (Steinbeis, 2018). Given the mixed results and correlational nature of many of these studies, confirmation of the potential for EF skills training to positively impact prosocial responding requires further study.

To summarize, empathic responding, emotion perspective-taking, and EF have been found to enhance or predict prosocial behavior in nonrefugee children, however the evidence is mixed as to whether these cognitive-affective processes are causal drivers of prosocial behavior or are correlates. Regardless, based on evidence that cognitive-affective processes, especially emotion perspective-taking and EF, are positively related to prosocial behavior in nonrefugee children we included tasks that invoke these processes in the intervention. Therefore, in line with our conceptual model and because the evidence is sparse, we also measured cognitive-affective processes

as indices of prosociality and intervention-related change. Examining the effectiveness of an intervention to promote prosocial behavior and related cognitive-affective processes for children developing in the adverse contexts accompanying conflict and forced migration was the primary aim of the current study.

Peer Collaboration Fosters Prosociality

Studies investigating the impact of the social context of peer collaboration on prosocial behavior in Western children found that 3-year-old children were more willing to help a peer spontaneously if they had collaborated on a task together (Hamann et al., 2012) and to help and to wait for a collaborative partner to complete their task before moving on to other activities (Gräfenhain et al., 2013). In related research, Plötner et al. (2015) found that 3.5-year-olds were more likely to help and expressed feelings of trust, liking and affiliation towards collaborative puppet partners compared to puppets who had worked on a task in parallel. In addition to promoting helping and positive attitudes toward a partner, collaboration has been shown to foster equitable sharing in children (Corbit, 2020). Three-year-old children divided resources more equitably after collaborating with a partner in studies that compared sharing across conditions where they either worked collaboratively or independently to earn resources (Corbit, 2019; Hamann et al., 2011; Warneken et al., 2011). These findings extended to 3- to 5-year-old children in rural India who increased sharing after collaboration (Corbit et al., 2021). In another cross-cultural study investigating the impact of prior collaboration on inequity aversion, older children (7–11 years of age) in two societies (rural India and rural Canada) showed a greater concern for equity when they had previously earned the resources together with their partner compared to individually (Corbit et al., 2017). Thus, peer collaboration consistently fosters prosocial behavior across ages and societies, and in both helping and sharing tasks. Given the strong evidence supporting its positive impact on prosocial helping and sharing, a collaborative social context was the foundation of our intervention.

Although we know very little about the specific factors or contexts impacting prosociality for refugee children developing in highly adverse contexts, Corbit et al. (2022) reported lower overall levels of prosocial behavior for Rohingya children in a refugee settlement compared to a resettled context. Their research findings also provided preliminary support for the view that targeted interventions may improve prosocial outcomes for refugee children. Their study was developed to assess the efficacy of implementing interventions in refugee contexts, and thus served as a "proof-of-concept" for the current, larger-scale study. Children in the Corbit et al. (2022) study lived in a small, unofficial refugee settlement on the outskirts of Hyderabad, India. Parents brought children to a single session in which a Rohingya adult interacted in a 20-min intervention plus assessment while the parent

completed a demographic interview. Three intervention conditions were assessed in a between-participants design; collaboration (adult and child built a tower from blocks together), emotion perspective-taking (adult and child listened to stories and children reasoned about emotional perspectives of story characters in stories with prosocial or antisocial themes), and drawing (a control where children were given drawing materials and asked to draw while the adult sat close by but did not interact). Rohingya children's prosocial behavior was measured in a Proactive Helping task (the adult did not notice items dropping while completing a cleanup task), a DG Sharing task (six candies were shared with another, anonymous child), and a Comforting task (the adult built a tower that collapsed, and children's comforting and helpful responses were measured). Overall prosocial scores were obtained by combining scores on the individual behavioral tasks. Analyses revealed that children's overall prosocial scores were differentially impacted by the experiences of collaboration or emotion perspective-taking depending on their birthplace; whether they had been born in Myanmar (i.e., directly experienced the genocide and forced migration) or born in the camp after their families fled. Children born in the camp had higher overall prosocial scores following collaboration than emotion perspective-taking and children born in Myanmar had higher scores following emotion perspective-taking than collaboration. The positive impact of collaboration and emotion perspective-taking interventions in this study is consistent with findings from the experiments reviewed above that assessed cognitive-affective and social contextual factors that improve prosocial behavior in nonrefugee children (Corbit et al., 2017; Hamann et al., 2011, 2012; Paulus & Moore, 2015, 2017; Warneken et al., 2011, see also a meta-analysis by Shi & Cheung, 2024 for related evidence from applied Social Emotional Learning programs). To maximize its impact considering the adversity experienced by Rohingya children, the multifaceted intervention in the current study included both cognitive-affective (emotion perspective-taking, EF skills) and social contextual (peer collaboration) supports.

The Current Study

This study was motivated by a confluence of realities; devastating photojournalistic accounts of the Rohingya migration of August, 2017,1 a body of research firmly documenting the fundamental nature of prosociality in human psychological makeup (for reviews see, Tomasello, 2016; Warneken, 2015, 2016), and the insight that Rohingya, and refugees in general, are a profoundly underrepresented group in developmental research. To ask how early deprivation impacts human development is not new in developmental science (e.g., research with Romanian orphans, c.f. Nelson et al., 2023). To ask how it impacts the very essence of human nature—our prosocial nature—in a population that by all accounts has experienced the worst of human

nature is new in developmental science. Beyond this basic research question, it is imperative to study the impacts of genocide and forced migration on the development of prosocial behavior in refugee children so that evidence-based interventions can be developed to nurture prosocial values and behavior and avoid deepening the crisis for these profoundly disenfranchised children.

To address these challenges and deepen the knowledge base, we formed a research partnership with academic researchers, humanitarian practitioners (UNHCR Canada) and Rohingya refugees (Canadian Rohingya Development Initiative [CRDI]) to collaborate in designing, implementing, and assessing a prosocial intervention in one of the world's largest refugee camps. This is the first study investigating the impact of conflict-related forced migration on prosocial behavior and its development across a wide age range (5–12 years) in refugee children living in a mega-camp, and the first to assess an intervention specifically designed to foster prosocial behavior in that context. Our study also examines the impact of different levels of directly experienced trauma by contrasting development of children born in Myanmar, who directly experienced the genocide, forced migration, and live in the refugee camp, with children who were born in the refugee camp and did not directly experience the genocide and forced migration. In a world grappling with unprecedented challenges, our efforts to understand the resilience of prosociality in children facing adversity serve as a beacon of hope. It is anticipated that the insights gained from this research will reach beyond the case of Rohingya refugees to inform a compassionate global response to the forced migration of millions (mid-2023 estimates are 110 million forcibly displaced, 43.3 millions of whom are children) seeking refuge from persecution, violence, conflict, and human rights violations to regions outside of the borders of their country of birth (United Nations High Commission on Refugees, 2023b).

II. Overview of Study Design, Research Aims and Hypotheses

Overview of Study Design

Our study design was based on our conceptual model proposing that helping and sharing are key prosocial behaviors that are supported by cognitive-affective processes and collaborative social contexts. We developed a multifaceted intervention protocol that targeted these behaviors and processes within a collaborative social context, one in which children and their peer partners engaged together in a variety of games and cognitive-affective activities (specifically, emotion perspective-taking exercises and EF skills training activities). To assess intervention-related change, the prosocial behaviors (i.e., helping and sharing) and related cognitive-affective processes (i.e., emotion perspective-taking, EF shifting and inhibition) were measured pre-and postintervention.

Due to the scarcity of behavioral measures of social-emotional development in refugee camp contexts we developed a battery of prosocial and cognitive-affective measures to assess the effectiveness of the intervention. Some of the behavioral measures were adaptations of existing measures from cross-cultural studies of prosocial behavior (i.e., DG and Forced Choice sharing tasks) and one was developed for this study (i.e., Origami helping task). Measures of cognitive-affective processes involved in prosocial behavior (i.e., emotion perspective-taking, behavioral shifting and inhibition) were also included in the battery to assess the impact of our intervention on these processes (Imagine, Judgment, Hearts & Flowers, and DCCS tasks).

The novel, multifaceted intervention protocol was designed for this research and based on evidence indicating that peer collaboration, emotion perspective-taking, and EF skills foster prosocial behavior (Corbit, 2019; Corbit et al., 2017, 2021, 2022; Hamann et al., 2011, 2012; Moriguchi et al., 2020; Paulus & Moore, 2015; 2017; Yan et al., 2020). We consulted with Rohingya partners (CRDI) to ensure that the final battery of prosocial and related cognitive-affective measures and the intervention protocol were culturally (Rohingya) and contextually (genocide, forced migration, refugee camp) relevant and sensitive. The measures and intervention protocol were therefore grounded in a culturally sensitive approach, developmental theory, and research findings.

Our primary aim was to test whether the intervention would impact helping and sharing behaviors and cognitive-affective processes that are involved in prosocial behaviors. To promote change in these prosocial

behaviors and processes, our intervention was implemented in a social context where children and their peer partners engaged collaboratively in games and activities, some of which targeted cognitive-affective processes involved in prosocial behavior. Note that cognitive affective processes are both a component of the intervention protocol and measured as outcome variables to determine whether cognitive-affective processes are influenced by our multifaceted intervention. Different tasks were used to measure the processes than were used to invoke the processes in the intervention.

Helping and Sharing Behavioral Outcome Measures

In developing the prosocial behavioral measures, we focused on helping elicited within a novel Origami task and sharing using both Forced Choice and classic DG tasks. We assessed helping among peer partners using an Origami folding task as the activity, with shapes differing in difficulty for younger (5–8 years) and older (9–12 years) age groups. One child (expert) knew how to make the shape and their partner (nonexpert) did not, with expert's helping of the nonexpert being the variable measured. The DG and Forced Choice sharing tasks were used to assess fairness in sharing behavior. We adapted our Forced Choice sharing task from previous studies (Fehr et al., 2008; House et al., 2013; Moore, 2009; Shaw et al., 2016; Silk et al., 2005) and presented children with the option to divide resources equally or unequally on each trial. Four types of unequal options were used to assess children's costly sharing, prosocial sharing, and concerns for advantageous and disadvantageous inequity.

Cognitive-Affective Outcome Measures

To assess the cognitive-affective process of emotion perspective-taking, we employed culturally adapted story scenarios for children to consider, a typical approach to assessing empathic responding in this field (Eisenberg & Miller, 1987; Malti et al., 2016). A Judgment story task asked children to judge how story characters responded to other character's misfortune and a prospective Imagine story task asked children to imagine how they would feel and what they would do if they witnessed the misfortune experienced by a character in the story. Note that these story tasks measured empathic responding, which we propose hinges on inferring the emotional perspective of story characters and then formulating a response that demonstrates other-oriented concern and appropriate action to address others' misfortune. We did not measure empathy as an affective state. To assess pre-and post-intervention EF, we employed the Hearts & Flowers task with younger children (5–8 years) and the DCCS task with older children (9–12 years). Both EF tasks engage the EFs of behavioral flexibility (shifting) and inhibition.

Intervention Protocol

Based on the finding that collaboration boosts prosociality between partners (Corbit, 2019; Corbit et al., 2017, 2021; Gräfenhain et al., 2013; Hamann et al., 2011, 2012; Plötner et al., 2015; Warneken et al., 2011), the intervention protocol was primarily based on a collaborative social context, and within this context pairs of children engaged in a variety of play-based activities, some of which targeted cognitive-affective processes proposed to be involved in prosocial behavior. Thus, in addition to creating a collaborative social context, we included activities that involved an emotion perspective-taking exercise, which has been linked to greater sharing (Paulus & Moore, 2015, 2017). We also targeted EF skills of behavioral flexibility (shifting) and inhibition (Miyake et al., 2000) based on evidence that these skills (Moriguchi et al., 2020; Yan et al., 2020) are positively correlated with prosociality. Thus, to provide a highly supportive environment, we designed a multifaceted intervention that included activities designed to engage cognitive-affective processes involved in prosocial behavior, within a collaborative context known to foster it.

Children were tested individually on the prosocial measures, over 2 days before and after a 10-day intervention phase. Children were paired with the same collaborative peer partner (age- and gender-matched) throughout the intervention phase. Children were not relatives of their partners, or friends prior to the study. Children engaged in daily morning (younger age group) or afternoon (older age group) small group (eight children) sessions with their partners, supported by trained field researchers who lived in the camp. Two classes ran concurrently in two camp locations. Each class had three Rohingya field researchers who implemented the study. One field researcher in each classroom was responsible for ensuring that children collaborated with their partners in all the intervention activities and documenting that all pairs of children engaged in all intervention activities each day.

Cultural Context and Relevance

The general approach to ensuring cultural and contextual relevance and sensitivity of the prosocial measures and intervention activities began with discussions between the principal investigator and the Canadian Rohingya co-investigator who shared lived experience with the participants. The discussion mainly focused on the themes used in the story scenarios and the use of tablets for some prosocial measures and intervention activities, however, all measures and activities were vetted. When the measures and intervention protocol were finalized, feedback was solicited from the Rohingya field research team throughout their training period, during the initial wave of implementation, and after the study was completed. All materials and instructions for the study measures were

developed in English and then translated and back translated by native Rohingya speakers who were fluently bilingual in English. The Rohingya field research team received intensive virtual training over a 4-week period (September–October 2021). Rohingya field researchers had at a minimum a basic proficiency in English, thus, the sessions were conducted primarily in English by a Canadian team member with translation into Rohingya throughout the sessions by the Canadian Rohingya co-investigator who attended virtual sessions to ensure that the field researchers fully understood the training topic for each session. To ensure fidelity of study implementation, the Canadian training team examined videos of practice sessions and corrected errors of administration throughout the training period. When field researchers had successfully learned the procedures, recruitment of participants began. The details of the training protocols and an assessment of the effectiveness of the training approach are published elsewhere (Bruce et al., 2024).

Overview of Research Aims

Our research had two main aims. First, we aimed to establish baseline prosocial levels and developmental differences for Rohingya refugee children (5–12 years) who differed in the level of trauma they directly experienced (Myanmar-born: higher vs. camp-born: lower). Our second but primary aim was to examine the effectiveness of our multifaceted intervention in improving initial prosocial levels for these children. To address these aims, we conducted our intervention study with children living in the Rohingya refugee camp located in Cox's Bazar, Bangladesh. Age (younger: 5–8 years; older: 9–12 years), birthplace (Myanmar, camp), and gender (female, male) were included in analyses to assess the extent to which these variables predicted initial levels and positive change in prosociality following the intervention.

Age

We chose 5 years as the youngest age group to ensure that children could complete all the measures and intervention activities, including the tablet-based ones, and because of evidence that collaboration increases levels of prosociality from as early as 3 years of age (e.g., Hamann et al., 2011). We chose a broad age range (5–12 years) due to evidence that there are significant developmental changes in prosocial behavior from early to middle childhood (Blake, McAuliffe, et al., 2015; Callaghan & Corbit, 2018; 2023; Corbit et al., 2017; House et al., 2013). Children were separated into younger (5–8 years) and older (9–12 years) age groups for all sessions.

Birthplace

Given the possibility that parents could be re-traumatized by responding to specific questions about the levels of trauma experienced by their children, we used a proxy measure of the level of directly experienced trauma (Corbit et al., 2022). Children who were born in Myanmar, hence, experienced the genocide, forced migration and adversity of refugee camp life were considered to have experienced higher levels of trauma. Myanmar-born children and their families experienced decades of persecution prior to the eruption of violence in 2017, further compounding the level of trauma they directly experienced. In contrast, while they may indirectly experience intergenerational trauma associated with the Rohingya persecution, genocide and forced migration, children who were born in the camp directly experienced only the current adverse living conditions of the refugee camp and were considered to have experienced lower levels of trauma than Myanmar-born children. Thus, children's birthplace was used as a broad stroke proxy measure of level of trauma (higher vs. lower) directly experienced by the child.

Gender

A recent qualitative study using parental interviews indicated that although Rohingya parents hold gender-based views on what they considered to be appropriate social behavior in Rohingya society, parents nevertheless reported that both girls and boys are expected to engage in the forms of prosocial behavior and the cognitive-affective processes that support it that were measured in the current study (Didkowsky et al., 2024).

Overview of Hypotheses

Our hypotheses were informed by the only previous intervention study investigating prosocial behavior in Rohingya children (Corbit et al., 2022) as well as the findings that were reviewed in Chapter I from developmental studies of nonrefugee children's prosocial behavior and the processes and social contexts that support it. Regarding our first research aim, we made general predictions regarding age (H1) and birthplace (H2) effects on the initial levels of prosociality, and then posited task-specific subhypotheses for initial levels regarding age (H1.1–H1.7) and birthplace (H2.1–H2.2) effects. Regarding our primary research aim, we advanced general age-related (H3) and birthplace-related (H4) hypotheses predicting a positive intervention-related change on prosocial measures from pre- to postintervention assessments. Table 2 outlines the hypotheses for the two research aims, which are detailed below.

TABLE 2

Hypotheses for Age-Related (H1) and Birthplace-Related (H2) Differences in Initial Levels of Outcome Measures and Age-Related (H3) and Birthplace-Related (H4) Effects for Intervention-Related Positive Change for Outcome Measures

	Initial Levels		Intervention-Related Positive Change	
Outcome Measure	Age (H1)	Birthplace (H2)	Age (H3)	Birthplace (H4)
Origami	H1.1 Older > younger	–	H3 (Positive change, no age effect)	–
Dictator game	H1.2 Older > younger	–	H3	–
FC Noncostly (1:0)	H1.3 Older = younger	–	H3	–
FC Costly (2:0)	H1.4 Older > younger	–	H3	–
FC Disadvantageous (1:2)	H1.5 Older = younger	–	H3	–
FC Advantageous (2:1)	H1.6 Older > younger	–	H3	–
Judgment/Imagine	H1.7 Older > younger	H2.1 Myanmar > camp	H3	H4 Myanmar > camp
EF H&F younger	N/A	H2.2 Myanmar < camp	N/A	–
EF DCCS older	N/A	H2.2 Myanmar < camp	N/A	–

Note. DCCS = dimensional change card sort task (for the older age group); H&F = Hearts & Flowers task (for the younger age group); NA = Not applicable.

Initial Prosocial Levels

Our first research aim was to determine the baseline levels for two types of prosocial behaviors (helping, sharing) and related cognitive-affective processes (emotion perspective-taking, and EF behavior shifting and inhibition). We were interested in age- and birthplace-related differences in initial prosocial levels. Our predictions related to initial levels for the current study were primarily based on the findings of Corbit et al. (2022), who reported age and birthplace effects in Rohingya children in a small refugee settlement in India. Their study implemented brief interventions (one based on collaboration, a second based on an emotion perspective-taking exercise) to boost prosocial behavior, which was analyzed using a combined score across three behavioral measures (helping, sharing, and comforting tasks). Regarding age, Corbit et al. (2022) reported that older (9–12 years) children showed higher combined prosocial scores than younger (5–8 years) children. Regarding birthplace, they found that Myanmar-born children had higher combined prosocial scores after the emotion perspective-taking intervention and camp-born children had higher scores after the collaborative intervention. Based on their findings we hypothesized an age effect in the current study: H1—Older children (9–12 years) would have higher initial levels on prosocial measures than younger children (5–8 years). We also predicted a birthplace effect: H2—Children born in Myanmar would be more likely to demonstrate an emotionally attuned pattern across the prosocial measures than children born in the camp. Our task-specific expectations based on prior research with nonrefugee children are outlined below as subhypotheses to the general age and birthplace hypotheses.

Helping

The literature exploring prosocial behavior and its development in nonrefugee children across cultures reports early emergence (14 months) and robust levels of helping across diverse societies, with increasingly complex forms emerging over development (Callaghan et al., 2011; Callaghan & Corbit, 2018, 2023; Warneken, 2015). However, costly helping, and helping in situations where the needs of the recipient are more difficult to discern, develop somewhat later and appear to be influenced by cultural factors (Corbit et al., 2020). The Origami helping task used in the current study is relatively noncostly, in that it does not require the helper to give up anything and they can achieve their own goal while also helping the partner. However, compared to standard measures of helping, experience with teaching others may improve children's approach to helping others in the current task. Thus, the Origami task may rely on more advanced social cognitive (e.g., pedagogical) abilities for optimal performance. Experience with a pedagogical stance (i.e., teaching others "how to") has been reported to be common for children in Rohingya society (Didkowsky et al., 2024). Given that other

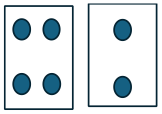
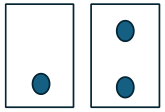
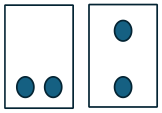
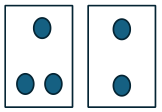
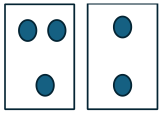
research has consistently found early onset of noncostly helping across diverse societies and age effects for costly helping (Callaghan et al., 2011; Callaghan & Corbit, 2018) we expected that children would demonstrate helping at all ages in the novel Origami task. In the design of the task we included shapes that required more folds for older children and less for younger children to ensure that task engagement would be comparable across age groups. Given that helping a nonexpert partner make the shape is measured, and helping skills improve over development (Callaghan et al., 2011), we predicted that that older children would show higher levels of helping than younger children for the Origami helping task (H1.1). We did not have specific predictions regarding whether helping in this task would be influenced by birthplace (as a proxy measure of trauma level) or gender, thus, our assessments of birthplace and gender effects were exploratory.

Sharing

Fairness behavior has been measured across diverse societies using a variety of sharing measures. The most frequently used is children's willingness to share resources with another child, who is typically anonymous and said to be coming later, using some version of the standard DG and a windfall of locally-sourced resources (e.g., candy, stickers). Cross-cultural research findings consistently demonstrate that children tend to give more to themselves until approximately 5 years, when they begin to share more resources with their partner, with equal sharing being common by middle childhood (Callaghan & Corbit, 2018, 2023). Given the ubiquity across diverse cultures of a developmental trend toward higher levels of sharing in older children, but the lack of studies investigating the impact of conflict-related trauma on sharing in low-resourced contexts, we tentatively predicted that older children in our sample would share more in the DG than younger children (H1.2). We also aimed to establish a more nuanced understanding of children's sharing motivations, which can be achieved in sharing tasks where children's choice of equality is contrasted with choice of inequality, as in Forced Choice sharing and Inequity Game tasks (Blake & McAuliffe, 2011; Blake, McAuliffe, et al., 2015; Fehr et al., 2008; House et al., 2013; Moore, 2009; Shaw & Olson, 2012). In the current Forced Choice sharing task, children were given the option to choose between an equal or unequal allocation of resources. In the ratios that follow (see summary of trial types and the fairness concerns they tested in Table 3), the child's allocation is first, followed by the recipient's allocation (e.g., 1:2 indicates the child receives 1 and the recipient receives 2). Here we assessed prosocial tendencies under noncostly conditions (e.g., 1:1 vs. 1:0—equality choice demonstrates basic prosocial concern) and costly conditions (e.g., 1:1 vs. 2:0—equality choice demonstrates prosocial concern and altruism). In line with findings from House et al. (2013), we predicted that there would be no age effect (H1.3) for noncostly trial types (1:1 vs. 1:0) but that older children would have higher

TABLE 3

TRIAL TYPES IN THE FORCED CHOICE SHARING TASK WITH THE FAIRNESS CONCERNS ACCORDING TO CHILDREN'S CHOICE OF EQUAL VERSUS UNEQUAL OR 2:2 (PAYOFF CHECK) OPTIONS

Choice Type	2:2 vs. 1:1 	1:0 vs 1:1 	2:0 vs. 1:1 	1:2 vs. 1:1 	2:1 vs. 1:1 
Choice of 1:1	Does not understand payoff	Noncostly prosocial concern	Costly prosocial & altruistic	Aversion to getting less than partner	Aversion to getting more than partner
Choice of other than 1:1	Understands payoff	Unconcerned for other	Self-maximizing	Generous	Self-maximizing
Trial type	Payoff check	Noncostly	Costly	Disadvantageous (DI)	Advantageous (AI)

Note. In the Choice Type row, the child's allocation is on the bottom and the imagined recipient's allocation is on the top of the slide.

levels of equality over inequality choices (H1.4) for costly trial types (1:1 vs. 2:0). We also tapped into children's aversion to DI (1:1 vs. 1:2) and AI (1:1 vs. 2:1). In studies using the inequity game, DI appears around the same age (4–6 years) across diverse cultures, however AI appears later (8–10 years) and only in some cultures (Blake & McAuliffe, 2011; Blake, McAuliffe, et al., 2015). Furthermore, the onset and development of AI aversion is impacted by collaboration with the partner prior to the sharing decision (Corbit et al., 2017). Given that aversion to inequity disadvantageous to the self appears early and consistently across cultural and social contexts, we expected equality choice for DI trials (choosing 1:1 over 1:2) to be evident and strong at preintervention across the ages sampled (i.e., no age effect: H1.5). Given its relatively late onset in development, we expected equality choice for AI trials (choosing 1:1 over 2:1) to be at higher levels in the older than younger age group (H1.6). We did not have specific predictions for these inequity types relating to gender or birthplace. It was equally plausible that the higher levels of trauma experienced by children born in Myanmar would lead to lower or higher levels of giving in the DG, greater or lesser prosocial responses, and greater or lesser aversion to inequity. The design of our study enabled us to explore the impact of the gender and birthplace variables on DG and Forced Choice sharing.

Cognitive-Affective Processes

To examine the initial levels of cognitive-affective processes we examined empathic responding (that hinges on emotion perspective-taking) in two tasks (Judgment, Imagine) and assessed EF skills (behavioral shifting and inhibition) in age-appropriate tasks (Hearts & Flowers, DCCS). In a recent qualitative interview study, Rohingya parents reported that they encourage children to help others, be fair toward others and to respond to the emotional needs of others with caring and empathy (Didkowsky et al., 2024). Parents also reported in this study that they actively socialize prosociality in their children, even in the adverse conditions of forced migration and refugee settlements. Children's responses to misfortune depicted in stories have not been measured in forced migration settings, thus, we adopted an exploratory approach to investigating empathic responding in Rohingya children in the current study. In the Judgment story task children were asked to consider how story characters responded to another character's misfortune, and to judge "Who did the right thing?." Choice of the prosocial character was considered to indicate that children had knowledge of the prosocial norm held in Rohingya society (Didkowsky et al., 2024). In the Imagine task children were asked to imagine they were in situations described in stories where a character experienced misfortune and responded how they would feel if they witnessed the situation and what they would do to address the misfortune. Coding of their imagined responses to "how would you feel" assessed whether children reported other-oriented concern (e.g., empathy,

sympathy), and their responses to "what would you do" revealed whether they were able to propose an appropriate behavioral solution that addressed the misfortune. We considered empathic responding to occur in the Imagine task when children reported feelings of concern for the story character experiencing misfortune (e.g., imagined feeling empathy or sympathy) and other-oriented behaviors that appropriately addressed misfortune. Although it has not been directly tested in refugee contexts, children's ability to infer others' emotional perspectives and propose behavioral solutions to their misfortune is generally reported to improve over the age range sampled here (c.f., Harris, 1989). Based on these trends, we expected older children to perform at higher levels than younger children in Judgment and Imagine story tasks (H1.7), which require emotion perspective-taking (both tasks) and proposing behavioral solutions to misfortune (Imagine task). Based on reports that Rohingya refugee parents socialize empathic responses to others' misfortune from an early age in girls and boys (Didkowsky et al., 2024), we did not expect gender differences in empathic responding in this task. The extent to which birthplace may influence initial levels in the cognitive-affective measures is informed by the findings reported by Corbit et al. (2022) who found that children born in Myanmar had higher combined prosocial behavior scores following a brief intervention that involved emotion perspective-taking when compared to children born in the camp. As there was no measure of empathic responding reported in that study, it was not possible to determine whether children born in Myanmar (i.e., those who experienced higher levels of trauma) were more attuned to emotional aspects of the situation at baseline. If Myanmar-born children were more attuned to emotional aspects of situations, then we expected children born in Myanmar to show higher initial levels in the Imagine task, which hinges on emotion perspective-taking, than children born in the camp (H2.1).

Our inclusion of EF measures in the battery was motivated by mixed findings as to whether and how this capacity relates to prosocial behaviors, and evidence that EF level is negatively impacted by exposure to trauma (Op den Helder et al., 2018). We assessed the EF skills of behavioral shifting and inhibition using the Hearts & Flowers task for younger children (Camerota et al., 2019) and the DCCS task for older children (Zelazo et al., 2013). The use of different measures for younger and older children prevented age-based predictions. Regarding birthplace, in line with Op den Kelder et al. (2018) we expected that children born in Myanmar, who had directly experienced higher levels of trauma, would have lower EF scores at baseline than children born in the camp (H2.2).

In summary, two general hypotheses were formed relevant to initial levels of prosocial responding. H1 predicts a general age effect for initial levels, such that prior to the intervention the initial levels of the measures were expected to be higher for older than younger children, with task-specific subhypotheses given in H1.1–H1.7. H2 predicts a birthplace effect for initial levels of cognitive-affective indicators (emotion perspective-taking, and EF),

with task-specific subhypotheses proposing that initial levels in the Imagine task were expected to be higher (H2.1) and EF levels lower (H2.2) for children born in Myanmar compared to the camp. We did not make specific predictions for gender and took an exploratory approach to birthplace effects for helping and sharing behavior.

Intervention-Related Improvement in Prosociality

The primary goal of our research was to assess whether our multifaceted intervention would increase prosociality from pre- to postintervention assessments using a battery of behavioral and cognitive-affective measures. The intervention included components of collaboration, emotion perspective-taking and EF skills training, all of which have been found to have a positive impact on prosociality in nonrefugee children. Based on the large body of evidence showing the benefits of collaboration on helping and sharing, we hypothesized that children would increase on helping and sharing measures from pre- to postintervention assessments. Given emotion perspective-taking activities were a component of the intervention, we expected intervention-related improvements would also be found for outcome measures requiring emotion perspective-taking (Judgment task, Imagine task). Likewise, aligned with its success in previous studies (Sirin et al., 2018), including digital games in the intervention that trained EF (i.e., behavioral shifting and inhibition) was expected to positively impact those skills in Hearts & Flowers and DCCS measures from pre- to postintervention. There was no prior research to guide age-related hypotheses regarding the relative effectiveness of the intervention for younger or older children. Thus, H3 predicted positive intervention-related change on all of the prosocial behavior and cognitive-affective outcome measures and no age effect.

Regarding our expectations for birthplace effects on intervention-related change we drew from Corbit et al.'s (2022) finding that children born in Myanmar who received an emotion perspective-taking intervention showed higher overall prosocial scores than those born in the camp, whereas children born in the camp had higher prosocial scores after a collaborative intervention. These findings suggested that Myanmar-born children may be more attuned to emotional aspects when situations portray misfortune, which in the current study was measured in the Judgment and Imagine tasks, and they may benefit more from interventions that promote emotion perspective-taking, which was included as one of the intervention activities in the current study. A limitation of the Corbit et al. study was that children could only participate in a single, brief intervention session thus it was not possible to obtain pre- and postintervention measures to assess intervention-related change as we did in the current study. It is possible that Myanmar-born children, who have experienced higher levels of trauma, may show less benefit from an intervention if it was not sufficient to address their deeper needs. However, we employed a multifaceted intervention in the current

study specifically to maximize its effect and we expected that the pattern of change for Myanmar-born children would mirror the emotion-attuned pattern that was suggested by the Corbit et al. (2022) findings and that was predicted for initial levels in the current study. Thus, we predicted that there would be greater intervention-related positive change on Imagine task outcome measures for Myanmar-born compared to camp-born children (H4).

Summary

In this chapter, we identified the conceptual foundations for our study and the research findings that support our framework. Our focus on prosocial behavior (helping, sharing) was complemented by additional assessments of cognitive-affective processes that support prosocial behavior (empathic responding, emotion perspective-taking, and EF skills of behavioral shifting and inhibition). We advanced four general hypotheses, and several subhypotheses, to predict age-related (H1) and birthplace-related (H2) differences in children's initial levels of prosociality, and age-related (H3) and birthplace-related (H4) effects relevant to intervention-related improvement in those levels from pre- to postintervention assessments. In Chapter III we outline the methodological approach in more detail.

III. Methods

Participants

Participants were recruited from the two UNHCR-administered refugee camps (Nayapara, Kutupalong) located within the sprawling complex of Rohingya refugee camps outside of Cox's Bazar, Bangladesh. A total of 152 children ($N = 76$ female) were recruited from two age groups (Younger: 5–8 years, Older: 9–12 years). Approximately 42% of children were born in the camp after their families were forced to migrate from Myanmar, with the remainder born in Myanmar. Table 4 gives mean ages, standard deviation, and ranges for these groups.

At the time of the study (November 2021–January 2022), a majority of children in the sample had lived in the camp for 3 (56%) or 4 (43%) years. Children had on average 2.9 siblings ($SD = 1.64$, range = 0–7) and 96.1% of children were living with both parents. Rohingya children's formal education

TABLE 4
Number of Participants, Mean Age, Standard Deviation (SD), and Age Range for Children Separated by Age (Younger—5–8 Years; Older—9–12 Years), Gender (Female, Male) and Birthplace (Myanmar, Camp)

	Birthplace					
	Myanmar			Camp		
	Female	Male	Overall	Female	Male	Overall
Younger						
N	23	22	45	15	16	31
Mean	7.39	7.08	7.24	7.10	7.27	7.19
SD	1.14	0.99	1.07	1.54	0.66	1.15
Range	5.32–8.83	5.43–8.60	5.32–8.83	4.87–8.84	6.50–8.69	4.87–8.84
Older						
N	22	21	43	16	17	33
Mean	11.32	11.21	11.27	11.06	11.48	11.28
SD	1.01	1.22	1.12	0.95	1.18	1.08
Range	9.60–12.73	8.54–12.84	8.54–12.84	9.72–12.48	9.47–12.84	9.47–12.84
Overall						
N	45	43	88	31	33	64
Mean	9.36	9.10	9.23	9.14	9.44	9.30
SD	2.25	2.36	2.30	2.37	2.34	2.34
Range	5.32–12.73	5.43–12.84	5.32–12.84	4.87–12.48	6.50–12.84	4.87–12-84

has been severely disrupted by displacement and lack of access prior to and following migration from Myanmar. The average number of years of schooling for the entire sample of 5- to 12-years-old was approximately 3.97 years ($SD = 2.5$ years, range = 0–9 years). Mothers' years of education averaged 5.58 years ($SD = 2.5$ years, range = 0–21 years) and fathers averaged 8.64 ($SD = 5.07$ years, range = 2–26 years).

Site Description

The Rohingya mega-camp consists of a sprawling complex of 32 camps, two of which are administered by UNHCR (Nayapara, pop. 23,307; Kutupalong, pop. 18,063; United Nations High Commission on Refugees, 2023c). In June 2023, the highly congested Rohingya mega-camp was home to 961,729 refugees, most of whom were forced to migrate from genocidal violence in their home country of Myanmar in August 2017 and over half of whom are children. The massive flow of refugees dramatically transformed, from forest land to densely lined rows of bamboo and tarp housing, an area estimated to cover 17 square kilometers near Cox's Bazar, Bangladesh (Siegfried, 2022). The land is adjacent to the border with Myanmar, on Bangladesh's southernmost tip edging the Bay of Bengal.

UNHCR forms partnerships with local and international NGOs and the Government of Bangladesh to administer social, educational, and health programs. At the time of the study, all but very few NGO staff had left the camps due to Covid-19 pandemic restrictions and all formal educational centers were closed. In 2020, the Government of Bangladesh began educational programming using the Bangladesh curriculum for children in Levels 1–4 (these levels typically include children 5–8 years of age). UNICEF, with the support of the Government of Bangladesh, recently initiated a pilot educational program based on the Myanmar curriculum reaching 10,000 children between the ages of 14–16 years (UNICEF, 2022). Educational programming is conducted in 3,400 learning centers spread throughout the mega-camp, 2,800 administered by UNICEF. With over 400,000 school-aged children living in the entire camp complex and only a small proportion of these children accessing education, education equity and the very real risk of an entire generation of Rohingya children without access to formal education has been a major concern for families and humanitarian organizations since the migration wave of 2017.

Safety and security issues are also deeply felt in the Rohingya mega-camp, with children and youth facing a myriad of risks related to neglect, exploitation, and violence, including gender-based violence. Health-related risks also abound with frequent outbreaks of disease and widespread malnutrition associated with food insecurity, which was exacerbated in 2023 by several cuts in food rations (United Nations High Commission on Refugees, 2023d). Yearly cycles of monsoon and cyclones, and waves of deliberately set

fires add to the overall insecurity experienced by Rohingya in these camps. In one recent fire alone, over 12,000 people were left without shelter and over 90 facilities, including hospitals and learning centers, were razed (Aljazeera, 2023). Sporadic attempts to repatriate Rohingya refugees back to Myanmar has also contributed to a sense of insecurity in the camp.

Research Settings

The study was conducted in four study venues, two in each of the two camp locations (Nayapara, Kutupalong). Study venues included community facilities such as unused learning centers and youth centers. All the spaces allowed for individual testing in quiet areas removed from other activities and children in the pre- and posttesting sessions, and for children to engage in intervention activities with their partner in small group sessions during the intervention phase. Our research team liaised with local community leaders to identify and gain permission to use spaces that would be safe and within walking distance for children who participated in the study. Four study locations were operating morning sessions with young children and afternoon sessions for older children.

Procedure

The study was approved by the Research Ethics Board of the principal investigator's university and followed the Canadian Tri-Council ethical guidelines for research with human participants. In addition, UNICEF and other guidelines for research with vulnerable populations (Clark-Kazak, 2017; Müller-Funk, 2021; UNICEF, 2021) and SRCD ethical guidelines for research with children informed our recruitment and study methods.

Field Researcher Training

In scheduled Zoom meetings, a team of 12 Rohingya researchers living in the camps (six in Nayapara, six in Kutupalong) received virtual training by Canadian team members. All materials and equipment used in the study were delivered to the researchers in advance of training, and training documents (e.g., instructions, scoresheets) and materials (e.g., video demonstrations of testing protocols) were accessible through a shared Google drive. Researchers were trained on ethical practices for research with vulnerable populations and general ethical considerations for research with children (Clark-Kazak, 2017; Müller-Funk, 2021). They were given a brief introduction to the field of prosocial development and the general and specific research aims of the study. Over the period of training, regularly

scheduled Zoom meetings to cover specific aspects of the methods and procedures were followed by individual and group practice sessions, the latter being organized by members of the Rohingya field research team. All field researchers were trained on all methods to ensure that if a researcher was absent due to illness another researcher could fill in. Toward the end of the training period researchers specialized on a subset of the procedures with at least two of the three researchers in each class specializing in every procedure. Further details of the training approach and materials, and an assessment of the training, are published elsewhere (Bruce et al., 2024).

Recruitment

Four of the field researchers received further training in recruitment methods, including using plain language to ensure parents understood the study and the methods that would be used in prosocial assessments and implementation of the intervention, obtaining informed consent, and explaining that data would be de-identified and kept confidential. Parents signed consent forms if they were able to provide a signature or thumb print, and in the rare cases when they were unable to sign, researchers signed forms indicating that parents had provided oral consent for their child to participate. Recruiters worked in pairs, with two recruiters in each of the locations. Families who lived within walking distance of the testing locations were approached by the recruiters and invited to participate. A verbal description of the study and methods was provided by recruiters to all parents who indicated they were interested in participating and all families with children in the target age range who volunteered to participate for the 2-week period of the study were included. Parents of participants provided demographic details for their child and their family. A Rohingya member of the Canadian research team visited the camps after completion of the study and met with parents and community members to provide follow up and answer parents' questions about the study.

Study Testing Sessions

Eight children (four pairs) were tested in each of the morning and afternoon sessions across four study venues, with each venue having three field researchers to implement the study. There were three waves of data collection in total. In each of the initial two implementation waves 64 children were tested, for a total of 128 children. A third wave was conducted in one of the study locations (Nayapara) with an additional 12 children (six pairs) in each of the morning and afternoon sessions, yielding a total of 152 children tested. On Days 1 and 2 of their 14-day session, children were assigned their partner with whom they would collaborate throughout the 10-day intervention and pretested on the prosocial behavior and related cognitive-affective measures, for Days 3–12 there was daily implementation of the entire set of intervention activities, and for Days 13 and 14 children were posttested on the same

measures. Children arrived at the study venue 15 min before the beginning of the daily activities, stayed for a 3-h session, and were provided with snacks mid-session. Children received any treats they allocated to themselves in the DG sharing task in pre and postintervention testing and at the end of the study the family received a prayer mat as a participation gift.

Cultural Relevance and Sensitivity

To ensure that the story materials used in the study had cultural and contextual relevance, the principal investigator and Canadian Rohingya co-investigator vetted the story materials developed by the Canadian team, which were later reviewed for cultural sensitivity by members of the Rohingya field team. The stories and illustrations included those used in the Judgment and Imagine task measures, and others used in intervention activities to foster emotion perspective-taking. The novel procedure to assess helping (Origami task) was developed by Canadian team members and vetted for cultural relevance by the Rohingya researchers. The Forced Choice sharing task was set up as a PowerPoint slideshow and cartoon avatars were designed to represent Rohingya children. Locally sourced candy was used in the DG sharing task. The EF tasks used simple line drawings of objects (hearts, flowers, boats, rabbits), familiar to children. Intervention activities were assembled by the Canadian research team and vetted during the training phase with the Rohingya field research team, who verified that Rohingya children were familiar with the types of activities included (board games, puzzles, building blocks, video games, listening to stories), although not with the specific activities that were employed. The instructions that researchers used to explain the intervention activities or the prosocial assessments to children were composed in English and then translated into Rohingya in audio format by the Canadian Rohingya co-investigator (Rohingya does not have a written script). A portion (25%) of the translated files were back translated into English by a bilingual member of the field research team. There were very few minor discrepancies, which were resolved through discussion between the bilingual translators and the principal investigator. As part of their training, Rohingya researchers were encouraged to contact the Canadian team if they felt any instructions were difficult for children to understand.

Prosocial Behavior Measures

A battery of tasks was used to assess intervention-related change in helping and sharing behavior. The same measures were employed in pre- and postintervention assessments, but different versions of the materials were used and counterbalanced across assessment sessions. Children were tested individually in the assessments, except in the Origami helping task where children and their partners sat together while they folded the origami

shapes. For this task, individual assessments of helping were obtained by separating the video files according to which child was the expert for the shape being made and focusing coding on the expert's helping of the non-expert.

Helping

Origami Helping Task

This novel measure was developed to assess children's propensity to help their partner in a situation where one child had "expert" knowledge that the second child lacked. In the Origami task, children were first separated from their partners, and then each child was trained in how to fold the paper to make a distinct origami shape. In this phase, the researcher asked the child to watch while they slowly demonstrated the steps to make the shape. Then, the child was given paper (measuring 5×5 inches) to make the shape in tandem with the researcher. Finally, children were asked to try to make the shape themselves, and the researcher helped when needed. Thus, children within the pair each became experts in folding a different origami shape. The shapes made by younger children required four- to sixfolds (mouse, dog, rocket, airplane1), while shapes made by older children involved seven- to eightfolds (fish, elephant, car, airplane2). For each assessment (pre-, post-intervention), one child was trained to make an animal shape while their partner was trained to make a vehicle shape. The specific shapes assigned were counterbalanced across children and pre/posttesting sessions. If a child was trained to make the animal shape in preintervention, then they were trained to make the vehicle shape postintervention. After they were trained by the researcher to make their assigned shape, and had successfully completed the shape without assistance, children were brought back together in pairs for the helping test. In the test phase, children sat facing each other and the researcher presented a finished model and an instruction diagram for a target shape, telling the pair they were going to make the shapes they had learned again. One child was "expert" and the other child was "nonexpert" for each of the target shapes, which were presented sequentially. The determination of which child in the pair was expert on the first shape presented was counterbalanced across pre- and postintervention testing sessions.

Video Translation and Transcription

Separate video recordings were made for each origami shape and labeled according to the child who was the "expert" for that shape. All language from the "expert" child, his/her "nonexpert" partner, and the researcher was translated and transcribed from the videos by a bilingual field researcher. A representative sample of eight children's pre- and postintervention video from the first wave of assessment was separately translated and transcribed, which verified that the translations for the primary translator were accurate.

The primary translator subsequently translated all video and audio data for the study. Each child in the sample had two video records in which they were the expert (preintervention, postintervention), yielding a total of 304 video records.

Origami Task Coding

A comprehensive coding scheme was developed by members of the research team to identify helpful behaviors (actions and verbalizations) of the "expert" child directed toward the "nonexpert" child as they folded the origami shape (see Supporting Information Table S1 for full coding guide). In addition, task engagement and task success indicators for expert and nonexpert children were coded. The coding process involved multiple steps to ensure reliability and validity of the data coding. First, to establish inter-rater reliability and consistency, four independent coders were trained extensively on the coding scheme and procedures. The training sessions included discussions and practice coding on a randomly selected subset of 20 video recordings and resolving any discrepancies or ambiguities in the coding scheme under the guidance of a coding supervisor. For these 20 files, the resolved coded data was used in analyses. To further enhance the reliability of the coding, 112 randomly selected videos were separately coded by three coders, resulting in a strong inter-rater reliability across the pairs of coders (mean Kappa = 0.71). For these 112 files, the data of the coder with the highest inter-rater reliability levels with the other two coders was used in analyses. The remaining set of 172 videos were divided between the coding supervisor ($N = 12$) and the two coders with the highest inter-rater reliability (mean Kappa = 0.72) in the previous set (Coder 1: $N = 100$; Coder 2: $N = 60$). To ensure consistency and prevent any drift in coding accuracy, the two coders met weekly with the coding supervisor. During these meetings, any instances where they encountered difficulties in making a final decision were discussed and a consensus was reached.

Origami Task Variables

The total number of behaviors in each coding category was calculated by summing up the occurrences throughout the video. The outcome variables (see Table 5) used in the main analyses to assess helping by the expert child directed toward the nonexpert were behavior (actively helping nonexpert make the shape), monitoring (the nonexpert's progress), and overtaking (and making it for the nonexpert). Additional codes that were recorded but not used in analyses (see Supporting Information Table S1) included codes to assess the nonexpert's engagement in the task, the variables of looking away and disengaging, looking at the expert's folding, and asking for help. To measure success, completion of the origami shapes by the expert and nonexpert child were also recorded.

TABLE 5
Origami Task Codes Used in Analyses (See Supporting Information Table S1 for All Codes)

Origami Task Codes used in Analyses		
Category	Description	Example
Monitoring nonexpert's progress	Tracking instances where the Expert looks at the nonexpert to check progress	Expert looks at nonexpert's hands
Helping behavior (A)	Tracking instances where the Expert helps nonverbally by waiting for the nonexpert to catch up (e.g., slowing down, stopping their fold).	Expert waits for nonexpert to catch up
Helping behavior (B)	Tracking instances where the Expert helps nonverbally by re-folding some of their own previous folds to illustrate the folds better for the nonexpert.	Expert refolds own shape to illustrate steps
Overtaking	Tracking instances where the Expert folds the nonexpert's origami shape.	Expert takes over folding nonexpert's shape

Sharing

Dictator Game (DG)

The DG presented children with the opportunity to decide how to allocate six pieces of locally sourced candy. They were provided with standard DG instructions stating that the candy belonged to them, and they could decide to keep it or share it with another (anonymous, unnamed) child in the camp who would play the game later. There were two types of trials for each of the pre- and postintervention DG tests, each illustrating a different type of recipient. For one type (misfortune) children were told that the other child had received candy from a parent for helping with chores but had experienced an unfortunate event and now had no candy (i.e., preintervention: a large bird had flown off with the candy when they were not looking, postintervention: a sudden heavy rain swept away the candy). On a second type of trial (greed) children were told that the other child had received candy from a parent and had none because they had eaten the candy right away. The order of presenting misfortune and greed trials was counterbalanced across children. Children indicated the number of candies they wanted to keep for themselves or share by placing the candy into two containers. The number of candies (out of a total of 6) shared with the other child across the two trial types was manually entered into a coding sheet and served as the dependent measure in the data analyses. Manipulation of the circumstances of the recipient (had no candy due to misfortune or greed) was included to assess whether children take this factor into account when making allocation decisions.

Forced Choice Sharing

The Forced Choice sharing task was presented in PowerPoint slides on tablets (Lenovo Tab M8). The researcher individually presented children with two blocks of three practice and 15 test trials, with the type of recipient ([name of] child's partner, "another child [gender matched] from the camp") changing across the blocks. The order of block types was counterbalanced across children and reversed for children from their pre- to postintervention sessions. Children were first introduced to the "candy game" with an explanation that each slide would have candies displayed on two different colored backgrounds (blue, red). Then they were introduced to two avatars, one representing them and another representing the other child. They were shown the next slide and told that the avatar representing them would always be on the bottom of the screen and the one representing the other child would be at the top. Finally, the distribution displayed on a second instructional slide was explained with the numbers of candy going to each child explicitly noted for each of the two choices (i.e., if the child chose the blue patch or the red patch). The color of the left panel in the slide was blue and of the right panel was red. The equal choice appeared equally often on the left (blue) and right (red) sides across the slides. Following the instructions, children were presented with three practice trials pitting an equal (1:1) option against an alternative. The order of the practice trials was randomized (0:1, 1:0, 2:2), with the same order used in pre- and postintervention testing sessions. Test trials pitted an equal (1:1) distribution against one of four unequal distributions (1:0, 2:0, 1:2, 2:1) or against a second type of equal trial (2:2). On test trials (see Table 3) children were presented with three trials for each of five types of trials (1:1 vs. 2:2, 1:0, 2:0, 1:2, 2:1). The following order of alternative (to equal 1:1) choices was used for test trials in pre- and postintervention testing sessions (1:0, 2:0, 2:1, 2:0, 1:0, 1:2, 2:2, 2:0, 2:1, 1:2, 2:2, 1:0, 2:2, 2:1, 1:2). A sample slide is presented in Supporting Information Figure S1.

Researchers manually entered children's choices on each of the 18 trials into an Excel coding file. Trials pitting 1:1 versus 2:2 were included to ensure children understood the game, with choice of 2:2 over 1:1 indicating children understood the payoff benefits. The trials of interest for analyses were test trials pitting 1:1 against unequal options. As indicated in Table 3, each type of unequal option challenged children's fairness decisions in different ways, with their decisions revealing the presence or absence of particular fairness and/or generosity concerns. Trials pitting 1:1 versus 1:0 are noncostly and assess prosocial concern for the recipient because the child receives 1 for both options, whereas in the unequal option (1:0) the recipient receives 0. Choice of 1:1 for trials pitting 1:1 versus 2:0 is both prosocial and costly (altruistic) because the recipient opts out of receiving 2 for themselves in favor of having the recipient receive something. Two types of unequal trials assess different types of

inequity aversion. DI aversion is assessed in 1:1 versus 1:2 trials, with choice of 1:1 indicating an aversion to the recipient receiving more than the child, or a personal concern for fairness, in this case choice of an unequal distribution could also signal generosity as it endows the recipient with an additional resource. AI aversion is assessed in 1:1 versus 2:1 trials with choice of 1:1 indicating an aversion to receiving more than the recipient, showing a costly concern for other regarding fairness that is also nongenerous. Given they reveal different distributional preferences the data from three sets of trial types were separately analyzed: (i) 1:1 versus 2:2; (ii) 1:1 versus 1:0 and 1:1 versus 2:0 trials; (iii) 1:1 versus 1:2 and 1:1 versus 2:1.

Cognitive-Affective Measures

Emotion Perspective-Taking

The prosocial task battery included measures of cognitive-affective processes in addition to prosocial behaviors. Children's knowledge of a prosocial norm was assessed in the Judgment task, in which children made a judgment of whether a prosocial or antisocial protagonist "did the right thing." The cognitive-affective process of emotion perspective-taking was measured in this study by assessing children's empathic responding in the Imagine task that required children to consider the emotional perspective of story characters. and imagine how they would feel and respond if they witnessed a situation depicting misfortune for a story character. Empathic responding was considered to occur, and to hinge on inferring the emotion perspective of the character, when children's responses to the task questions reflected concern for others' misfortune. For example, empathic responding in the Imagine task would be revealed by a child responding that they would feel sympathy for an excluded child, and they would respond by asking the excluded child to join in the game. Thus, we measured the cognitive-affective process of emotion perspective-taking by assessing evidence for empathic responding in children's verbal responses to stories depicting misfortune.

Judgment Task

Children were presented with two story scenarios in each testing session (preintervention, postintervention). Audio tapes of the stories were integrated into color illustrated PowerPoint slides, which were presented to children on tablets by the researcher who advanced the slides and ensured children were engaged. Preintervention stories included one about a character whose kite was tangled in the wires and one of two other characters shared their kite and a second about a child who

forgot their lunch and one of two other characters shared their lunch. Children were asked which story character did the right thing. Post-intervention stories had similar themes of misfortune (couldn't find marbles) and forgetting (lesson books). The order of stories was counterbalanced across children. This task measured children's knowledge of prosocial sharing norms in their society (Didkowsky et al., 2024), with judgments that the character who shared (kite, marbles, lunch, books) did the right thing indicating knowledge of the norm that sharing is the right thing to do. Children's choices were manually entered into the Excel coding sheet.

Imagine Task

Children were presented with stories that were audio taped and integrated into PowerPoint slides with color illustrations. One set of stories depicted female, and the second set depicted male child characters. Story characters were gender-matched to the child and included one social exclusion and one loss theme for each assessment session (i.e., preintervention: wanting to join a singing group and toy lost in flood; postintervention: wanting to join a soccer game and painting ruined in rain). After listening and viewing the stories presented by the researcher, children were instructed to imagine they witnessed the scenario depicted in the story and were asked how they would feel and what they would do if they witnessed the event (see Supporting Information Table S2 for the Imagine task stories).

Audio Translation and Transcription

Separate audio recordings were made of children's responses to the questions (How would you feel? What would you do?) following the story presentations in pre and postintervention testing sessions, yielding a total of 304 audio files. Language from exchanges between children and the researcher during the task was translated and transcribed from audiotapes by the bilingual field researcher, who also verified the accuracy of the task instructions and administration of the task.

Imagine Task Coding

A comprehensive coding scheme was developed by members of the research team to identify and categorize children's responses to questions that followed the stories as involving empathic responses (How would you feel?) and prosocial behaviors (What would you do?). A total of two emotional and nine behavioral codes were used in the final coding scheme (see full codes and scores assigned to each code in Table 6). Emotional codes documented how the child reported they would feel in that situation and behavioral codes documented the actions the child reported they would take if they were in the

situation described in the story. The emotional and behavioral responses were coded from transcriptions of children's verbal responses. The coding process involved multiple steps to ensure reliability and validity of the data coding. First, to establish interrater reliability and consistency, four independent coders were trained extensively on the coding scheme and procedures. The training sessions included discussions, practice coding on a randomly selected subset of 30 transcribed audio recordings and resolving any discrepancies or ambiguities in the coding scheme under the guidance of a coding supervisor. Then another, randomly selected set of 15 transcriptions were selected for reliability and were separately coded by the four trained coders. The mean inter-rater reliability was very strong for both the emotional (mean Kappa = 0.90) and behavioral (mean Kappa = 0.90) codes. Any discrepancies were resolved via the weekly discussions amongst coders. The remaining coding videos were divided equally amongst the coding supervisor and three coders. Any instances where the coders had difficulty in coding were resolved via group discussions.

Imagine Task Scores

Following the coding process, we applied the following scoring protocol to the raw data, arriving at scores ranging from 0 to 3 for behavioral responses and 0 to 2 for emotional responses. Specifically, for behavioral codes from Table 6 that indicated an altruistic response, which was defined as a response that aimed to resolve the story character's misfortune (i.e., other-oriented) and involving giving up something of one's own (i.e., costly), were assigned a score of 3. The codes assigned 3 in the scoring system included sharing, altruistic helping, social inclusion, and consoling. Behavioral codes that involved helping others without a personal cost were assigned a score of 2 and included instrumental helping, problem solving, teaching, and self-oriented help. A score of 1 was assigned to the behavioral code of general prosocial behavior because although these responses were generally positive, they were essentially platitudes that did not specify how one would address the misfortune. Behavioral responses that were un-codable and cases with no response were assigned a score of 0. Emotional responses were assigned a score of 2 for the code of "empathic," which indicated an appropriate, other-oriented concern (e.g., sympathy) for the character's misfortune. An emotional response score of 1 was assigned when the response was positive but indicated a self-oriented concern (e.g., "proud that I helped"). An emotional response score of 0 was assigned for un-codable responses and cases with no response. Using this scoring method, higher scores indicate behavioral or emotional responses that were costly and other-oriented, followed by non-costly and other-oriented (behavioral) or self-oriented (emotional), and finally by unspecified positive responses to the scenarios. The scores for emotional and behavioral responses (i.e., the two outcome variables for the

TABLE 6
Codes Assigned to Responses and Scores (in Parentheses) Used for Analyses of Responses in the Imagine Task

Category	Description	Example
Behavioral response codes (score for analyses)		
1. Sharing (3)	Sharing reflects allowing someone temporary access to one's resources	"We would play together with my toy."
2. Altruistic helping (3)	Altruistic helping refers to giving up something of one's own to help another. For example, giving the other child their own toy codes as altruistic helping	"I would give him one of my own toys."
3. Social inclusion (3)	Social inclusion refers to including the person in *one's own* social group or inviting the person to join one in an interesting activity	"I would ask him to join my game."
4. Consoling (3)	Consoling refers to emotion focused comforting behaviors designed to alleviate or minimize a negative emotion in the other person	"I would console the boy not to feel sad"
5. Instrumental helping (2)	Instrumental helping refers to assisting another in achieving an action-based/physical goal (e.g., searching for something tangible, giving/getting something tangible to/for someone)	"I would try to bring her that toy"
6. Problem Solving (2)	Problem solving refers to solving the problem for the child in nontangible ways. Codes in this category often include references to communication (e.g., asking others for help on behalf of the child; asking the child for more information about the problem)	"I would talk to others to let the child join in"
7. Teaching (2)	Teaching refers to actively teaching the child something	"I would teach him"
8. Self-oriented help (2)	Self-oriented help refers to instances when a behavioral response is justified with a self-oriented reason	"I would join her with me because I don't have a friend to play."
9. General prosocial behaviors (1)	General prosocial behaviors code general helping/prosocial behavior statements that do not fall into instrumental or altruistic helping categories	"I would help him as much as I could."
Emotional response codes		
1. Empathy, sympathy (2)	Empathy/Sympathy refers to feeling sad/bad (with or for the other person)	"I would feel sad by seeing her condition"
2. Self-oriented concern (1)	Self-oriented concern refers to feeling good followed by reports of doing something nice for the other child	"I would feel good/proud" (upon displaying a positive behavior towards the other child)

Imagine task) to the misfortune experienced by story characters and portrayed in the stories were separately analyzed.

EF Skills

Hearts & Flowers Task

Younger children (5–8 years) completed the Hearts & Flowers task as a measure of EF skill level. The Hearts & Flowers task assesses young children's ability to shift rules and inhibit responses and is a standard measure of behavioral flexibility and inhibition for children in this age group (Camerota et al., 2019; Roebers, 2022; Stein et al., 2017). The task was administered by the field researcher on tablets using the 2022 MIRAGE platform (Mobile Integration of Research, Assessments and Generated Experiments, CREATE Lab, NYU),2 which enabled us to collect reaction time (RT) and accuracy of responses over trials offline for later data uploading to MIRAGE on a CUNY server when Wi-Fi was available to the field researchers. The task had three blocks that differed in level of difficulty and the EF skill invoked; 12 hearts only trials (easy, press button on same side as heart; used as practice and/or baseline to compare to other blocks; preceded by eight practice trials), 12 flowers only trials (harder, press button on opposite side as flower; used to show inhibition EF skill; preceded by 8 practice trials), and 32 mixed hearts and flowers trials (hardest, respond as previously but with either heart or flower showing up each time; used to show EF skills of shifting and inhibition; not preceded by practice trials).

Hearts & Flowers Scoring

Scores for accuracy and mean RT (ms) across blocks were pulled from the raw data. For accuracy, a higher score (proportion of trials correct) indicates higher performance levels, and for RT, a lower score (faster responding to trials) indicates higher performance levels. As children's accuracy approaches ceiling within a block on this task, RT is a better indicator of EF skill level (Camerota et al., 2019). The indicators for EF shifting skill in young children used in preliminary analyses were accuracy and RT values for the mixed block. Accuracy approached ceiling levels in young children, thus, RT was used as the outcome variable in subsequent analyses.

Dimensional Change Card Sort (DCCS) Task

Older children (9–12 years) completed the DCCS task (Zelazo et al., 2013), developed for use with older children and adults, as a measure of EF skills of shifting rules and inhibiting prior responses. In this task children tap a picture on the bottom of the screen that matches a picture on the top of the screen either by shape or color. Children completed practice trials until they achieved 8 correct trials in a row. Practice trials were followed

by 30 test trials. Shape and color trials were intermixed within the test phase and the child was prompted with a Rohingya pre-recorded word indicating which category to use as the basis of matching on each trial. For example, when the word was "shape" children were to touch the item on the bottom of the slide that matched in shape, and when the word was "color," they were to touch the picture on the bottom that matched in color. Thus, children shifted between matching on shape and color over the trials. The task was administered offline by the field researcher on tablets and later uploaded to MIRAGE on the CUNY server. A data writing error occurred for the DCCS task on the MIRAGE platform. Accuracy and RT (ms) scores were available for practice trials, but only RT data was available for the test trials. We took the following step to assess whether lack of accuracy scores would impact our capacity to assess EF skill for older children based on RT data alone: we compared results using RT-only data from test trials including either all test trials or only those that had perfect accuracy on practice trials and found no difference. Thus, following Zelazo et al. (2014), in the analysis of EF skill in the DCCS task the mean RT data from the seven nondominant test trials (i.e., the first trial after a rule change had occurred) was considered as the outcome indicator.

Intervention Protocol

Overview

The intervention protocol reflected our conceptual model positing that social contextual factors (peer collaboration) and cognitive-affective processes (emotion perspective-taking, EF) support prosocial behavior. It included a set of collaborative games, a collaborative emotion perspective-taking activity and video games that trained EF skills (behavioral flexibility and inhibition). With the exception of the video games, all activities were played together with a peer partner based on extensive research showing that collaboration boosts prosociality between individuals (Corbit, 2019; Corbit et al., 2017, 2021; Gräfenhain et al., 2013; Hamann et al., 2011, 2012; Plötner et al., 2015; Warneken et al., 2011). Inclusion of an emotion perspective-taking activity and EF skills training were also based on evidence of their positive impact on prosocial behavior (Blake, Piovesan, et al., 2015; Paulus & Moore, 2015, 2017; Paulus et al., 2015). Throughout the 10-day intervention phase, children played with the same partner, of the same age and gender, and jointly engaged in all activities designed for their age range (5–8 years or 9–12 years) in 3-h sessions each day. In field researcher training, the importance of ensuring that children were collaborating (i.e., jointly engaged) with their partners in all the activities was stressed. The exception to collaborative engagement were the video game activities (CREATE Lab, NYU: ©Gwakkamole, ©AllYouCanET), which are single-player games. For these activities, the children sat side-by-side as they played the games. Field

researchers worked in groups of three per classroom over the course of the study and shared responsibilities related to supervision, instruction, and engagement of children in the activities. To ensure that researchers tracked the engagement of all children in all intervention activities every day (from Days 3 to 12), a daily record of the activities each child was engaged in was maintained. We did not assess performance levels on intervention activities.

Collaborative Games

Younger Children

The collaborative games for younger children included puzzles, pattern making and a board game. The puzzles consisted of 12-piece wooden puzzles and the instructions stressed that children were to build each of the three puzzles together. The pattern making activity involved making patterns by arranging individual cards from a set of 18 fish cards. The instructions encouraged children to jointly arrange the cards in a pattern and once all the cards were arranged to continue and make other patterns together. The collaborative board game played by young children was *Hoot Owl Hoot!* (©Peaceable Kingdom). A researcher ensured that the children understood how to play the game and then pairs of children rotated through this activity, each pair playing for approximately 30 min.

Older Children

The collaborative games for older children included a puzzle, ©Lego building and a board game. The puzzle was a wooden ©Tetris puzzle that children were given along with a picture of a completed puzzle. They were instructed to work together to try to match the pattern in the picture. In the ©Lego activity, children were given a large bag of blocks and instructed to build something together, stressing that both children were to decide together on what they would build and to work together to construct the item. The collaborative board game was *Race To The Treasure* (©Peaceable Kingdom). A supervising researcher ensured that the children understood how to play the game and then pairs of children rotated through this activity, playing for approximately 30 minutes each.

Collaborative Emotion Perspective-Taking Activity

Children in both age groups listened with their partners to a subset of 6 out of 24 stories on each intervention day. The stories were audio recorded and presented with illustrations in a PowerPoint slideshow. The 24 stories (see Appendix for stories used for boys; stories for girls were based on the same themes) included an equal distribution of sharing, helping (translates to "assist" in Rohingya) and comforting themes, with a positive and negative outcome for each theme. Pairs of children listened together to a set of six stories each day, with the set including a positive and negative outcome for

each of the three themes. When children had listened to all 24 stories (Days 3–6), they rotated through them again for the remaining intervention days. Children were instructed to listen to the stories and talk about them with their partner. The researcher ensured children knew the meaning of the terms sharing, helping (assist), and comforting and then told them that the stories were about the three themes. At the end of listening to each story, children were asked how the main character felt, which they discussed and answered together. Following the listening and response phase, children were prompted to tell each other stories about sharing, helping, and comforting.

EF Skills Training

Children were introduced to two video games by the researcher and played these games on their tablets. Children sat side-by-side with their partner while they individually played the games. The games had nonverbal instructions at the beginning of each game, but researchers also gave verbal instructions to ensure children knew how to play the game before leaving them to play on their own for approximately 24 min (12 min for each game described below). The video games were designed so that children receive feedback (between 1 and 4 stars light up) about their performance and can advance through different levels of difficulty in the game.

©Gwakkamole[2]

This game has been demonstrated to foster inhibition skills (Homer et al., 2018) as children gain experience with "smashing" some avocado-shaped characters that appear on the screen and not "smashing" others that appear, according to the rules shown nonverbally at the beginning of each level of play. For example, the avocado-shaped characters need to be smashed immediately if they are hatless, not smashed at all if they have a spiky hat, or smashed after a delay if they have a construction hat that is soon removed. Players perform the smashing through touching avocados on the screen.

©All You Can ET[2]

This game fosters shifting skills (e.g., Homer et al., 2018) as children gain experience tracking the dietary preferences of different types of alien characters (e.g., requiring a food or drink depending on their number of eyes or being red or blue). Rules are indicated at the beginning of each new level and rule changes may occur during them. Rules and rule changes are indicated through nonverbal instructions linking the alien characters to their preferred foods. In addition, children are instructed by the researcher that aliens can change the food they want as new rules are shown.

Summary

In this chapter, we presented our methodological approach to assessing prosocial responses and implementing a multifaceted intervention over 10 days that was designed to foster prosociality in the challenging context of a refugee mega-camp. We reviewed our main research aims, our sample, the activities and procedures that were used in the intervention, and the measures used to assess the impact of the intervention. In Chapter IV we present the analytical approach and report the findings relevant to each of the two research aims identified in Chapter II: Research Aim 1 to identify the initial levels of prosocial behavior and related cognitive-affective processes in the sample prior to the intervention, and whether initial levels were impacted by age, gender, or birthplace (i.e., level of trauma); Research Aim 2 to assess intervention-related positive change in levels of the prosocial behavior and cognitive-affective outcome variables from pre- to postintervention, and determining whether patterns of change were predicted by age, gender, or birthplace (i.e., level of trauma) variables.

IV. Results

Analysis Approach

We conducted analyses using SPSS 28 and M*plus* 8. We first inspected trends of missing data and ran descriptive statistics and correlations for all predictor and outcome variables (see Table 1 for the outcome variable [s] associated with each prosocial task). To quantify and then predict the outcomes' initial levels and intervention-related changes, we used latent difference score modeling (McArdle, 2009). One of the main benefits of a latent approach to evaluating intervention effects is that measurement error is captured and separated from the outcomes at pre- and post-intervention, resulting in a higher-order difference score that better reflects "true" intervention-related change (Könen & Karbach, 2021; McArdle & Prindle, 2008). For each outcome variable, we ran an unconditional latent difference score model (see Figure 1 for depiction of the model for one outcome variable) to estimate the intercept (i.e., average initial level across all children prior to the intervention) and slope (i.e., average amount of change across all children from pre- to postintervention). In this model, we further assessed the intercept and slope variances to determine if there was significant between-child variability in initial levels and change scores that could be explained by our predictors of interest—age, gender, and birthplace—in subsequent conditional models.

When variances were significant, we tested two conditional latent difference score models for each outcome variable: one "intercept model" predicting between-child differences in preintervention levels of the outcome variable from age, gender, and birthplace, and one "slope model" predicting between-child differences in intervention-related change in the outcome variable from age, gender, birthplace, and the intercept. We included the intercept as a predictor in the slope model to account for participants' starting levels because there was significant variability in those levels at initial assessment. Thus, inclusion of the intercept as a predictor ensures a unique assessment of "base-free" change (i.e., change beyond correlation at baseline; Könen & Karbach, 2021). For all unconditional and conditional models, we proceeded only when the following indicators of acceptable fit were met: a standardized root mean square residual (SRMR) < 0.08, a root mean square error of approximation (RMSEA) < 0.08 with 90% confidence intervals, and comparative fit and Tucker–Lewis indices (CFI and TLI) > 0.90. All

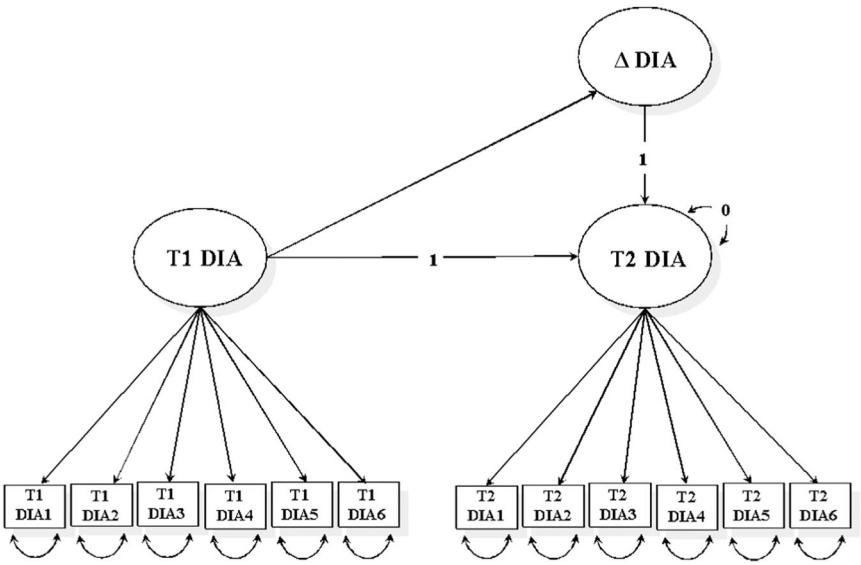


FIGURE 1.—Unconditional latent difference score model for disadvantageous inequity aversion (DI). ΔDI represents latent (controlling for measurement error) intervention-related changes in DI. Curved, double-ended arrows represent error terms.

applicable models employed maximum likelihood estimation with standard errors robust to nonnormality, as well as full information maximum likelihood estimation to handle missing data (Enders & Bandalos, 2001).

For outcome variables with a sufficient number of observed indicators (i.e., for each condition of the Forced Choice sharing task [six trials each], and for both measures of EF [12 trials each]), we tested longitudinal measurement invariance (LMI) within a confirmatory factor analytical framework. When confirmed, LMI indicates that the latent construct was assessed and interpreted by children in the same way before and after the intervention, strengthening the assumption that pre–post changes were due to the intervention rather than variability in measurement across time (Widaman et al., 2010). We tested three levels of LMI: configural, metric, and scalar. If LMI was not supported fully at a given level, we relaxed the equality constraints one-by-one according to information provided in modification indices. We then compared the respecified model against the less constrained model to see if model fit improved and if partial invariance could be achieved. Freed parameters remained unconstrained as LMI tests proceeded. We considered partial scalar invariance as the minimum criterion for LMI (Ferrer et al., 2008).

We did not establish LMI for outcomes with two or less indicators. However, to ensure analytic continuity, we still constructed latent difference score models for them. For outcomes with two indicators (i.e., Origami

helping task [behavior, monitoring], DG [misfortune, greed], judgment task [scenario 1, scenario 2], and Imagine task [behavioral, emotional]), we fixed each factor loading to 1 to maintain the benefit of capturing measurement error. The Origami helping task had a single indicator of overtaking. The single indicator's factor loading was also fixed to 1, but this resulted in a "mock" latent difference score with no measurement error isolated and an identical interpretation to a simple arithmetic difference score (see McArdle, 2001).

Preliminary Analyses

Descriptive Statistics and Missing Data

The sample sizes, mean ages, and age ranges across different age groups and genders were presented in Table 4 (see Chapter III, Method). The descriptive statistics for all outcome variables across age (younger, older), birthplace (Myanmar, camp), and time of assessment (preintervention, postintervention) are found in Table 7a and described in the sections below. Table 7b presents the descriptive statistics combined over age and overall for all outcome variables across birthplace and time of assessment. The number of missing values across variables in pre- and postassessment was relatively minimal, ranging from 0% to 10.5%. We thus used full information maximum likelihood (FIML) estimation in subsequent latent analyses to retain the full sample size.

Recipient Type Effects in Sharing Tasks

Preliminary analyses of the sharing tasks were conducted on the initial, preintervention levels of number shared (DG task) and proportion of equality choices (Forced Choice tasks) to determine whether the Recipient Type (DG task: misfortune, greed; Forced Choice task: partner, anonymous other child) impacted preintervention sharing. For the DG task children shared fewer items at baseline with a recipient who had no candy because of greed ($M = 2.51$) relative to the scenario where the recipient had no candy because of misfortune ($M = 2.97$) condition, $t(151) = 4.97$, $p < .001$. In contrast, Recipient Type (partner, anonymous other) did not impact initial levels of equality choice in the Forced Choice sharing task for any Trial Type (1:0, 2:0, 1:2, 2:1). We also examined Recipient Type effects for intervention-related change to establish the outcome variables to be used in subsequent latent change analyses. For the DG, there was no difference in intervention-related change between the misfortune and greed Recipient Types, thus, we combined across the misfortunate and greed trial types to create two-indicator latent variables for subsequent latent change analyses

TABLE 7a

Mean (SD) of the Study Variables Across Age (Younger, Older), Birthplace (Myanmar, Camp), and Time of Test (Preintervention, Postintervention)

		Age: Younger Birthplace						Age: Older Birthplace					
		Myanmar		Camp		Overall Younger		Myanmar		Camp		Overall Older	
	Test	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Helping (expert response to nonexpert)	Monitoring other	1.93	2.08	5.18	7.36	3.47	4.77	2.07	2.33	6.00	5.11	3.43	3.69
		(2.26)	(2.12)	(2.88)	(2.10)	(3.28)	(3.96)	(2.22)	(1.86)	(3.11)	(2.29)	(3.21)	(2.37)
	Helping behavior	1.23	1.18	2.89	4.93	2.21	3.24	2.12	1.19	3.12	3.08	2.31	2.23
		(1.92)	(1.89)	(2.10)	(2.83)	(2.40)	(2.83)	(2.55)	(1.40)	(1.86)	(2.45)	(2.04)	(2.25)
	Overtaking	0.40	0.38	0.29	0.14	0.27	0.21	0.33	0.54	0.42	0.46	0.37	0.49
		(0.50)	(0.49)	(0.46)	(0.36)	(0.45)	(0.41)	(0.47)	(0.51)	(0.50)	(0.51)	(0.49)	(0.51)
Dictator game	Misfortune	3.58	3.22	2.65	2.36	3.19	2.87	2.91	3.28	2.55	2.90	2.75	3.13
		(1.12)	(1.04)	(0.80)	(0.80)	(1.10)	(1.04)	(0.95)	(0.70)	(0.79)	(0.67)	(0.90)	(0.71)
	Greed	3.11	3.16	1.84	1.87	2.59	2.63	2.70	2.72	2.06	2.17	2.42	2.50
		(1.38)	(0.64)	(1.24)	(1.41)	(1.46)	(1.20)	(1.04)	(0.93)	(1.14)	(1.17)	(1.12)	(1.06)
Forced choice sharing (trial type)	1:0 (noncostly)	0.74	0.82	0.57	0.62	0.67	0.74	0.83	0.96	0.69	0.80	0.77	0.90
		(0.25)	(0.24)	(0.40)	(0.29)	(0.33)	(0.28)	(0.24)	(0.15)	(0.42)	(0.22)	(0.33)	(0.20)
	2:0 (costly)	0.53	0.64	0.09	0.13	0.35	0.43	0.70	0.94	0.15	0.15	0.46	0.61
		(0.26)	(0.30)	(0.16)	(0.23)	(0.31)	(0.37)	(0.33)	(0.15)	(0.20)	(0.24)	(0.39)	(0.43)
	1:2 (DI)	0.42	0.46	0.81	0.86	0.58	0.62	0.68	0.77	0.90	0.92	0.78	0.83
		(0.32)	(0.33)	(0.26)	(0.15)	(0.35)	(0.34)	(0.34)	(0.33)	(0.16)	(0.14)	(0.29)	(0.28)
	2:1 (AI)	0.37	0.38	0.25	0.18	0.32	0.30	0.59	0.80	0.27	0.26	0.45	0.58
		(0.32)	(0.34)	(0.23)	(0.26)	(0.29)	(0.33)	(0.40)	(0.31)	(0.24)	(0.19)	(0.38)	(0.38)
Imagine	Behavioral	1.42	1.81	2.73	2.57	1.96	2.12	2.26	2.42	2.44	2.65	2.34	2.52
		(0.83)	(0.87)	(0.51)	(0.50)	(0.96)	(0.82)	(0.57)	(0.61)	(0.68)	(0.66)	(0.62)	(0.64)

(*Continued*)

TABLE 7a. (*Continued*)

		Age: Younger Birthplace						Age: Older Birthplace					
		Myanmar		Camp		Overall Younger		Myanmar		Camp		Overall Older	
	Test	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
	Emotional	1.16	1.49	1.13	.84	1.15	1.22	1.70	1.83	1.27	0.99	1.51	1.46
		(0.61)	(0.52)	(0.89)	(0.93)	(0.73)	(0.78)	(0.43)	(0.44)	(0.90)	(0.99)	(0.70)	(0.84)
Judgment		0.98	0.98	0.92	0.96	0.96	0.97	0.98	1.00	0.89	0.78	0.94	0.92
		(0.11)	(0.15)	(0.19)	(0.14)	(0.14)	(0.15)	(0.11)	(0.00)	(0.21)	(0.38)	(0.16)	(0.26)
Executive	H&F	1400	1316	998	894	1236	1145	NA	NA	NA	NA	NA	NA
function		(222)	(169)	(243)	(266)	(304)	(297)						
(reaction	DCCS	NA	NA	NA	NA	NA	NA	1655	1384	1329	1081	1513	1264
times)								(525)	(269)	(316)	(400)	(473)	(357)

Note. DCCS = Dimensional Change Card Sort task (for the older age group); H&F = Hearts & Flowers task (for the younger age group); NA = Not applicable.

TABLE 7b

MEAN (SD) OF THE STUDY VARIABLES FOR ALL AGE GROUPS ACROSS BIRTHPLACE (MYANMAR, CAMP), AND TIME OF TEST (PREINTERVENTION, POSTINTERVENTION)

		Age: Combined Birthplace					
		Myanmar		Camp		Overall	
	Test	Pre	Post	Pre	Post	Pre	Post
Helping (expert response to nonexpert)	Monitoring other	2.00 (2.23)	2.21 (1.98)	5.57 (2.99)	6.28 (2.90)	3.41 (3.09)	3.81 (3.10)
	Helping behavior	1.69 (2.30)	1.18 (1.65)	3.00 (1.97)	4.01 (2.79)	2.20 (2.26)	2.31 (2.57)
	Overtaking	0.36 (0.48)	0.46 (0.50)	0.35 (0.48)	0.30 (0.46)	0.36 (0.48)	0.39 (0.49)
Dictator game	Misfortune	3.25 (1.09)	3.25 (0.89)	2.59 (0.79)	2.62 (0.78)	2.97 (1.02)	2.99 (0.90)
	Greed	2.91 (1.24)	2.94 (0.82)	1.95 (1.19)	2.02 (1.30)	2.51 (1.30)	2.57 (1.13)
Forced choice sharing (trial type)	1:0 (noncostly)	0.79 (0.25)	0.89 (0.21)	0.63 (0.41)	0.71 (0.27)	0.72 (0.33)	0.81 (0.25)
	2:0 (costly)	0.62 (0.31)	0.78 (0.28)	0.12 (0.18)	0.14 (0.23)	0.41 (0.36)	0.52 (0.41)
	1:2 (DI)	0.55 (0.35)	0.61 (0.36)	0.85 (0.22)	0.89 (0.15)	0.68 (0.34)	0.72 (0.33)
	2:1 (AI)	0.48 (0.38)	0.58 (0.39)	0.26 (0.23)	0.22 (0.23)	0.39 (0.34)	0.44 (0.38)
Imagine	Behavioral	1.83 (0.82)	2.11 (0.81)	2.58 (0.62)	2.61 (0.58)	2.15 (0.83)	2.32 (0.76)
	Emotional	1.42 (0.59)	1.65 (0.51)	1.20 (0.89)	0.91 (0.95)	1.33 (0.74)	1.34 (0.81)
Judgment		0.98 (0.11)	0.99 (0.11)	0.91 (0.20)	0.87 (0.30)	0.95 (0.15)	0.95 (0.21)
Executive function (reaction times)	H&F	NA	NA	NA	NA	NA	NA
	DCCS	NA	NA	NA	NA	NA	NA

Note. HF= Hearts & Flowers task (for the younger age group), DCCS= Dimensional Change Card Sort task (for the older age group), NA = Not applicable.

involving the DG. Likewise, in the Forced Choice sharing task there was no Recipient Type effect found in analyses of intervention-related change when the child shared with a partner versus an anonymous other child, a nonsignificant effect that held across trial types. Therefore, we collapsed across partner and anonymous other trial types in subsequent latent change analyses for the Forced Choice sharing task.

Correlations Among Variables

The correlations among the 13 outcome variables and three predictor (age, gender, birthplace) variables for each time of assessment (pre-intervention, postintervention) are found in Table 8. In this section, we consider the relations among the predictor and outcome variables, which guided subsequent latent change analyses and facilitates interpretation of the main findings. Correlational results among the prosocial outcome variables were not central to the current study and thus are not discussed in detail here. However, further correlations among outcome variables within-tasks and between-tasks as well as among change scores are reported (Tables S3–S12) and described in more detail in the Supporting Information for readers interested in the debate on the unidimensional versus multidimensional nature of the prosocial construct (Dahl & Paulus, 2019; Dunfield, 2014; Paulus, 2018).

As indicated in Table 8, age (continuous variable) was positively related to the Forced Choice sharing and Imagine task outcomes at pre- and post-intervention assessments, as older children were more likely to choose equality over inequality in the sharing task and exhibited higher response levels when asked to imagine how they would feel about another's misfortune, and what they would do. Children's birthplace was related to nearly all the variables at pre- and postintervention assessments. We thus included age and birthplace as predictor variables in the main analyses. Gender was not significantly correlated with any outcome variables at either assessment point, but we still included it as a covariate in subsequent analyses out of thoroughness and to rule out potential gender differences in intervention-related changes.

Measurement Invariance and Model Fit

As depicted in Table 9, with the exception of noncostly sharing, all applicable measures met criteria for full scalar longitudinal measurement invariance. Noncostly sharing still met the assumption of LMI via partial scalar invariance. Thus, we proceeded with latent difference score modeling under the assumption that these measures were consistently assessed and interpreted over time, and, by extension, that any

TABLE 8

CORRELATIONS BETWEEN OUTCOME AND PREDICTOR VARIABLES PREINTERVENTION (BELOW THE DIAGONAL) AND POSTINTERVENTION (ABOVE THE DIAGONAL)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Child age	—	−.01	−.01	−.12	−.10	**.23****	.04	**.31*****	**.21***	**.28*****	**.28*****	**.31*****	**.17***	−.08	−.13	−.19
2. Child gender	−.01	—	−.03	−.13	−.16	.10	−.12	−.01	−.02	.00	.01	−.12	−.03	−.05	−.00	−.10
3. Child birthplace	−.01	−.03	—	**−.64*****	**−.54*****	.16	**.44*****	**.35*****	**.77*****	**−.42*****	**.47*****	**−.33*****	**.45*****	**.28*****	**.70*****	**.42*****
4. Origami-helping	.03	−.01	**−.57*****	—	**.77*****	−.15	**−.44*****	**−.48*****	**−.62*****	**.27****	**−.35*****	**.35*****	**−.42*****	−.06	**−.73*****	**−.42*****
5. Origami-monitoring	.12	−.03	**−.29*****	**.57*****	—	−.16	**−.37*****	**−.45*****	**−.54*****	**.21***	**−.34*****	**.27****	**−.34*****	−.03	**−.70*****	**−.27***
6. Origami-overtaking	.02	.08	.01	.01	−.11	—	.13	**.21***	**.19***	−.01	**.19***	.05	.01	.07	.11	−.08
7. Dictator Game	−.12	−.05	**.39*****	**−.41*****	**−.26****	.01	—	**.36*****	**.44*****	**−.29*****	**.24****	**−.25****	**.47*****	.03	**.60*****	.19
8. FC 1:0 Noncostly	.15	−.07	**.24****	**−.24****	−.17	**.25****	.11	—	**.56*****	−.05	**.32*****	−.07	**.46*****	−.09	**.50*****	.23
9. FC 2:0 Costly	.13	.03	**.68*****	**−.50*****	**−.24****	.09	**.34*****	**.37*****	—	**−.17***	**.67*****	**−.16***	**.51*****	.12	**.60*****	**.50*****
10. FC 1:2 DI	**.21***	−.05	**−.45*****	**.30*****	.15	−.16	**−.23****	−.03	−.09	—	**.31*****	**.22****	−.16	−.09	**−.57*****	−.14
11. FC 2:1 AI	.15	.01	**.32*****	**−.20***	−.05	.02	.9	**.39*****	**.63*****	**.36*****	—	−.01	**.35*****	.13	**.24***	**.27***
12. Imagine-Behavior	**.29*****	−.02	**−.45*****	**.40*****	**.25****	.05	**−.17***	−.12	**−.23****	**.32*****	−.01	—	−.04	−.08	**−.31*****	−.17
13. Imagine-Emotion	**.23****	−.04	.15	**−.18***	−.02	.04	**.24****	**.37*****	**.30*****	.10	**.30*****	.05	—	−.16	**.60*****	**.27***
14. Judgment	.01	−.09	**.23****	−.03	.02	.12	−.04	−.07	.15	−.03	.16	−.02	**−.26****	—	−.11	−.20
15. EF-HF	−.06	.13	**.66*****	−.19	−.17	.02	**.36****	−.00	**.28***	**−.36****	.06	**−.35****	−.22	.18	—	NA
16. EF-DCCS	−.18	−.01	**.34****	−.18	.03	−.01	**.31****	−.08	.19	**−.27***	.03	−.16	−.02	−.13	NA	—

Note. DCCS = dimensional change card sort task (for the older age group); EF = executive function; FC = forced choice sharing; HF = Hearts & Flowers task (for the younger age group); NA = not applicable. Significant correlations are in bold.
*$p < .05$, **$p < .01$, ***$p < .001$.

TABLE 9
MEASUREMENT INVARIANCE TESTING AND MODEL FIT STATISTICS

Outcome and LMI Model	χ^2	df	CFI	TLI	RMSEA	SRMR	Model Comparison (Satorra-Bentler Scaled 2)
Forced choice							
1:0							
1. Configural	63.87	47	0.95	0.93	0.05	0.06	—
2. Metric	64.85	52	0.96	0.95	0.04	0.07	1 vs. 2 (1.37)
3. Scalar	68.93	57	0.96	0.96	0.04	0.07	2 vs. 3 (17.60**)
4. Partial Scalar	66.63	54	0.96	0.95	0.04	0.07	2. vs. 4 (7.11)
2:0							
1. Configural	55.62	47	0.99	0.98	0.04	0.04	—
2. Metric	60.52	52	0.99	0.98	0.03	0.05	1 vs. 2 (3.49)
3. Scalar	63.29	57	0.99	0.99	0.03	0.05	2. vs. 3 (1.64)
1:2							
1. Configural	45.43	47	1.00	1.00	0.00	0.04	—
2. Metric	50.70	52	1.00	1.00	0.00	0.05	1 vs. 2 (5.41)
3. Scalar	54.92	57	1.00	1.00	0.00	0.05	2. vs. 3 (4.01)
2:1							
1. Configural	83.50	47	0.93	0.90	0.07	0.06	—
2. Metric	95.01	52	0.91	0.89	0.07	0.07	1 vs. 2 (13.28*)
3. Partial metric	90.94	51	0.92	0.90	0.07	0.07	1 vs. 3 (7.66)
4. Scalar	100.50	56	0.91	0.90	0.07	0.07	3. vs. 4 (9.67)
Executive function							
Hearts & Flowers							
1. Configural	161.32	95	0.94	0.92	0.10	0.05	—
2. Metric	170.66	102	0.94	0.93	0.09	0.07	1 vs. 2 (9.39)
3. Scalar	174.86	109	0.94	0.93	0.09	0.07	2 vs. 3 (4.15)
DCCS							
1. Configural	123.50	69	0.77	0.70	0.10	0.09	—
2. Metric	129.45	75	0.77	0.73	0.10	0.10	1 vs. 2 (6.99)
3. Scalar	134.41	81	0.78	0.75	0.09	0.11	2 vs. 3 (3.74)

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

subsequently identified changes in them were more likely attributed to the intervention.

Main Analyses

We begin with a report of the unconditional model analyses (see Table 10) to assess whether there was significant between-child variability in initial levels (intercept) and change scores (slope) that could be explained in subsequent conditional analyses by our predictors of interest (age, gender, and birthplace). Analyses of our main research aims regarding initial levels of outcome variables (Research Aim 1) and whether children improved in outcome variables following the intervention (Research Aim 2) are reported next and assessed with conditional latent difference score models.

TABLE 10
UNCONDITIONAL LATENT DIFFERENCE SCORE MODELS

	Intercept		Slope	
Outcome	Mean	Variance	Mean	Variance
Helping				
Helping/monitoring	1.93***	0.96***	−0.09	0.70**
Overtaking	0.36***	0.23***	0.04	0.34***
Sharing				
Dictator game	2.51***	0.68***	0.05	0.66**
Forced choice (1:0)	0.75***	0.08***	0.07*	0.05***
Forced choice (2:0)	0.45***	0.11***	0.11***	0.05***
Forced choice (1:2)	0.68***	0.11***	0.05*	0.04**
Forced choice (2:1)	0.43***	0.11***	0.06*	0.08***
Empathy				
Judgment task	0.95***	0.00	−0.01	0.02
Imagine emotional	1.33***	0.37***	−0.004	0.20*
Imagine behavioral	2.11***	0.40***	0.40***	0.19*
Executive function				
Hearts & Flowers	1255.06***	***	−92.36*	***
DCCS	1460.02***	**	−355.28***	*

Note. Due to raw scaling in milliseconds, the executive function tasks' variances exceeded the maximum integers allowed by an Mplus output. We report their significance values only. DCCS = dimensional change card sort task.
*$p < .05$, **$p < .01$, ***$p < .001$.

Unconditional Models: Initial Levels and Intervention-Related Change

The unconditional model analyses revealed significant mean-level differences (see *Intercept*, Mean column) and variation (see *Intercept*, Variance column) between participants for all variables at the initial pre-intervention assessment. These effects were explored further with the conditional analyses for initial levels of the outcome variables (Research Aim 1) as described below. To assess whether children, on average, improved in the outcome variables following the intervention (Research Aim 2) we examined significant mean-level differences (see *Slope*, Mean column) and variation (see *Slope*, Variance column). As reported in Table 10, there were no sample-wide improvements (i.e., mean-level differences) in any of the forms of helping measured in the Origami task. Likewise, there were no improvements in the DG measure of sharing. In the Forced Choice task measure of sharing, all trial types (1:0, 2:0, 1:2, 2:1; see Table 3 for details on interpretation of choice patterns) showed significant intervention-related increases. Thus, children were more likely to choose equal (1:1) for these trial types after the intervention relative to before the intervention. For the Judgment task, there were no significant mean-level changes or variability to predict in subsequent conditional models. A ceiling effect was observed for this task, revealing that children consistently

chose the prosocial character in their judgments of "who did the right thing" in the stories. Thus, children in this sample have knowledge of the norm that responding prosocially to others' misfortune is the right thing to do. Due to the ceiling effect, Judgment task responses were not included in any subsequent analyses. For the Imagine task, children did show intervention-related mean-level increases in behavioral ("what would you do?") but not in emotional ("how would you feel?") responses to the test questions. Children also showed significant intervention-related RT improvements in their respective EF task (Younger—Hearts & Flowers; Older—DCCS). In summary, the unconditional analyses partially support H3, predicting intervention-related change across all tasks and for all ages. Importantly, with the exception of the Judgment task, the variances around all of these intercepts and slopes were significant, indicating that children showed varying initial levels and degrees of improvement to be predicted by subsequent conditional models, which we report below as they relate to our hypotheses.

Conditional Models: Predicting Initial Levels of Prosocial Behavior and Cognitive-Affective Processes

Review of Hypotheses

Research Aim 1 was to determine the baseline levels and developmental differences for prosocial behavior and cognitive-affective processes. H1 subhypotheses predicted task-specific age effects. We predicted that older children would show higher levels than younger children in the Origami task outcome variables (H1.1). For sharing tasks, we predicted that older children would share more than younger children in the DG (H1.2) and for the costly (H1.3) and AI (H1.4) trial types in the Forced Choice task. Age effects were not predicted for the noncostly (H1.5) and DI (H1.6) trial types in the Forced Choice task. H1.7 predicted that older children would show higher levels in the Imagine task than younger children. Older and younger children completed different EF tasks thus we did not make age predictions for EF. H2 subhypotheses related to expected birthplace effects. We predicted that children born in Myanmar would show higher attunement to emotional aspects in the Imagine task, where they imagined how they would feel and respond to misfortune (H2.1). Additionally, children born in Myanmar, who directly experienced higher levels of trauma, were expected to have lower EF scores than camp-born children (H2.2).

Significant Findings

Mean levels for all of the outcome variables for behavioral and cognitive-affective tasks across age, birthplace and time of assessment are presented in Table 7a, with means averaging over age and overall means also included

in Table 7b. The results of the relevant conditional latent difference score "intercept models" predicting preintervention levels of outcome variables are reported in Table 11 according to age, gender, and birthplace predictor variables.

Age Effects in Initial Levels

With respect to age, older children showed lower initial levels of sharing in the DG relative to younger children, contrary to H1.2. Inspection of means in Table 7a reveals that children in both age groups were giving close to half of the candy, which is consistent with cross-cultural findings in the literature for children in this age range (Callaghan & Corbit, 2018). In the Forced Choice sharing task older relative to younger children showed higher levels of choice for equality for costly sharing (2:0) trials, confirming H1.4, but also for DI (1:2) trials, contrary to H1.5. Further, contrary to H1.6, we did not find an age effect for AI (2:1) trials. Confirming H1.7, older children showed higher behavioral and emotional scores in the Imagine task relative to younger children.

Gender Effects in Initial Levels

There were no significant gender differences in preintervention levels for any of the outcome variables.

Birthplace Effects in Initial Levels

Regarding birthplace, we made predictions only for the cognitive-affective variables but found interesting patterns on helping and sharing variables. Children born in Myanmar showed lower helping behavior and monitoring in the Origami task relative to children born in the camp and had higher initial levels of sharing in the DG task than camp-born children. In Forced Choice sharing, relative to camp-born children, Myanmar-born children showed higher levels of equal sharing on noncostly (1:0), costly (2:0) and AI (2:1) trials, but lower choice of equality on DI (1:2) trials. The expectation that Myanmar-born children would be more attuned to emotional aspects of misfortune (H2.1) was not supported. Myanmar-born children had lower levels of behavioral responses in the Imagine task compared to camp-born children, with no difference across birthplace groups for emotional responses in this task. Compared to children born in the camp, children born in Myanmar showed poorer preintervention performance (i.e., longer RTs) on their respective EF task (Younger—Hearts & Flowers, Older—DCCS), supporting H2.2.

TABLE 11

Conditional Latent Difference Score Intercept Models (Predicting Preintervention Levels According to Predictor Variables of Age, Gender, Birthplace)

	Outcome										
Predictor	Helping Behavior/ Monitoring	Helping Over-taking	Dictator Game	Forced Choice (1:0)	Forced Choice (2:0)	Forced Choice (1:2)	Forced Choice (2:1)	Imagine Emo-tional	Imagine Behav-ioral	Hearts & Flowers	DCCS
Age	0.05	0.004	−0.06*	0.02	0.02**	0.03**	0.02	0.07**	0.09***	−17.01	−50.18
	(0.03)	(0.02)	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)	(0.03)	(0.03)	(19.99)	(37.36)
Gender	−0.02	0.08	−0.08	−0.03	0.03	−	0.02	−0.05	−0.05	91.97	−46.07
	(0.16)	(0.08)	(0.15)	(0.05)	(0.04)	0.05	(0.06)	(0.12)	(0.11)	(52.23)	(79.63)
						(0.05)					
Birthplace	−1.21***	0.01	0.74***	0.14*	0.52***	−0.34***	0.24***	0.24	−0.80***	423.95***	376.10***
	(0.16)	(0.08)	(0.14)	(0.16)	(0.04)	(0.05)	(0.06)	(0.13)	(0.11)	(53.43)	(79.78)

Note. Unstandardized coefficients with standard errors in parentheses. Age is measured continuously in years. Gender (0 = girl, 1 = boy). Birthplace (0 = born in Camp, 1 = born in Myanmar). DCCS = dimensional change card sort task.
*$p < .05$, **$p < .01$, ***$p < .001$.

Conditional Models: Predicting Intervention-Related Positive Change

Review of Hypotheses

Our main research aim (Research Aim 2) concerned whether the intervention resulted in improvement in the outcome variables for prosocial behavior and cognitive-affective processes. We predicted overall intervention-related improvement (H3) for all tasks across both ages. Following on our hypotheses for initial levels, our expectation regarding birthplace for intervention-related change was that Myanmar-born children would show greater improvement than camp-born children on the Imagine task, which invoked empathic responding and emotion perspective-taking (H4).

Significant Findings

Unconditional model analyses partially supported the prediction (H3) that the intervention would improve performance across all prosocial outcomes from pre- to postintervention assessments, without age effects. Intervention-related improvement was found for all the Forced Choice sharing outcome variables, the behavioral outcome variable in the Imagine task and for EF, but not for the Origami helping task or DG sharing task outcome variables. The results of the conditional latent difference score "slope models" predicting intervention-related change in outcome variables according to age, gender, and birthplace predictor variables are reported in Table 12 and the relevant means for descriptive statistics are reported in Tables 7a and 7b.

With the exception of the Imagine task, all prosocial outcome variables showed negative intercept effects, indicating that those with lower levels at preintervention had more room for intervention-related growth. For the EF tasks, children who started at higher levels (i.e., slower RT) relative to their peers were more likely to speed up after the intervention.

Age Effects in Intervention Change

Regarding age effects, older children showed greater intervention-related increases than younger children in the overtaking outcome variable for the Origami helping task. Relative to younger children, older children increased choice of equality from pre- to postintervention for all trial types in the Forced Choice sharing task. Within the younger group of children, who performed the Hearts & Flowers EF task, relatively older children showed a greater performance boost (faster RT) from pre- to postintervention tests.

TABLE 12

CONDITIONAL LATENT DIFFERENCE SCORE SLOPE MODELS (PREDICTING INTERVENTION-RELATED CHANGE)

Predictor	Outcome										
	Helping Behavior/ Monitoring	Helping Over-taking	Dictator Game	Forced Choice (1:0)	Forced Choice (2:0)	Forced Choice (1:2)	Forced Choice (2:1)	Imagine Emo-tional	Imagine Behav-ioral	Hearts & Flowers	DCCS
Age	0.01	0.05**	0.03	0.02***	0.03**	0.02*	0.04**	−0.01	0.02	−42.53*	−3.11
	(0.03)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.03)	(0.03)	(19.03)	(35.25)
Gender	−0.41**	0.09	−0.15	0.02	−0.02	0.03	0.01	0.02	−0.14	−3.07	−77.34
	(0.14)	(0.08)	(0.12)	(0.03)	(0.04)	(0.04)	(0.05)	(0.10)	(0.11)	(46.95)	(69.40)
Birthplace	−0.92***	0.15*	0.55**	0.11**	0.36***	−0.08	0.23***	0.52***	0.18	467.75***	220.21**
	(0.22)	(0.08)	(0.18)	(0.04)	(0.10)	(0.05)	(0.06)	(0.13)	(0.22)	(74.10)	(84.83)
Intercept	−0.63***	−0.74***	−0.74***	−0.65***	−0.38**	−0.30**	−0.39***	−0.09	−0.14	−1.07***	−0.64***
	(0.13)	(0.08)	(0.20)	(0.07)	(0.13)	(0.10)	(0.10)	(0.15)	(0.25)	(0.12)	(0.09)

Note. Unstandardized coefficients with standard errors in parentheses. Age was measured continuously in years. Gender (0 = girl, 1 = boy). Birthplace (0 = born in camp, 1 = born in Myanmar). DCCS = dimensional change card sort task.

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

Gender Effects in Intervention Change

There was only one gender effect across all analyses, showing that girls were more likely than boys to increase in helping behavior during the Origami task following the intervention.

Birthplace Effects in Intervention Change

With respect to birthplace, children born in Myanmar were more likely than those born in the camp to experience intervention-related increases in the overtaking measure for the Origami helping task. However, Myanmar-born children were less likely than camp-born children to show intervention-related improvements in the behavior and monitoring outcome measures in the Origami helping task. Myanmar-born children were more likely than camp-born children to increase the number of items shared in the DG and to increase choice of equal allocations on noncostly sharing (1:0), costly sharing (2:0), and AI (2:1) trials in the Forced Choice sharing task. Supporting H4, children born in Myanmar showed a greater increase in emotional responses in the Imagine task than camp-born children. Finally, Myanmar-born children from both age groups were less likely than those born in the camp to show improvement in the EF task for their age group.

Summary

In this chapter, we presented findings from descriptive and latent change analyses relevant to our main research aims regarding initial levels of outcome variables (Research Aim 1) and change in outcome variables following the intervention (Research Aim 2). We reported partial support for subhypotheses predicting age-related differences (HI.1–H1.7) in the initial levels across the task outcome variables. Our analyses confirmed birthplace effects in initial levels existed for Imagine task outcome variables (H2.1) and EF tasks (H2.2). We found significant positive intervention-related change in many outcome variables in the conditional latent change analyses, with age and birthplace variables predicting specific patterns of change. Our analyses partially supported H3 (i.e., change across all outcome variables) and confirmed H4 (i.e., greater change on the emotional outcome variable in the Imagine task for Myanmar-born than camp-born children). In Chapter V, we interpret these findings and assess their relevance to developmental theory.

V. Discussion and Implications for Developmental Science

The overarching aim of this research was to assess the effectiveness of an intervention designed to foster prosocial development in Rohingya refugee children, ages 5–12 years, whose families have fled genocidal violence in Myanmar and live in a crowded and under-resourced refugee camp. We investigated the impacts of age, gender, and birthplace on prosocial behavior and related cognitive-affective processes prior to and following the implementation of intervention sessions. Birthplace was used as a proxy measure of level of directly experienced trauma, with children born in Myanmar considered to have directly experienced greater trauma than children born in the camps. Two specific research aims guided the research and analytic approaches. First, we examined preintervention levels across a battery of six prosocial behavior and cognitive-affective tasks. Second, we assessed the effectiveness of our intervention protocol in boosting prosociality by examining change from pre- to postintervention sessions in the outcome variables for the six tasks (see Table 1 for task and outcome variable descriptions and Tables 7a and 7b for descriptive statistics). In the following sections, organized by research aims, we provide within each section a brief overview of the findings for the research aim followed by a discussion of the findings and their implications for developmental science.

Research Aim 1: Initial Levels

Overview of Findings

Helping

Prosocial responses were evident at robust levels and in diverse forms in the Rohingya refugee children who have experienced extreme levels of adversity in their lives. The Origami helping task designed for this study successfully elicited a variety forms of helping in the "expert" child. These included monitoring their nonexpert partner's progress, slowing their own folding and re-folding to demonstrate how to make each fold, and less frequently, reaching over to the partner's shape and folding it for them. There were no age effects revealed in the analyses of initial levels of helping but a birthplace effect was found with lower levels of helping for children born in Myanmar compared to those born in the camp.

Sharing

In two tasks assessing sharing, children also showed strong initial levels of fairness and generosity. In the DG sharing task, the overall mean number of items shared with an anonymous recipient was half of the child's allocation, consistent with levels reported in cross-cultural studies with nonrefugee children in this age range (Blake et al., 2016; Callaghan & Corbit, 2018; Corbit et al., 2022; Huppert et al., 2019). Of note, in the current version of the DG task, children's decisions were contrasted across two conditions, one in which they considered whether they were sharing with a recipient who had no candy because of that child's greed and a second where the recipient had no candy because of misfortune. We found that fewer items were shared at the preintervention assessment with a recipient who had no candy because of greed than because of misfortune, emphasizing the children's sense of fairness. Contrary to previous findings, an age effect indicated that overall level of sharing in this task was higher for younger than older children. Also of interest was a birthplace effect with Myanmar-born children showing higher levels of overall sharing than those born in the camp in the DG task.

In the Forced Choice sharing task (see Table 3), which provides a more nuanced view of fairness concerns, an age effect revealed that older children were more likely than younger children to avoid giving nothing to their partner or letting their partner get more. A birthplace effect in the pattern found across Forced Choice trial types indicated that children born in Myanmar showed a pattern of generosity that coincided with their greater level of giving in the DG task. That is, Myanmar-born were more likely than camp-born children to avoid unequal options with one exception: If an unequal choice meant the partner would receive more than an equality choice, then Myanmar-born children opted for inequality which resulted in giving their partner more. In contrast, children born in the camp showed a less generous pattern, choosing unequal options when they stood to gain more than the recipient and equal when they stood to gain less than the recipient.

Cognitive-Affective

In the Judgment task, in which children were asked which story character "did the right thing" and one character had acted prosocially while the other had not, children's initial response levels were at ceiling across age, gender, and birthplace groups, which suggested that the children in this sample held views that were consistent with adult prosocial norms in their society, previously reported by Didkowsky et al. (2024). When asked in the Imagine task how they would feel and what they would do to remedy the misfortune portrayed in the stories if they had witnessed it, an age effect in the initial levels revealed that older children were more likely than younger children to report that they would feel culturally appropriate empathic responses (i.e., emotional responses) and imagine remedial actions (i.e., behavioral responses). Regarding birthplace effects, we found that children born in

Myanmar were more likely than those born in the camp to report culturally-appropriate emotional responses when asked how they would feel but less likely to imagine remedial actions when asked what they would do. Thus, Myanmar-born children appeared to focus on the emotional aspects of the scenarios whereas camp-born children focused on how to act in response to the misfortune. The level of EF skills that relate to prosocial behavior (i.e., behavioral flexibility and inhibition), measured with different tasks for younger and older children, were lower at both ages for children born in Myanmar than children born in the camp.

Discussion of Findings

In considering the findings across all tasks the most interesting patterns to emerge centered around birthplace (i.e., our proxy for level of directly experienced trauma) effects. Before considering these patterns, we first situate our novel Origami task among other helping measures. We follow with a review of the birthplace-related patterns in helping, sharing and emotional attunement and then with our interpretation of what those patterns reveal.

Relation of the Origami Task to Other Helping Tasks

The indicators used to document helping in the Origami task included monitoring the partner's folding, helping via demonstrating folds for the nonexpert (i.e., helping behavior), and overtaking the process and folding the nonexpert's shape. Two of these indicators, which we consider reveal a scaffolding approach to helping the partner (i.e., monitoring and behavior [helping via demonstration]), were found to correlate (see Table 8) with behavioral responses in the Imagine task (i.e., responses to "What would you do?"). A behavioral response in the Imagine task is the child's prospective self-report of how they would act, whereas in the Origami task it is an explicit behavior. The convergence revealed by the correlation between these types of behavioral responses across the two tasks raises confidence in the validity of the Origami task as an indicator of children's propensity toward prosocial helping but we acknowledge that additional research is needed to confirm this. When compared to classic measures of helping used with much younger children (Warneken & Tomasello, 2006), where an adult displays a need (i.e., is prevented from reaching their instrumental goal) and the child has the ability to assist by completing the goal (e.g., retrieving a clothespin) the novel Origami task differed in the following way: In the Origami task, children were asked to make a shape and one child knew how to make the shape while the other did not. Both children had the instrumental goal of making the shape on their own, but one was prevented by lack of knowledge, setting up in the nonexpert both a need to complete an instrumental goal and a need for "how to" information. Thus, in this way the novel Origami helping task was more complex than classic helping tasks used with younger children

(Warneken & Tomasello, 2006). The Origami task also affords the use of different means of helping the nonexpert make their shape. To help fulfill their partner's goal of folding the origami shape, the child could simply take over the goal (i.e., overtaking, as Myanmar-born children were more likely to do), much as the child might retrieve a clothespin for an adult who can't reach it. Alternatively, the child could help by providing information the nonexpert needs to complete their goal, as in adopting a Vygotskian pedagogical style to support the partner's own folding process (i.e., as in monitoring and helping by demonstrating, as camp-born children were more likely to do). Although the Origami task shows promise as a measure of helping across a wide age range, the similarities and differences in task demands between the novel Origami task compared to other helping tasks needs to be considered and aligned with the research aims in future studies.

Birthplace Patterns

In the Origami helping task, children born in Myanmar were more likely to take over the folding of their nonexpert partner's shape whereas children born in the camp adopted a scaffolding approach, monitoring their partner's progress and demonstrating folds. We interpret these different styles of helping as potentially related to the levels of adversity directly experienced by children. Parenting in conflict and forced migration contexts is challenging, especially considering the severity of symptoms reported in studies of parental mental health in these contexts (Eltanamly et al., 2021; Sloane & Shoshani, 2017). We assume that in families where children have directly experienced genocide and forced migration the challenges are even more daunting. We further assume that these converging challenges impede parents' aim to foster prosocial behavior in their children in refugee camp contexts. In the interview study of Didkowsky et al. (2024) Rohingya parents reported that they often model prosocial behavior as a typical approach to fostering children's prosocial behavior in their culture, which aligns with the camp-born children's style in the current study. It is likely that greater levels of challenge experienced by parents of Myanmar-born children results in greater difficulty in effectively parenting their children (Gewirtz et al., 2008), with cascading effects on how they support their children in learning ways to help others. However, we acknowledge that to distinguish whether the overtaking vs. scaffolding styles associated with birthplace reported in our study are indeed a reflection of the higher levels of adversity and challenges faced by the families of Myanmar-born children, additional research is needed. For example, it will be important in future research to include parents as "experts" in the Origami task to establish whether Rohingya adults would adopt an overtaking or modeling style if they were teaching their child how to fold an origami shape and whether their style would differ according to children's birthplace.

The helping, sharing and Imagine tasks provided interesting insights into children's prosocial concerns and emotional attunement, and how those patterns differed across birthplace. Children born in Myanmar were more reserved than those born in camp in their helpful prosocial actions. This was manifested in the Origami task by lower levels of helping behavior (e.g., demonstrating folds) and of monitoring their partner's progress, and in the Imagine task by lower levels of reporting their imagined remedial behaviors if they witnessed misfortune in others. However, Myanmar-born children showed high emotional awareness; they were more likely to report appropriate emotion responses to the misfortune of story characters than camp-born children in the Imagine task, suggesting they may be more attuned to the emotional aspects of situations. Despite this advantage of emotional awareness, attunement to emotional aspects of situations may negatively impact Myanmar-born children's ability to generate pragmatic action-oriented solutions, such as helping their partner make an origami shape or imagining behavioral responses to others' misfortune. This reasoning is supported by our finding that EF levels were lower for children born in Myanmar vs. the camp, which is consistent with a body of research indicating that emotional regulation is predictive of prosocial behavior (Eisenberg et al., 2015). Having a more reserved approach to initiating actions to help others achieve their instrumental goals may be due in part to Myanmar-born children being more cautious in social situations. It is possible that their social caution indicates a diminished sense of trust in their surroundings that stems from the trauma they have experienced (Bell et al., 2019). However, it may also reflect a less explicit understanding of how to help others in the situation, which may be attributed to the unique experiences children encounter in refugee camps, where the primary focus is securing basic needs and adapting to a new situation, limiting the capacity of parents to help children learn new social behaviors (Gewirtz et al., 2008). Future research is needed to distinguish between these possibilities.

Interestingly, despite lower levels of the scaffolding form of helping, Myanmar-born children showed a strong pattern of generosity when sharing resources with others. This generous pattern was evidenced both by giving more to recipients in the DG and choosing equal allocations at a higher level than camp-born children for all types of Forced Choice sharing trials, except the one type for which choosing equality would mean the recipient would stand to lose. Higher levels of generosity in children who had experienced higher levels of trauma is a striking, and poignant finding. Although self-maximizing may be perceived to be the most likely outcome from experiencing higher levels of trauma, we found instead that Myanmar-born children demonstrated a consistent concern for others across sharing tasks, one that was manifested by generosity. It may be that Myanmar-born children's generosity stems from their heightened emotional awareness, including greater ability to infer the emotional perspectives of recipients in sharing tasks, or perhaps, given their own directly experienced trauma, it comes from

stronger feelings of empathy that heighten their other-oriented concerns. Additional research is needed to identify the causative factors for this compelling difference in sharing across birthplace groups.

Contributions to Developmental Science

Our research has important implications for the basic developmental question of how early experience affects basic psychological outcomes. We have investigated how extreme adversity early in life impacted the fundamental prosocial component of human nature, using a battery of tasks to assess prosocial behavior and related cognitive-affective processes. The tasks measured behavior but also self-reports as children responded to situations primed in story scenarios. Our success with the wide range of tasks in this battery provides a model for conducting research that aims to explore questions related to the variety and diversity of prosociality as a complex construct. Furthermore, the relevance of the task battery in the refugee context suggests it can be applied across a wide range of cultural contexts. Fundamentally, our finding that Rohingya refugee children engaged in a variety of prosocial responses at the outset of the study attests to the resilience of this foundation of human nature. Finding that the level of direct experience with trauma (i.e., born in Myanmar vs. camp) in our sample was associated with different patterns of prosocial responding contributes to the knowledge base showing that the levels of adversity early in life can differentially impact social-emotional development.

Research Aim 2: Intervention-Related Improvement

The overarching aim of the research was to assess whether the intervention activities enhanced levels of the prosocial behavior and related cognitive-affective measures. The design of our multifaceted intervention protocol was based on research evidence that collaboration, emotion perspective-taking, and EF skills can boost prosocial behavior. The bulk of extant evidence related to fostering prosociality in nonrefugee children comes from studies that focus on the impact of peer collaboration on fairness concerns (e.g., Corbit et al., 2017; Hamann et al., 2011). Thus, our protocol was primarily based on collaborative activities. However, given at least limited evidence supporting their positive impact, emotion perspective-taking and EF skills training activities were also included (Moriguchi et al., 2020; Paulus & Moore, 2015; 2017; Yan et al., 2020). Unlike prior lab-based research in which interventions are brief, but similar to Social Emotional Learning (SEL) programs gaining popularity in North American educational settings (Shi & Cheung, 2024), our protocol was designed to simulate a school experience over a 2-week period while maintaining a standardized protocol for children's engagement with the activities. Thus, our intervention protocol was

implemented in small groups (eight children who engaged in activities with the same partner throughout the intervention phase) within 3-hour daily sessions in a classroom environment and led by a team of researchers who approached the implementation as teachers supporting the activities of the children. All activities were sampled by all pairs of children each day of a 10-day intervention phase. Children's prosocial behavior and related cognitive-affective processes were assessed twice, once before and once after the intervention phase, via a standard implementation of the six tasks. The latent change analysis approach enabled us to assess change that was due to the intervention from preintervention to postintervention test sessions, taking initial levels into account. The variances around all of the intercepts and slopes were significant, indicating that children showed varying initial levels and degrees of improvement to be predicted by age and birthplace effects in subsequent conditional models.

Overview of Findings

Helping

Considering age intervention-related effects in the Origami helping task, older children were more likely than younger children to increase overtaking and, in the only gender effect that emerged, girls were more likely than boys to increase helping behavior after the intervention. When birthplace effects were analyzed in the Origami helping task, children born in Myanmar were more likely to increase in overtaking folding the shape of their partner but were less likely to engage in monitoring/helping behavior, compared to children born in camp who showed the opposite pattern. These patterns are consistent with those found in analyses of initial levels. For Myanmar-born children the pattern reveals a style that is more akin to a traditional approach to pedagogy rather than a more Vygotskian, scaffolding approach. Thus, although Myanmar-born children may have improved following the intervention in providing their partner with help in achieving their goal, they did not improve in scaffolding their partner by providing knowledge of how to make the shape, whereas camp-born children did improve in this way.

Sharing

Considering age in the analyses of change in sharing, older children improved (i.e., chose equality more often) on all types of trials in the Forced Choice task, but did not increase the amount shared in the DG following the intervention. In birthplace analyses, children born in Myanmar relative to children born in the camp shared more following the intervention in the DG sharing task, and improved (i.e., greater choice of equality) across all trial types of the Forced Choice sharing task except the type for which equality choice would mean less for their partner. This pattern of positive change in sharing tasks aligns with the pattern of generosity in Myanmar-born children

found in analysis of the initial prosocial sharing levels, suggesting that the intervention strengthened an existing pattern of generosity for these children.

Cognitive-Affective

Analyses of the Imagine task revealed that children born in Myanmar increased more than camp-born children on the emotional (How would you feel?) outcome variable following the intervention. Overall, children showed an improvement in EF following the intervention (i.e., faster RTs at both ages), although Myanmar-born children made smaller gains in EF than those children in the camp.

Discussion of Findings

The intervention protocol resulted in significant positive change across many of the outcome variables for prosocial behavior and related cognitive-affective processes.

Helping

We found strong evidence for intervention-related increases in the helping outcome measures. Children born in Myanmar increased in taking over folding for their partner, a style they showed prior to the intervention. In contrast, children born in the camp increased monitoring their partner's progress and demonstrating how to fold, akin to their style prior to intervention. As discussed earlier, these patterns reflect different forms of helping, one more in the style of Vygotskian scaffolding and provision of knowledge relevant to helping the partner learn how to fold the shape and the other focused on the partner's goal of completing the shape, which we contend is less beneficial to the learner. These findings raise the interesting question of how to support children's prosocial helping in the Origami task so that it is more supportive of partners' learning "how to" make the shapes. It also raises the issue of how to achieve this in a culturally attuned way, such that helping practices and goals among Rohingya adults and educators is considered in future research. Given the different patterns found according to birthplace, in addition to enhancing collaboration when developing intervention protocols to foster prosocial behavior, it may be fruitful to explore multiple ways to foster helping skills, such as explicitly teaching children ways to scaffold a partner's learning. A promising approach to designing additional supports for prosocial helping in refugee contexts would be to adopt procedures found to enhance prosociality from the literature on SEL programs, but to do so with culturally-sensitive adaptations (Shi & Cheung, 2024).

Sharing

We found both age and birthplace effects for intervention-related change in the sharing tasks. Older children showed more improvement from the intervention on sharing measures than younger children. In the DG task, older children had shared less than expected initially, which may account for the greater gains they showed relative to younger children following the intervention. What is important to note, is that even though they were lower for older children the levels of DG sharing were consistent with findings in the literature in this age range. Children born in Myanmar showed more improvement than camp-born children in Forced Choice sharing for all types of trials except for the one type that would put their partner at a disadvantage, providing converging evidence for the pattern of generosity found in the baseline measures of sharing. Thus, even as children born in Myanmar had experienced higher levels of trauma, they retained a core prosocial value of generosity toward others as well as responsivity to an intervention designed to foster prosociality. As discussed earlier, the pattern of generosity in Myanmar-born children may stem from heightened emotional attunement that raises their other-oriented concerns in sharing tasks, a possibility that requires further investigation.

Cognitive-Affective

Analyses of gains on the Imagine task also indicated that Myanmar-born but not camp-born children showed improvement in reporting emotional responses to the misfortune portrayed in the stories, consistent with the pattern noted in the analysis of initial levels of this outcome variable. When considered along with the findings for the Origami task, this pattern suggests that Myanmar-born children may be more restrained in acting to help in the Origami task, and less likely to report behavioral solutions to misfortune in the Imagine task. Reservedness is an expected outcome for children who have experienced trauma, and it is possible that as a group, children who experienced higher levels of trauma in our sample take a more cautious approach in social interactions. However, it is also possible that the relatively lower levels of behavioral solutions to the needs of others reported by Myanmar children in the Imagine task reflect interference between a heightened focus on emotional aspects of the story to the detriment of cognitive processes that are needed to formulate an effective solution to the misfortune. Additional research is needed to examine these possibilities. One promising approach might be to enhance EF skills, which were lower at baseline for Myanmar-born children and showed smaller gains from the intervention. Particularly relevant would be training in EF or emotion regulation skills that could enhance emotional control and promote problem solving so as to generate more pragmatic solutions to misfortune for children born in Myanmar (Eisenberg et al., 2007). As described in Chapter I, interventions fostering behavioral control and emotional regulation have been

found to have positive effects on mental health outcomes for children developing in contexts of conflict (Rousseau & Guzder, 2008; Ruf et al., 2010; Schottelkorb et al., 2012; Sirin et al., 2018), and it is possible that these supports would also be effective in improving prosociality in children who have experienced conflict and forced migration.

Contributions to Developmental Science

The multifaceted intervention used in the current study bolsters the literature showing that social contextual factors and cognitive-affective processes can foster prosocial behavior (e.g., Blake, Piovesan, et al., 2015; Corbit, 2019; Paulus & Moore, 2015). It extends the evidence base to an understudied population, while also providing a model for research aiming to bridge the gap between lab-based research and real-world applications. Single, brief episodes of collaboration with a peer, emotion perspective priming, or EF games common in lab-based research are unlikely to unlock the potential of these factors in mitigating negative outcomes that stem from developing in adverse contexts. Our intervention design offers converging evidence to prior lab-based research showing that extended exposure to these factors can be effective when applied in a natural context. Importantly, our finding that Rohingya children's prosocial responses were fostered by the intervention attests to the resilience of their ability to benefit from conditions designed to support their social-emotional development. Rohingya children retain not only their prosociality, but also their ability to increase it when provided with supports.

Limitations and Future Directions

We report the findings from a study having a complex design, consistent with the complexity of the issues that we examined and the context in which we worked. Our sample ($N = 152$) was chosen from two UNHCR administered camps within a sprawling 32-camp complex that includes non-registered camps, and from an area within these camps that was within walking distance to the study venues. As such, our sample may not have been representative of the entire population living within the Rohingya camps (~962,000, 52% children) in Cox's Bazar. We collected basic demographic information (e.g., family size, parental education levels, years in the camp) but not demographic information typically informative about developmental outcome such as SES, considering SES to be irrelevant in the refugee camp context where families have little to no work opportunities. It is possible that as families adjust to refugee camp contexts additional demographic variables that could illuminate factors influencing developmental outcomes and efficacy of interventions to improve outcomes could be revealed. Future research and coordination with researchers specifically focused on social change over

time within the camp would be beneficial to identify additional demographic variables to consider.

We reported important findings that distinguished between children born in Myanmar and those born in the camp after their families fled from genocide and long-term persecution. We proposed that the level of directly experienced trauma was a core distinction between these groups, however, respecting an ethical obligation to avoid retraumatizing we did not obtain additional information regarding individual levels of trauma, or types of trauma, directly experienced by the children. Thus, we may have missed more subtle trauma level/type influences on prosocial responding and ways to foster it in these children. Close coordination with MHPSS units in refugee camps whose staff document experienced trauma in more detail and increasing the sample size in future research may provide the opportunity to explore trauma-related effects on prosocial development at a finer level.

An important consideration in our study, and in the field in general, is verifying the aspects of prosociality that are captured in our measures. Our conceptual model distinguished between prosocial behaviors and the cognitive-affective processes that support those behaviors. Although measuring behavior may be more straightforward, measuring related cognitive-affective processes is less so. As reviewed in Chapters I and II, the literature is replete with mixed findings on the relation between prosocial behavior and affective and cognitive processes, with contradictory findings due in large part to how the processes are measured (Eisenberg & Miller, 1987; Eisenberg et al., 2015). Our Imagine task was designed to measure empathic responding by securing responses to task questions that hinged on taking the emotion perspective of story characters. The "How would you feel?" question in this task was an attempt to discern whether children report feelings of empathy or sympathy in imagined situations of misfortune that reflect how they would feel in real situations. However, we have no assurance that the self-report does reflect how children would really feel, what is needed is to directly measure affect when children are in situations that elicit concern for another, such as when adults act as though they are sad (e.g., Vaish et al., 2009). The "What would you do?" question also hinges on understanding the emotional perspective of the story character but was designed to tap whether children would be able to appropriately provide a behavioral solution to address the emotional need if they were in that situation. Thus, the Imagine story task was designed to move beyond asking children to identify others' emotions, as in emotion perspective taking tasks that ask how the story character feels, and instead report a first person, albeit prospective, account of how they would feel and act. However, in realizing this aim we also raised the cognitive demands of the task, such that it required not only perspective-taking but also prospection and hypothetical thinking skills. If these skills were underdeveloped in the child, their capacity for other-oriented empathic responding in real situations may be underestimated. Accurate measurement of children's affective processes in social situations is

critically needed in the field of prosocial development to deepen our understanding of the underlying psychological processes. Although there are encouraging methodological developments beginning to emerge (e.g., Gerdemann et al, 2022; Hepach et al., 2019), the use of these new measurements in situations that simulate misfortune will need to be sensitively employed with children who have experienced extreme trauma.

The novel Origami task that was developed for our study came out of our efforts to create a situation where a peer (rather than an adult experimenter) would need help, and for the task to be engaging across the broad age range that was sampled. Although this task successfully elicited helping between peers, it was not possible to discern whether the help provided to the peer was other-oriented (i.e., prosocial), as in trying to help their partner in need, or self-fulfilling, as in wanting to finish an unfinished origami shape (i.e., goal-directed). Additional research is needed to assess whether the task does elicit other-oriented helping, for example, by comparing helping elicited when the peer partner demonstrates need compared to a control condition where the partner does not demonstrate need, and in both cases the partner does not achieve the goal (see Warneken & Tomasello, 2006 for this type of design used to assess the early emergence of helping in toddlers).

The general question of what prosocial measures actually measure is relevant to the ongoing discussion in this field of whether prosociality is a unidimensional or multidimensional construct. Although addressing this debate was outside of the scope of our study, in our supporting materials we described the intra- and inter-task correlations that were found in our data. Taking the approach to measuring prosocial behavior and cognitive-affective processes with a broad task battery as we have done in the current study can help to address this debate, but it is important to be mindful that without direct measures of affect to accompany measures of prosocial behavior and related processes the interrelations among the components of prosociality will remain obscure.

Finally, in designing the intervention protocol for this research, our aim was to maximize its effect. Thus, our intervention protocol was multifaceted, consequently limiting our ability to pinpoint the mechanisms of change. Was it peer collaboration, emotional perspective priming, or EF skills training? Or some combination of these? Related to the question of the mechanisms of change is the issue of whether the positive intervention-related change we reported arose from a shift in attitude toward the partner specifically, or from a more general shift in prosociality. The Origami task only measured helping directed toward the peer partner and did not directly assess helping directed to nonpartners, However, the correlation of active helping in the Origami task with imagined responses to what they would do to address others' misfortune in the Imagine task, and the positive intervention-related change in both, suggests that the intervention had a generalized effect on this form of prosociality. This suggestion is bolstered by finding that in the Forced Choice sharing task, the only task where we directly tested partner versus anonymous

other effects, there was no difference in the intervention-related change between the conditions where children shared with their partner as compared to an anonymous other child. Future research is needed to identify the unique and interactive contributions of these factors to increasing prosocial responding and establishing their effectiveness in refugee and other contexts where prosocial development is at risk.

Summary

In this chapter, we reviewed the main trends evident in the findings reported in Chapter IV and offered possible interpretations of the patterns that emerged. These findings provide new insights that are relevant to basic theoretical views on the impact of early experience on developmental outcomes, to factors impacting prosocial development more specifically, and to the resilience and malleability of the human propensity toward prosociality. In the final Chapter VI, we consider the implications of our findings for humanitarian practice and social policy and offer a hopeful perspective on the benefits that can accrue from inter-sectoral partnerships aiming for solutions to the challenges inherent in supporting the development of the many millions of refugee children worldwide.

VI. Implications for Humanitarian Practice and Social Policy

Prosocial behavior is a manifestation of the fundamental human propensity to cooperate with others and transcend egocentric tendencies. As such, it is a marker of the strong undercurrent of the positive in human nature (Malti & Speidel, 2023a). The experience of many millions of children around the world tragically contrasts with this positive side of humanity. Especially for children facing the harsh realities of conflict, forced migration, and other profound challenges, who often endure adversities that sharply contrast with the more positive aspects of human life. In spite of the apparent vacuum of hope for these children, solutions for this intractable challenge may be found in the fundamental principle of humanity that underlies our research: cooperation in all of its forms.

Forging Partnerships Toward Solutions

This research sought to coordinate evidence from developmental science, humanitarian practice and lived experience that was relevant to providing support for prosocial development in children experiencing the trauma born from conflict and forced migration. The themes that emerge from this research partnership are encouraging. Rohingya children who have experienced genocide, forced migration and years of their lives in a massive refugee camp nevertheless retained positive aspects of their humanity. At the outset of our research, Rohingya children showed high levels of prosocial behavior, exhibiting helpful, fair, and empathic responses across the measures. The intervention designed to boost prosociality, through a foundation of collaboration with additional supports to emotion perspective-taking and EF skills, further succeeded in raising the initial levels of prosocial responses of these children. Developmental effects were evident, with older children responding more robustly to the intervention. However, the most poignant findings arose in the contrasts between children born in the camp and those born in Myanmar, who directly experienced genocide, forced migration and resettlement from their homes to the refugee camp.

Myanmar-born children shone in their generosity toward others across the tasks measuring fairness concerns, while camp-born children were more protective of their own interests, similar to the results found in nonrefugee children across diverse cultures. Myanmar-born children were

more reserved in their helping in the Origami task, and when they did help, they often took over the task, adopting a more pragmatic goal-oriented approach to assist their partner in accomplishing the goal of folding their origami shape. In contrast, camp-born children adopted a more pedagogic approach, slowing their folding, monitoring their partner's progress, and providing direct assistance, one fold at a time. Myanmar children were strongly attuned to the emotional tone of stories as they imagined their responses should they bear witness to scenarios that highlighted misfortunes experienced by story characters. Camp-born children were more likely to offer action-oriented solutions to misfortune, attuning less to their imagined emotional responses to the scenarios. These differences attest to the need for a trauma-informed approach to designing interventions that support refugee children's prosocial behavior (Dubus, 2022; Easton-Calabria, 2022; Im & Swan, 2021). Knowledge of the nature and extent of trauma experienced is needed to identify specific baseline effects on particular forms of prosociality, providing the seeds to design effective, trauma-informed, and developmentally tailored interventions (Malti & Cheah, 2021).

Our research found that Myanmar-born children initially had lower EF levels than camp-born children, and though they did improve EF levels following the intervention, they benefited less than camp-born children. EF skills are a cornerstone of social cognitive development and influence prosocial development in particular (Blake, Piovesan, et al., 2015; Moriguchi et al., 2020; Yan et al., 2020). Beyond the possibility of enhancing prosocial behavior in refugee children, mastering the suite of EF skills has the potential to produce wider social, emotional, and cognitive benefits. The lower levels of EF skills coupled with strong attunement to emotional aspects of situations for Myanmar-born children hint that incubation of emotion perspective-taking, emotional regulation, and emotional self-awareness may be a potential vector through which EF skills can be enhanced in Myanmar-born children, and through which greater emotional attunement can be fostered in camp-born children. These findings have direct relevance to educational supports in humanitarian contexts, but also to other contexts (e.g., SEL programming) where bolstering positive social-emotional development is the goal.

Our research, conducted in partnership with Rohingya community members, adds new evidence that is pertinent to adapting existing educational, psychosocial, and health supports provided in humanitarian contexts and based on developmental science. Beyond providing fodder for humanitarian approaches to mitigating the devastating impacts of war and forced migration on children's developmental outcomes, our findings inform the classical developmental approach to early deprivation (Nelson et al., 2023) and shed light on the psychological and cultural variables that affect prosocial behavior (Callaghan & Corbit, 2018; 2023; Kärtner, 2018; Paulus, 2018; Warneken, 2015).

Implications for Humanitarian Practice

The endurance of their prosocial selves attests to the remarkable strength of Rohingya children in the face of extreme adversity. For some, their trajectories of prosocial development are similar to those of children who have the privilege of developing ensconced within environments of care and protection. For others, their traumatic early experience has shifted the focus of their attunement to salient dimensions of their social worlds and altered the paths they take to maintain social relations with others in their lives. Humanitarian practitioners have borne witness, exhaustingly across borders and eras, to the resilient spirit of children and families forced to flee from violent conflict (United Nations High Commission on Refugees, 2023a). The practice of providing coordinated educational and mental health and psychosocial support (educational/MHPSS) to children in emergencies is well-established, well-honed, and highly effective within the humanitarian sector. There are lessons we can glean from this research that will positively impact the efforts of those who strive to provide war-affected children with the support that they deserve.

Provision of coordinated educational/MHPSS programming to children in emergencies is a nimble and evolving practice (Jordans et al., 2010; Murphy et al., 2018; Peltonen et al., 2012). Nevertheless, the recent exponential rise of global conflict-related emergencies affecting children at devastating levels presents multiple challenges to those heroic efforts. How can our research findings provide benefit to humanitarian practice within a coordinated educational/MHPSS approach? Our findings give hope. Even when experiencing the darkest side of humanity, Rohingya children retained their prosocial nature, and grew it in response to an intervention that focused on collaboration, emotion perspective-taking, and EF skills training. Our intervention was implemented within a context that simulated the multitude of international NGO-supported learning centers that they could not access during pandemic restrictions. The intervention activities were collaborative, play-based, and designed to support social-emotional development across distinct types of prosocial behavior. The strong evidential connection between prosociality and positive social-emotional and mental health outcomes (Eisenberg et al., 2015; Malti et al., 2016; Speidel et al., 2021) attests to the value in targeting prosocial enhancement in efforts to improve developmental outcomes across a wide spectrum of psychological processes. The intervention activities used here could easily be integrated within formal and informal educational settings (Olney et al., 2019), and adapted for cultural sensitivity as appropriate.

We envision a metaphorical "backpack" of collaborative activities that humanitarian practitioners and community members could integrate into daily educational activities with children to enhance prosociality and general social-emotional development. With collaboration as the core, activities could be adapted to a wide range of curriculum topics from mathematics through

physical education. Our research addresses the pressing need for community-led efforts to create culturally-sensitive and trauma-informed activities (Malti & Speidel, 2023b). The activities developed in partnership with Rohingya community members for this research provide an example of one possibility that could be easily implemented and extend the current programming found in international NGO-supported learning centers that pepper the landscape of existing refugee camps worldwide. However, other possibilities will arise as community-led efforts are supported. The sustainability and acceptance of educational practices come from within one's cultural milieu, rather than being imposed externally.

Parents play a transformative role in their children's development, yet the experience of war and forced migration places a heavy toll on parents' capacity to provide the support they strive to give their children. The devastating effects of war-related trauma on adult mental health are well-documented (see Carpiniello, 2023 for a review). We know that war-affected children benefit greatly from parental support (Betancourt & Khan, 2008; Betancourt et al., 2018), highlighting the critical role of strong parental relationships in mitigating the impact of adversity on children. Rohingya parents in these contexts hold the same desires for their children to develop strong prosocial values and behaviors as parents in highly resourced and secure contexts (Didkowsky et al., 2024). While our intervention activities were designed to be easily incorporated into coordinated educational/MHPSS programming, we propose that they would also have value for humanitarian programs designed to support parenting in refugee camp contexts. In the Rohingya mega-camp in Cox's Bazar, parenting programs are well-established with strong evidence of their effectiveness (Majumdar, 2023; see also Miller et al., 2020 for sample positive parenting programs in conflict-affected communities). The activities from our intervention could be easily adapted into parenting programs as examples of an approach to providing family-based activities that parents could implement as they strive to support their children's prosocial development. Our activities' application is also relevant to international NGO-supported community programs that often step into the void when the impacts of parents' own trauma challenge their ability to provide positive parenting.

While the core foundation of our intervention approach is collaboration, we believe there is tremendous design flexibility in the particular collaborative activities that children can engage in. We also contend that emotion perspective-taking is fundamental to sustaining an ethic of cooperation over the lifespan. We see promise in our findings showing that the children in our sample who had experienced a higher level of trauma had a higher attunement to the emotional tone of situations evidenced by their concerns for others. Thus, we view emotion perspective-taking to be a necessary component in the promotion of prosociality and mitigation of conflict in social domains, one that can be effective in realizing these aims across the lifespan. Also critical to preserving a prosocial ethic in the context of forced migration

is collective caring about the consequences of conflict on children who are forced to flee from violence. At present, one or both of these psychological necessities appear to be conspicuously absent among adults who hold power over the perpetration or eradication of violent conflict worldwide. How can our findings impact social policy in an increasingly fractured world?

Implications for Social Policy

The mantra of contemporary social policy has a decidedly Western scientific tone that is captured in the phrase "show me the evidence." Here, we show evidence that children's prosocial development, which we know impacts their social-emotional development in profound ways, is fostered within collaborative and emotionally attuned experiences in a supportive, school-like/pedagogical environment. Addressing the profound needs of children who have experienced war and forced migration is imperative, but so too is addressing the sources of the conflict that lie at the root of these realities that millions of the world's children face. We do not need another study to appreciate that war is devastating to children who experience it and to societies that are mired in it. Photojournalist accounts that have already documented the atrocious human cost of war, and that motivated this research, are evidence enough.[1] How do we move beyond the paralysis of this moment in global time?

Psychological research on cooperation in counterpoint to group-mindedness has produced insights relevant to paths forward. Classic research in the field of group bias reveals that adults demonstrate higher levels of prosociality toward in-group members (e.g., as in social groups defined by gender, race, ethnicity, religion) than out-group members (Allport, 1954). Recent research findings also show that adults exhibit greater tolerance to harm and antisocial behaviors toward out-group members (Cikara et al., 2014; Kteily et al., 2016). Developmental research shows that a positive bias toward in-group members develops early in life (Corbit et al., 2022; Dunham et al., 2011; Keshvari et al., 2022; Plötner et al., 2015; Sparks et al., 2017), suggesting that even as children's prosocial development is improving, it may become more selective as group biases develop. The possibility that entrenchment of group biases in childhood will overshadow a more humanistic, prosocial tendency in children calls for early interventions to mitigate group bias (Killen et al., 2013; Lee et al., 2017; Rutland et al., 2010). In the refugee context, tensions between refugee and host communities are common. Corbit et al. (2024) reported that in-group bias existed among Rohingya refugee and host community children in Cox's Bazar, but that short (15–20 min) collaborative tablet-based games did not reduce the bias. Given the positive effects found for the more extensive (10 days) intervention implemented in this community in the current study, we suggest that longer-term coordinated educational/MHPSS intervention

programs, such as our multifaceted intervention, are a promising means to reduce intergroup bias and the tensions that may amplify into conflict between refugee and host communities. Certainly, additional research is needed to examine the effectiveness of multifaceted interventions on reducing group bias for children living in under-resourced refugee camp contexts.

Some theorists posit that the seeds of the positive hallmarks of humanity—cooperation, kindness, and compassion—are inherent in human nature while also acknowledging that these seeds are nurtured and shaped by the environmental forces children encounter on their way to maturity (Malti, 2021; Tomasello, 2009; Warneken, 2015, 2016). In conflict and forced migration environments, children are developing against a rising tide of forces that can compromise the realization of their potential for prosociality. Our research demonstrated the remarkable resilience that Rohingya children exhibited despite those tides. The disturbing recent trends showing that forced migration from conflict and other catastrophic events is rising exponentially (United Nations High Commission on Refugees, 2023b) call for additional collaborative research endeavors of this kind. Developmental science has much to offer and much to learn from research partnerships that address the most pressing issues for children's development in our time.

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Data Availability

The data that support the findings of this study are openly available at: https://osf.io/dtz9x/?view_only=32f5cc5489af47d8848d349bf1af08f4.

NOTES

[1]http://paulaphoto.com/rohingya--stateless-and-unwanted/theunwanted_therohingya_bronstein001/.

[2]https://steinhardt.nyu.edu/create.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

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Appendix

Emotion Perspective Taking Stories: Boy Version

Candy

Ali was playing with his friend Aman and he took 4 candies out of his backpack. He thought about whether to keep them all for himself or give some to his friend Aman. Here is what he decided to do: HE DECIDED TO GIVE 2 CANDIES TO Aman AND KEEP 2 CANDIES FOR HIMSELF. Aman looked in front of him and saw 2 candies, and he looked in front of Ali and saw 2 candies. How do you think Aman **felt** when he looked at how many candies he had and how many candies Ali had? Did he feel happy, sad, or just ok? SHARE 1

Biscuits

Ahmed was playing with his friend Rafiq and he took 4 biscuits out of his backpack. He thought about whether to keep them all for himself or give some to his friend Rafiq. Here is what he decided to do: HE DECIDED TO GIVE NO BISCUITS TO Rafiq AND KEEP ALL 4 BISCUITS FOR HIMSELF. Rafiq looked at his plate and saw no biscuits, and he looked at Ahmed's plate and saw 4 biscuits. How do you think Rafiq **felt** when he looked at how many biscuits he had and how many biscuits Ahmed had? Did he feel happy, sad, or just ok? NO SHARE 1

Ball

Shafi was playing with his friend Sayed and he took a ball out of his backpack. Shafi threw the ball back and forth with Sayed until Sayed threw the ball onto a sharp rock and it burst. Shafi saw the broken ball. Sayed looked in his bag and found that he had a new ball. He decided to give his ball to Shafi, so they could keep playing together. How do you think Sayed **felt** when he was given the new ball? Did he feel happy, sad, or just ok? SHARE 2

Pencils

Salim went to the learning center with his friend and they each decided to make drawings. Salim took 4 colored pencils out of his bag to make his drawing. Omar really liked the colored drawing that Salim made and asked if he could have some colored pencils so he could color his drawing also. Salim thought about whether to give Omar some of his colored pencils, but he decided not to give him any. How do you think Omar **felt** when Salim did not give him any colored pencils? Did he feel happy, sad, or just ok? NO SHARE 2

Umbrella

Rahim was walking to the learning center in the rain. Rahim had an umbrella and was staying dry. Rahim walked past his friend, Nazim, who did not have an umbrella and was getting wet. Rahim decided to hold his umbrella over Nazim. How do you think Nazim felt when Rahim let him walk under his umbrella? Did he feel happy, sad, or just ok? SHARE 3

Scarf

Ismail and Faruk were walking home when it became very cold. Ismail had two scarves in his bag and he took one of his two scarves and wrapped it around his shoulders. Faruk didn't have any scarf in his bag. Ismail thought about whether to give his other scarf to Faruk so he could get warm. He decided not to give his scarf to Faruk. How do you think Faruk **felt** when Ismail did not give him a scarf? Did he feel happy, sad, or just ok? NO SHARE 3

Not Enough

The teacher brought in a special game for the children to play in the learning center on the festival day. In the game each child had a rope to pull on a big bag that was hanging from the ceiling. When the children pulled on their ropes the bag opened up and a lot of candy fell out. The children all ran around to gather up the candy. Alam was smaller than the other children and not very quick, so he didn't get any candy. Another child Amin saw that Alam had none and gave him two of the candies that he picked up. How did Alam feel when Amin gave his two candies? Did he feel happy, sad, or just ok? SHARE 4

Turns

Ayub and Yasin found an old bicycle tire and a big stick and Ayub started to roll the tire all over the playing field near the learning center. After some time, Yasin asked to have a turn, but Ayub said he wanted to keep playing. He did not give Yasin the tire and stick to play with. How did Yasin feel when Ayub did not let him have a turn with the tire and stick? Did he feel happy, sad, or just ok? NO SHARE 4

Schoolwork

Zubair and his friend Abdullah were doing schoolwork. Zubair was very good at his work and finished before Abdullah. Abdullah was having a lot of trouble understanding one of his problems, so Zubair decided to help him understand the problem so he could do it himself. How do you think Abdullah felt when Zubair helped him to understand how to do the problem? Did he feel happy, sad, or just ok? ASSIST 1

Water

Kamal and his friend Faisal were pumping water out of the hand pump. Kamal was much stronger and filled his bucket before Faisal. Faisal was having a lot of trouble filling his bucket, but Kamal decided not to help him and walked home with his own bucket filled. How did Faisal feel being left to pump the water on his own? Did he feel happy, sad, or just ok? NO ASSIST 1

Dinner

Hasan went home to ask his mother if he could play with friends on the field. When Hasan got home, he found that his mother was feeling sick. But it was dinner time and so his mother was preparing dinner for everybody anyway. Hasan decided to help his mother prepare dinner instead of playing with his friends. How did Hasan's mother feel when Hasan decided to help her prepare dinner? Did she feel happy, sad, or just ok? ASSIST 2

Feeding Chicken

Ishaq had a younger brother Islam who was asked by their mother to feed the chickens. Islam ran with the food to where the chickens were kept but tripped over a rock just before getting there, spilling all the chicken food. Ishaq saw all the food his brother spilled but he was in a hurry to go to see his friends at the learning center and decided not to help his brother pick up the spilled food. How did Islam feel cleaning up the chicken food by himself? Did he feel happy, sad, or just ok? NO ASSIST 2

Lost Pencil

Ali and his friend Aman were having a lesson at the learning center. Aman realized that he lost his pencil somewhere and he could not find it. Ali decided to search for the pencil with him. Finally, Ali found the pencil and gave it to Aman. How do you think Aman **felt** when Ali found his pencil and gave it to him? Did he feel happy, sad, or just ok? ASSIST 3

Hill Climbing

Ahmed was playing outside with a friend and they decided to climb the big hill behind the learning center when Ahmed's younger brother Rafiq started to follow them. Ahmed told his brother that he was too small to climb the hill, but Rafiq decided to climb it anyway. After some time, Ahmed's mother called them for dinner, so Ahmed and his friend raced down the hill toward the house. Rafiq was having trouble getting down the hill and fell. Ahmed saw his brother fall but decided to keep running home for dinner. How do you think Rafiq **felt** when Ahmed did not show him how to climb down? Did Rafiq feel happy, sad, or just okay? NO ASSIST 3

Water Bottle

Shafi was walking home from the learning center and saw an elder stopped on the side of the road. It was a very hot day and Shafi asked if he was feeling okay. The elder said he was very thirsty. Shafi had a small amount of water in his bag and he gave it to the elder. How did the elder feel when Shafi stopped to see how he was and then gave him the water? Did he feel happy, sad, or just ok? ASSIST 4

Cleaning Up

The teacher asked Sayed to clean up a big mess in the learning center that all the children made when they were playing games. The teacher had to go to greet the visitors who were arriving soon. Some of Sayed's friends came to ask Sayed if he wanted to play and Sayed asked if they would help him clean up so he could come with them. His friends said they didn't have time to help and ran off to play. How did Sayed feel when his friends ran off to play? Did he feel happy, sad, or just ok? NO ASSIST 4

Headache

Salim got home from school and found that brother had a terrible headache. Salim asked if there was anything that his brother needed, but his brother said there was nothing. Salim sat down beside his brother and put his arm around him and just quietly sat with him for some time. How did Salim's brother feel when Salim put his arm around him? Did he feel happy, sad, or just ok? COMFORT 1

Competition

Omar and his friend Jamil were in a race. Omar ran faster and won the race. Jamil walked away from everyone and started crying. Omar saw Jamil crying but decided to go with his friends to collect his prize for winning. How did Jamil feel when Omar walked away from him after the race? Did he feel happy, sad, or just ok? NO COMFORT 1

Little Child

Rahim was walking to school when he saw a small child who had fallen over. Rahim stopped and asked the child whether he was okay. The child was crying so Rahim stopped and put his arm around the little child until he stopped crying. How did the small child feel when Rahim put his arm around him? Did he/he feel happy, sad, or just ok? COMFORT 2

Fight

Nazim saw his younger brother Ismail come home crying. Ismail had a fight with his best friend. Nazim was busy with his schoolwork and ignored

Ismail who was still crying. How do you think Ismail **felt** when Nazim did not stop his work? Did he feel happy, sad, or just ok? NO COMFORT 2

Blanket

Faruk saw his father come home from his long day of work. He was very tired and went outside to sat quietly by the door. Faruk went over to his father and covered him with a warm blanket. How do you think father **felt** when Faruk covered him with the blanket? Did he feel happy, sad, or just ok? COMFORT 3

Scolding

Alam was sitting in the learning center beside his friend Ayub. The teacher came by and gave Ayub a scolding for not finishing his work. Ayub's eyes started to fill with tears. Alam was finihed his work and decided to leave the classroom and go play with his friends. How did Ayub feel when Alam left his and went to play with friends? Did he feel happy, sad, or just ok? NO COMFORT 3

Lost Game

Yasin was playing a football match with his learning center team. The prize for winning was new balls for the learning center. All the parents and teachers came to watch the game. Yasin and his team played very hard against the other team, but they lost the game. Yasin began to cry on the walk home. His brother held his hand and said they would make a special dish for dinner. How did Yasin feel when his brother held his hand and suggested they make a special dish for dinner? Did he feel happy, sad, or just ok? COMFORT 4

Marbles

Zubair was playing marbles with his friend Abdullah. Zubair was a very good marble player and he was able to hit all of Abdullah's marbles out of the circle, so he got to take all of Abdullah's marbles for himself. Abdullah began to cry as he started to go home. Zubair saw him cry, but he decided to go to find another friend to play marbles with. How did Abdullah feel when Zubair walked away from him with all the marbles? Did he feel happy, sad, or just ok? NO COMFORT

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