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Prosocial Behavior in the Context of Childhood Interpersonal Trauma: A Meta-Analytic Review of the Evidence

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ABSTRACT OF THE DISSERTATION

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Prior theory and research examining relations between trauma exposure and prosocial behavior (e.g., Rao et al., 2011; Vollhardt, 2009) has led some to suggest that altruism may be born of suffering (ABS; Staub & Vollhardt, 2008). However, extant research on these relations has focused on communally-experienced traumatic events, with little consideration accorded to individually-experienced events and the potential significance of contextual and developmental influences on these relations. This dissertation adopted a developmental lens of analysis to systematically evaluate extant research on childhood interpersonal trauma (i.e., maltreatment, bullying victimization, violence exposure) and prosocial behavior (i.e., behavior intended to benefit others; Batson & Powell, 2003) with particular emphasis on contextual factors that may modify these associations (e.g., sample age and geographic region, trauma type and assessment, prosocial type and assessment). In this comprehensive meta-analysis, I collected 35,383

articles from various sources and retained 24 studies as unique assessments of the impact of childhood interpersonal trauma on prosocial behavior. Meta-analytic procedures revealed a significant negative effect of childhood interpersonal trauma on prosocial behavior (r = -.16, 95%, CI [-.23, -.09], k = 26, I^2 = 87.57, τ^2 = .03). However, this association was qualified by several moderators. Specifically, the negative association between childhood interpersonal trauma and prosocial behavior was stronger for samples in the U.S., child survivors of maltreatment as opposed to other trauma types, studies using administrative records to assess trauma exposure, and studies using teacher, peer, and examiner informants to assess the child's prosocial behavior outside the family context as opposed to caregiver or child self reports. Younger samples evidenced marginally stronger and more negative associations between trauma exposure and prosocial behavior. Although I explored the potential moderating impact of trauma assessment scale (i.e., dichotomous versus continuous), prosocial behavior type (i.e., global versus specific assessments), and prosocial behavior measurement modality (i.e., observed versus reported), no other significant moderating effects emerged. Findings speak to the importance of considering the role of development as it may refine the ABS model. Further, I explicate several promising avenues for future research aimed at clarifying whether, when, and for whom altruism may follow from suffering.

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Developmental and clinical psychologists have long investigated the diversity of adaptive responses following experiences of adversity. Early research on adversity was dominated by deficit models focused on the resultant vulnerabilities of individuals facing adversity (Garmezy & Devine, 1977; Shaw & Emery, 1988; Walker et al., 1989). However, concurrent with surging interest in developmental psychopathology, which holds that typical and atypical development are mutually informing (Sroufe & Rutter, 1984), researchers have expanded these models to consider the totality of adaptive responses to adversity, including not only maladaptive reactions, but also the absence of maladaptation and the presence of competence (Masten, 2015; Masten & Obradović, 2006; Rutter, 1993). Indeed, recent theoretical (e.g., Tedeschi & Calhoun, 2004; Vollhardt, 2009) and empirical (e.g., Hernández-Wolfe, 2011; Staub & Vollhardt, 2008) contributions have gone so far as to suggest that adverse life events may contribute to positive development or growth, including actions intended to the benefit the well-being of others (i.e., prosocial behavior; Batson & Powell, 2003).

Although a wide body of research has examined the positive roots of prosocial development (for a review, see Padilla-Walker & Carlo, 2015), comparatively less work has sought to understand whether, how, and for whom negative life experiences might promote prosocial behavior. Extant literature on this topic largely draws on a model of *altruism born of suffering* (ABS; Staub & Vollhardt 2008, 2009), which suggests that individuals who have experienced adverse life events are particularly motivated to help

others, not in spite of their experiences, but *because* of them. Originating in social psychology, studies of ABS have focused on adult samples and experiences, with considerably less attention directed toward adverse childhood events and still less consideration of ABS within a developmental frame of analysis. Further, a primary tenet of the ABS model is that suffering caused by intentional human actions affecting large groups (e.g., genocide, war) are particularly important to study because they are typically thought to promote violence via defensive or reactive aggressive actions (Vollhardt, 2009).

The current dissertation offered a novel evaluation of the ABS model using an explicitly developmental framework to meta-analyze empirical evidence regarding the relation between adverse childhood events, particularly *individual* experiences of human-caused trauma (i.e., childhood interpersonal trauma), and prosocial or altruistic behavior. Specifically, I examined relations of childhood maltreatment, bullying victimization, and violence exposure with prosocial behavior. In addition to documenting the magnitude of childhood interpersonal trauma effects on prosocial behavior, meta-analytic procedures evaluated putative moderators of this relation, including participants' age (i.e., studies of infancy and early childhood versus studies of middle childhood, late childhood, or adolescence), geographic region (i.e., studies conducted in the U.S. versus other parts of the world), trauma type (i.e., maltreatment versus other types of interpersonal trauma), trauma informant (i.e., administrative records versus self or caregiver reports), trauma scale (i.e., continuous versus dichotomous), prosocial behavior type (i.e., global versus

specific), prosocial behavior assessment (i.e., observed versus reported), and prosocial behavior informant (i.e., teachers, peers, examiners versus caregiver and child reports).

Negative Consequences of Childhood Interpersonal Trauma

Childhood interpersonal trauma evidences marked and enduring negative consequences across multiple domains of functioning. For example, Widom (2000) found that individuals who had experienced physical abuse, sexual abuse, and/or neglect in childhood evidenced greater delinquency, lower IQ scores, un- and underemployment, less marital stability, and more instances of psychopathology (i.e., suicidality and antisocial personality disorder) than non-abused controls in adulthood (for additional reviews, see Hughes et al., 2017; Kalmakis & Chandler, 2015). Increasing evidence points to similarly consistent and negative relations between childhood interpersonal trauma and physical health outcomes, as indicated by elevated rates of obesity, diabetes, and pulmonary disease (Clemens et al., 2018; Min et al., 2013). Even at the cellular level, recent studies have linked childhood interpersonal trauma with decreased telomere length, which is an indicator of cellular aging that predicts age-related morbidity (e.g., heart disease, diabetes, cancer) and mortality (Blackburn & Epel, 2012; Çevik et al., 2019; Epel, 2019).

With regard to social behavior, intentional, human-caused adversities may have lasting effects on social information processing in ways that shape individuals' current and future expressions of prosocial behavior. For example, maltreated children show heightened sensitivity to anger cues in faces (Pollak & Tolley-Schell, 2003), and aggressive attributions are strongly related to both proactive and reactive aggression

(Crick & Dodge, 1996; Orobio de Castro et al., 2005). Indeed, most research points to higher rates of antisocial behavior (Jaffee et al., 2004), less social competence (Miller-Graff et al., 2017), and lower rates of cooperation and prosocial behavior (Kaufman & Cicchetti, 1989) among children and adults with histories of childhood interpersonal trauma.

Positive Consequences of Childhood Interpersonal Trauma

Despite a wealth of evidence that traumatic interpersonal experiences in childhood can compromise multi-domain competence, a burgeoning literature has documented instances of growth and thriving in the wake of marked childhood adversity (Linley & Joseph, 2004; Tedeschi & Calhoun, 2004). Extending broader notions of resilience, which emphasize the expression of competent adaptation in contexts of adversity (Masten, 2001), post-traumatic growth (Tedeschi & Calhoun, 2004) and related concepts, such as adversarial growth (Linley & Joseph, 2004), perceived benefits (Affleck & Tennen, 1996), and thriving (Epel et al., 1998), capture (actual or perceived) positive psychological changes that occur as a function of coping with trauma.

Several studies have documented expressions of positive adaptation in the context of prior childhood interpersonal trauma. For example, Greenberg and colleagues (2018) found that adults who reported experiencing a traumatic event in childhood evidenced greater empathy than those who did not. Moreover, trauma severity predicted greater perspective taking and empathic concern. Similar data suggest that adults with a history of childhood neglect show enhanced theory of mind relative to non-neglected controls (Rnic et al., 2018). Although perspective taking, empathic concern, and theory of mind

are positively associated with prosocial behavior (Farrant et al., 2012; Hastings et al., 2007), few studies have examined positive behavioral expressions in the wake of childhood interpersonal trauma. Indeed, the bulk of available evidence focuses on adult samples using retrospective reports of childhood events as related to subjective perceptions of post-traumatic growth in terms of greater appreciation for life, enhanced social relationships, feelings of hope and personal strength, and heightened spiritual connectedness (e.g., Easton et al., 2013; Mohr & Rosén, 2017).

Altruism Born of Suffering: The Case of Childhood Interpersonal Trauma

Altruism and related concepts, such as prosocial behavior, have gained the attention of researchers interested in the variable effects of adversity on behavioral adaptation (Vollhardt, 2009). The *idea* that negative life experiences may beget prosocial outcomes has a long and rich history in psychoanalysis and clinical psychology, dating back to Asclepius in Greek mythology and the writings of Carl Jung, which suggest that effective healers are able and willing to examine their own wounds, yielding the insight to guide others through the process of healing (i.e., wounded healers; Groesbeck, 1975; Herman, 2015). However, these ideas have only recently gained formal explication in the context of the ABS model, which posits adversity as a potential catalyst for heightened expressions of altruism (Staub & Vollhardt, 2008; Vollhardt, 2009).

Of note, in contrast to the theoretical emphasis on altruistic behaviors, which – by definition – do not incur personal rewards (Batson & Powell, 2003), empirical tests of these ideas have more often focused on the broader umbrella of prosocial behaviors, which encompass actions that could be motivated by any number of egoistic intentions,

such as reputation management or an expectation of reciprocity (Martin & Olson, 2015). Given that empirical studies have largely neglected the motivational underpinnings that differentiate broader expressions of prosocial behavior from those that are specifically altruistic in nature, the empirical question of interest in this meta-analytic investigation is better-phrased as whether or not *prosocial behavior* is born of suffering.

In light of the empirical studies Vollhardt (2009) compiled, and those the ABS model has inspired subsequently, this meta-analysis systematically evaluated extant research examining relations between experiences of childhood interpersonal trauma and various forms of prosocial behavior. Although the original ABS model focused on communally-experienced, human-caused adversities, such as war or genocide, this investigation sought to evaluate ABS postulates in the context of intentional interpersonal adversities experienced individually and in childhood (i.e., maltreatment, bullying victimization, and violence exposure). As detailed earlier, social information processing theory (Crick & Dodge, 1996) suggests that childhood interpersonal trauma may undermine prosocial development by contributing to hostile attribution biases that promote aggressive responses and undermine prosocial reactions to neutral social stimuli (Keil & Price, 2009; Laible et al., 2014). In contrast, the ABS model holds that traumatic experiences may activate mechanisms, such as empathy, perspective-taking, and meaning making, that promote prosocial development. In this view, prosocial behavior may become an effective tool for mitigating the risk of hostile interactions that survivors of childhood interpersonal trauma have grown to expect (Keil et al., 2019).

Potential Moderators of Prosocial Behavior Following Childhood Interpersonal Trauma

Vast individual differences in how survivors of childhood interpersonal trauma make meaning of and respond to their experiences (Linde-Krieger et al., 2020; Simon et al., 2010) highlight the importance of evaluating moderators that may qualify the association between childhood interpersonal trauma and prosocial behavior. In a sample of men with histories of childhood sexual abuse, for example, those who were better able to understand and make meaning of their experiences evidenced a greater appreciation for life, feelings of personal strength, and stronger interpersonal relationships (Easton et al., 2013). Likewise, college students who benefited from the emotional support of extrafamilial adults following their maltreatment experiences were more likely to show post-traumatic growth (Mohr & Rosén, 2017). That said, given the available evidence that adverse life experiences undermine multi-domain adjustment (Hughes et al., 2017; Kalmakis & Chandler, 2015), and the heightened salience and impact of individually-experienced childhood trauma (Cicchetti & Doyle, 2016; Sroufe et al., 2010; Widom, 2000), I predicted that childhood interpersonal trauma would undermine prosocial development. Although a host of variables could influence prosocial expression in the wake of childhood interpersonal trauma (e.g., gender, socioeconomic status), the available research evidence to date supported the investigation of the following moderators in this meta-analysis.

Age

The age of the sample at the time of assessment may have implications for the magnitude and direction of the effect of childhood interpersonal trauma on prosocial behavior. Younger children may find it more difficult to make meaning of their traumatic experiences because the capacity to develop a coherent and resolved narrative depends on facets of cognitive development that are less well-developed earlier in childhood (Piaget, 1972). For example, abilities to consider multiple points of view, process the complexity of human experience (e.g., experiences are rarely uniformly "good" or "bad"), and share one's lived experiences through language develop across late childhood and adolescence (Reese et al., 2011; Stemplewska-Żakowicz, 2000). In addition to increased cognitive capacities, the likely greater duration of elapsed time between traumatic events and prosocial assessment using older samples heightens the opportunity for intervening relationships and experiences (e.g., therapy) that may support prosocial expressions and transformations. Given that coherent meaning-making increases across the lifespan (Reese et al., 2011), and meaning making is a primary determinant of post-traumatic growth (Rajandram et al., 2011), I hypothesized that older participants would evidence more modest negative relations (or potentially positive relations) between childhood interpersonal trauma and prosocial behavior.

Tedeschi and Calhoun (2004) characterize post-traumatic growth as a natural byproduct of the process of actively coping with traumatic experiences. In this and other theoretical conceptualizations, such as Janoff-Bulman's Shattered Assumptions Theory (2004, 2010), survivors are thought to find strength through suffering. In the process of

navigating psychological and experiential challenges, individuals may come to discover previously hidden strengths, develop new coping strategies, and gain a sense of competence and confidence by acting on opportunities to help others who are facing similarly adverse experiences. Over time, trauma survivors may undergo an *existential reevaluation,* through which they strive to make their own lives meaningful, often by caring for others (Janoff-Bulman, 2004). Thus, older samples reflecting on childhood experiences may evidence greater prosocial behavior because they have had more time to process and reorganize their experiences relative to younger samples who may be negotiating the more immediate aftermath of childhood interpersonal trauma amidst less well-developed cognitive capacities to do so effectively.

Geographic region

Geographic regions across the world differentially emphasize the importance of banding together in solidarity versus caring for oneself, which may influence the likelihood that individuals will behave prosocially following an adverse event. Prior investigations suggest that an emphasis on communal interdependence may promote prosocial behavior (Armenta et al., 2011; Carlo et al., 2001). For example, in a study of resource allocation decisions, children in Brazil were more likely than European-American children to favor equality, rather than self-benefiting inequality (Carlo et al., 2001). Similarly, in a study of Greek young adults, orientations toward collectivistic values were positively related to self-reported prosocial behavioral tendencies (Lampridis & Papastylianou, 2017).

Although cultures differ along numerous dimensions (e.g., indulgence/restraint, collectivism/individualism; Hofstede, 2011), this meta-analysis evaluated a dichotomous moderator based on the country in which the research was conducted (i.e., U.S. versus non-U.S.). As compared to the rest of the world, the U.S. emphasizes individualist values and individual advancement to a greater degree than collectivist values and group well-being (Bazzi et al., 2020; Vandello & Cohen, 1999). Thus, individual responses to childhood interpersonal trauma may be more self- versus other-directed in the U.S. as compared to regions that place relatively more value on interdependence outside the U.S. That said, because individuals in the U.S. are relatively more likely to seek and secure mental health services than those outside the U.S. (Chen & Mak, 2008), therapy-facilitated meaning making may eventuate in greater levels of prosocial responding in the wake of trauma within the U.S. Given these competing hypotheses, the current moderation analysis by geographic region was exploratory.

Trauma Assessment

Researchers cannot randomly assign or introduce negative life experiences to human research participants. Thus, empirical examinations of ABS typically capitalize on so-called *natural* experiments (Rutter, 2007). By definition, these are similar to traditional experimental designs wherein an experimental group is compared to a control group, but these groups are naturally occurring rather than randomly assigned yielding a quasi-experimental between-groups research design. Regardless of whether these studies focus on a single trauma-exposed group or multiple groups, features of the trauma assessment itself, such as the type of trauma assessed, the informant reporting on the

trauma, and how the trauma is measured may influence relations between childhood interpersonal trauma and prosocial behavior.

Trauma Type. A range of experiences fall under the umbrella of childhood interpersonal trauma, including maltreatment (i.e., physical abuse, sexual abuse, emotional abuse, neglect), bullying victimization, and violence exposure (i.e., domestic and community). That said, different types of childhood interpersonal trauma may have differential impacts on prosocial development. Bullying victimization and community violence exposure may be somewhat easier to recover from than maltreatment and domestic violence exposure because children can depend on their caregivers to assist them in processing, coping with, and responding to extrafamilial traumatic events. Likewise, Freyd's (1996) Betrayal Trauma Theory suggests that trauma perpetrated by caregivers are comparatively more difficult to recover from because they constitute a betrayal of trust that undermines benevolent and just assumptions about the world while eliminating the child's ability to lean on caregivers for support. Prosocial expressions may be relatively greater in the wake of bullying and violence exposure because, along with the increased probability of caregiver support, they are less likely to disrupt world views and foment hostile attribution biases. Thus, I expected that survivors of bullying and violence exposure would evidence more modest negative associations (or more positive associations) with prosocial behavior than survivors of maltreatment.

Trauma Measurement. Measurement methods may impact apparent relations between childhood interpersonal trauma and prosocial behavior. For example, although many studies utilize self-report methods to assess childhood trauma (e.g., Barlińska et al.,

2018; McMahon et al., 2013), some studies rely on caregiver-reported measures (e.g., Howell et al., 2018), while others employ administrative records from child protection (e.g., Prino & Peyrot, 1994). Self-report measures may more clearly capture the subjective perception and/or impact of the traumatic experience on the survivor, whereas informant reports and administrative records may better capture the objective details of the experience itself. That said, administrative reports are typically recorded in the immediate aftermath of a traumatic experience, while informant reports are often retrospective. Retrospective reports may be relatively less accurate, as the passage of time between the traumatic event and the report may impact memory (Dekel & Bonanno, 2013). Thus, I predicted that non-administrative trauma measures would be associated with more muted negative effects (or more positive effects) on prosocial behavior due to aforementioned age effects.

Trauma Scale. Studies of childhood interpersonal trauma typically assess trauma using one of two scale types. Some studies examine these relations in uniformly trauma-exposed groups, wherein trauma is assessed on a continuous metric of severity. For example, McMahon and colleagues (2013) found that adolescents drawn from the same community who reported greater exposure to community violence evidenced lower rates of prosocial behavior. Other studies make comparisons between discrete groups exposed to different types of childhood trauma (e.g., neglect versus abuse) or between children with trauma histories and children without. For example, in a study comparing 70 neglected and abused children with 67 non-maltreated children, Kaufman and Cicchetti (1989) found that maltreated children were significantly more aggressive and less

prosocial than their non-maltreated peers. In contrast, Keil and colleagues (2019) found that maltreated children were hyper-cooperative (and more prosocial) as compared to non-maltreated controls.

Trauma scale features may influence observed relations between childhood interpersonal trauma and prosocial behavior for several reasons. First, studies that use continuous metrics to assess trauma are more statistically powerful, such that the relative size of a statistically significant (and likely to be published) effect may be smaller than effect sizes generated from studies using dichotomous metrics. Second, comparing individuals with versus without a history of childhood interpersonal trauma should yield larger effects given that the difference between a non-exposed control and a participant with a history of childhood interpersonal trauma should be relatively larger than the difference between a participant with a mild history of childhood interpersonal trauma versus one with a moderate or severe history of childhood interpersonal trauma. Although the scale of the trauma assessment is not likely to influence the valence of apparent effects on prosocial behavior, I hypothesized that the effect size would be relatively greater in studies using dichotomous metrics.

Prosocial Behavior Assessment

As with childhood interpersonal trauma assessments, prosocial behavior assessments vary in their foci and measurement methods. Some studies utilize global metrics of prosocial behavior, while others focus on specific expressions of prosocial behavior. Likewise, some studies use observational measures, while others rely on

informant reports, and the identity of the informant may have important implications for observed findings.

Prosocial Behavior Type. Among the array of prosocial behaviors, sharing, caring, and helping feature most prominently in contemporary research. Despite their common emphasis on benefiting others, research demonstrates that prosocial expressions are largely orthogonal, such that individuals who share are not necessarily more likely to engage in caring and/or helping behaviors. For example, although the majority of toddlers express some form of prosocial behavior, most engage in only one type of prosocial behavior (e.g., sharing or helping or comforting; Dunfield et al., 2011). Moreover, evidence points to unique processes undergirding these prosocial behaviors. For example, greater activation of the left frontal cortex is associated with comforting, while greater right temporal activation is associated with helping (Paulus et al., 2013). Given evidence that sharers, carers, and helpers are distinct from one another, studies focused on different forms of prosocial behavior may evidence similarly differential associations with childhood interpersonal trauma. Of note, majority of studies utilize global metrics of prosocial behavior, which aggregate multiple expressions of prosocial behavior. Because these global measures composite potentially distinct expressions of prosocial behavior in the wake of childhood interpersonal trauma, they may yield effect sizes of different valence or magnitude than type-specific studies. Thus, I evaluated global versus specific prosocial assessment types to test my hypothesis that global measures of prosocial behavior would yield relatively smaller negative relations with childhood interpersonal trauma compared to studies examining specific types of prosocial behavior.

Prosocial Behavior Measurement. Measures of prosocial behavior vary with regard to assessment format and informant identity or context in ways that may shape apparent relations with childhood interpersonal trauma. Researchers typically assess prosocial behavior using questionnaire-based reports from varied informants (e.g., caregivers, teachers, peers, the self). Importantly, the contextual breadth of information available to some informants (e.g., the self) may differ from other reporters who have more limited exposure to the target individual (e.g., teachers). Thus, even within survey-based methods, there may be variability in relations with childhood interpersonal trauma.

In recent years, behavioral observations of prosocial behavior, which can be obtained from contrived laboratory situations or naturalistic settings (e.g., classroom observation) have gained popularity (e.g., Coulombe & Yates, 2018; Schuhmacher et al., 2019; Warneken & Tomasello, 2013). Observational assessments circumvent some of the potential biases associated with questionnaire measures (Van de Mortel, 2008), which may be particularly relevant in studies of childhood interpersonal trauma as a result of correlated psychopathology or stereotypes. For example, though the presence of aggression does not negate the possibility for prosociality, the fact that childhood interpersonal trauma survivors tend to be more aggressive (Lee & Hoaken, 2007) may negatively bias teacher or caregiver reports of prosocial behavior. That said, observational measures of prosocial behavior, particularly in laboratory settings, may reveal a more limited, and potentially less ecologically valid, picture of an individual's prosocial behavior (Gurven & Winking, 2008). Indeed, some evidence suggests that children are especially concerned with pleasing examiners in research settings (Punch,

2002), which may artificially bolster prosocial behavior in the laboratory. Thus, I evaluated two hypotheses regarding prosocial behavior measurement. First, because both informant reports and observational measures may exaggerate *or* underestimate prosocial behavior scores, the current moderation analysis by assessment type was exploratory. Second, I predicted that studies using caregiver or self-reported prosocial behavior assessments would evidence relatively more positive associations with prosocial behavior than those using other informants, such as teachers, peers, or examiners.

Study Overview

The current study offered a systematic and comprehensive evaluation of extant research examining the relation between childhood interpersonal trauma and prosocial behavioral expressions. In addition to documenting the direction and magnitude of proposed ABS effects, moderation analyses evaluated these relations as a function of a) participants' age at the time of assessment, b) the geographic region within which the research was conducted, c) the type of trauma assessed, d) the method trauma assessment, e) the scale of the trauma measurement, f) the type of prosocial behavior assessed, and g) the method of prosocial behavior assessment with regard to observations versus informant reports and the identify of informants. Together, this meta-analysis sought to clarify whether, when, and for whom altruism (or prosocial behavior) may be born of suffering (or childhood interpersonal trauma).

Method

Literature Search

This meta-analysis evaluated all empirical investigations of one or more instances of prosocial behavior (or the more circumscribed construct of altruism) following one or more experiences of childhood interpersonal trauma (i.e., abuse, neglect, maltreatment, bullying victimization, and domestic or community violence exposure) that had been published up until January 2020. As shown in Figure 1, I followed the Preferred Reporting Items for Systematic reviews and Meta-analyses (PRISMA) guidelines to conduct the literature search (Page et al., 2020).

Figure 1. *PRISMA Diagram*

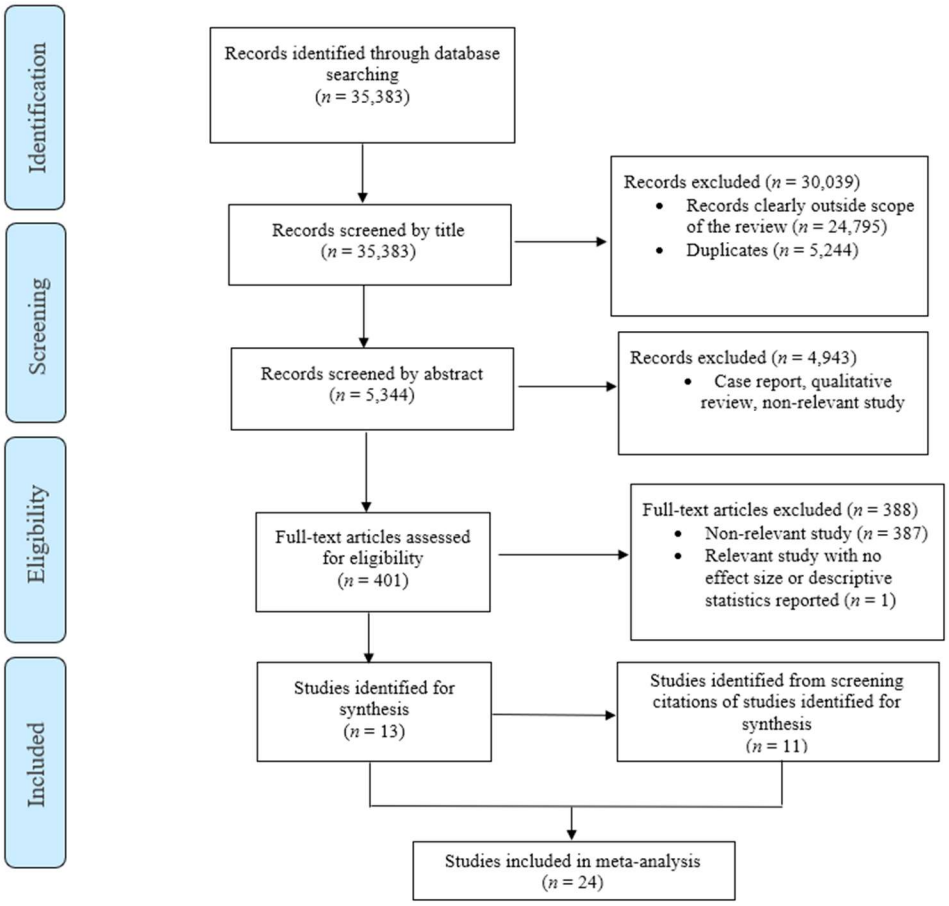


Table 1 depicts the search terms used to collect citations from Google Scholar, PsycINFO, ProQuest, and PubMed. A search for each childhood interpersonal trauma term was paired with each prosocial term, so that returned articles contained the trauma term of interest and one or more prosocial terms in the article title. In addition, to capture additional articles that may not have included both terms in the title, I evaluated all citations from the articles retained from this initial search for inclusion in these analyses.

Table 1.
Search terms

Childhood Interpersonal Trauma Terms	
Abus*	Molest*
Bully*	Neglect*
Cyberbully*	Rap*
Maltreat*	Violen*
Prosocial Terms	
Altruis*	Caring
Comforting	Cooperating
Donating	Helping
Prosocial	Sharing
Supporting	

Note: Entries depicted with * were searched for all conjugations of the root word.

Inclusion Criteria

After identifying citations from the literature search (n = 35,383), each citation was screened first by title (n = 35,383), then by abstract (n = 5,344) to ensure it was relevant to the present study. At this stage, I included any articles with potentially relevant data regarding the association between childhood interpersonal trauma and prosocial behavior. Next, I assessed full articles for inclusion criteria.

Studies were included in the analysis (N= 24) if they empirically assessed both childhood interpersonal trauma (i.e., specifically measured abuse, neglect, maltreatment,

bullying victimization, or domestic or community violence exposure) and prosocial behavior. Included studies reported sufficient statistical information to compute a Pearson correlation (i.e., group means and standard deviations, *t*, *F, p*-values with *df,* Cohen's *d,* or Hedge's *g*). When studies did not report the necessary statistics for meta-analysis (n = 2), I contacted the authors to obtain them. One author responded providing relevant data, and one author was unable to fulfill my request. Finally, I screened citations from all 13 studies returned from the initial search to capture studies that may have bypassed my search criteria because they included trauma *or* prosocial terms in the title, but not both. This resulted in additional studies, for which I again screened citations until no novel studies were identified. Citation screening yielded an additional 11 studies for analysis bringing the total number to 24. Of note, two of these articles had two distinct studies embedded within them, bringing final number of studies in this meta-analysis to 26.

Given my primary focus on relations between childhood interpersonal trauma and prosocial outcomes, I excluded studies that introduced manipulations aimed at promoting prosocial behavior from all analyses. Likewise, I excluded studies that measured general "trauma" or "risk" without specifying the inclusion of childhood interpersonal trauma as defined earlier. Finally, due to limited translation resources, I constrained this meta-analysis to articles that were available in English.

Final Sample

The final sample of 24 studies with 26 samples yielded a total sample size of 7,856 participants across several countries (i.e., Australia, Colombia, Croatia, Germany, New Zealand, Poland, South Africa, United States; see Table 2).

Table 2. *Characteristics and correlation coefficients of included studies*

Study Name	Sample Size	Country	Age Group	Trauma Type	Trauma Method	Trauma Scale	Prosocial Behavior Type	Prosocial Behavior Method	Correlation Coefficient (*r*)	SE
Alink et al. (2012)	236	USA	MC	M	A	D	G	O	-.21	.07
Anthonysamy et al. (2007)	400	AUS	EC	M	A	D	G	T	-.25	.05
Banny (2015)	340	USA	MC	M	A	D	G	E	-.29	.05
Barlinska (2018a)	271	POL	LC	B	S	C	H	O	-.08	.06
Barlinksa (2018b)	265	POL	LC	B	S	C	H	O	-.06	.06
Bilic (2006)	127	HRV	LC	B	S	C	G	S	-.04	.09
Hoffman-Plotkin & Twentyman (1984)	42	USA	EC	PA	A	D	G	O	-.44	.16
				N					-.34	.16
Holmes et al. (2015)	1125	USA	EC	DV	C	C	G	C	.04	.03
Howell et al. (2010)	56	USA	EC	DV	C	C	G	C	-.29	.14
Howell et al. (2018)	118	USA	MC	DV	C	D	G	C	-.02	.09
Howes et al. (1985)	77	USA	I	PA	C	D	G	O	-0.76	.14
				N					-.58	.19
Kaufman & Cicchetti (1989)	137	USA	EC	M	A	D	G	E	-.21	.09
Keil et al. (2019)	329	DEU	MC	M	C	D	Cp	O	.12	.06
Klimes-Dougan & Kistner (1990)	22	USA	EC	PA	A	D	G	O	-.19	.23
Koenig et al. (2004)	82	USA	EC	PA	A	D	G	O	-.03	.14
				N			G		.01	.14
				M			H		.04	.11
				M			S		-.12	.11
				M			Cf		.05	.11

Table 2 continued. *Characteristics and correlation coefficients of included studies*

Study Name	Sample Size	Country	Age Group	Trauma Type	Trauma Method	Trauma Scale	Prosocial Behavior Type	Prosocial Behavior Method	Correlation Coefficient (*r*)	SE
Main & George (1985)	20	USA	I	M	A	D	Cf	O	-.54	.24
Manly (1994)	235	USA	MC	M	A	D	Cp	P	-.14	.07
Manly et al. (2001)	814	USA	MC	M	A	D	G	E	-.24	.04
								P	-.17	.04
McMahon et al. (2013)	226	USA	LC	CV	S	C	G	P	-.2	.07
								T	-.29	.07
Mejia (2003a)	1152	COL	LC	DV	S	C	G	S	-.08	.03
				M					-.09	.03
Mejia (2003b)	148	COL	LC	DV	S	C	G	S	-.16	.08
				M					-.21	.08
Prino & Peyrot (1994)	68	USA	EC	PA	A	D	G	T	-.35	.16
				N					-.21	.15
Raskauskas et al. (2010)	1168	NZL	MC	B	S	D	G	S	.09	.03
Salzinger et al. (2002)	200	USA	LC	M	A	D	G	O	-.41	.07
Shields et al. (1994)	129	USA	MC	M	A	C	G	O	-.09	.09
van der Merwe & Dawes (2000)	78	ZAF	LC	CV	S	C	G	T	-.02	.12

Note. Country codes: AUS = Australia, COL = Colombia, DEU = Germany, HRV = Croatia, NZL = New Zealand, POL = Poland, ZAF = South Africa; Trauma type codes: B = bullying, CV = community violence, DV = domestic violence, EA = emotional abuse, M = maltreatment, N = neglect, PA = physical abuse; Trauma method codes: A = administrative records, C = caregiver report, S = self-report; Trauma scale codes: C = continuous, D = dichotomous; Prosocial behavior type codes: Cf = comforting, Cp = cooperating, G = global metric, H = helping, S = sharing; Prosocial informant codes: C = caregiver, E = examiner, O = observational measure, P = peer, S = self, T = teacher

Moderator Variables

Age. I categorized the age group of each sample across infancy, early childhood, middle childhood, late childhood, and adolescence. For these analyses, I compared studies with assessments occurring in early development (i.e., infancy and early childhood; n = 10) to those with assessments in later development (i.e., middle childhood, late childhood, and adolescence; n = 16).

Geographic region. More than half the studies were conducted in the U.S., so I compared U.S. studies (n = 17) to non-U.S. studies (n = 9).

Trauma Type. For each study, I recorded the type of childhood interpersonal trauma assessed. The available data supported a test for differences between studies of maltreated children (n = 16) and children with other types of interpersonal trauma (i.e., bullying, violence exposure; n = 12). Because each sample from Mejia's (2003) study included both maltreated and domestic violence groups, the total number of samples listed for this comparison is 28, rather than 26.

Trauma Method. I tested differences between studies utilizing reports of childhood interpersonal trauma provided by the children themselves or their parents (n = 13) to those that utilized administrative reports from child protection agencies (n = 13).

Trauma Scale. Each study was categorized based on whether the authors used a continuous severity metric (n = 10) or a dichotomous metric to assess trauma exposure (n = 16).

Prosocial Behavior Type. Each study was coded for the type(s) of assessed prosocial behavior (e.g., sharing, helping, comforting, global prosocial behavior). This

supported comparisons between studies using global (n = 20) versus specific (n = 6) assessments of prosocial behavior.

Prosocial Behavior Measurement. I recorded whether prosocial behavior was assessed via informant reports (n = 15) or observationally (n = 11), and, if reported, whether informants saw the participants in the school or laboratory setting (i.e., examiners, peers, and teachers; n = 8) or in the home (i.e., self and caregiver; n = 7). Thus, I tested two prosocial behavior method moderators – informant versus observation and non-home versus home-based informants.

Computation of Effect Sizes

All analyses were computed in the meta-analysis package of JASP (Grasman, 2017; Love et al., 2019). I used the Fisher z transformation to normalize the distributions of all correlation coefficients for analysis (Silver & Dunlap, 1987), and transformed back into Pearson's r for interpretation. I utilized a restricted maximum likelihood random effects (RE) approach for analysis, as it provides an unbiased estimate of τ^2 (Kelley & Kelley, 2012; Thompson & Sharp, 1999), and supports the generalizability of the analysis beyond the current meta-analysis (Borenstein et al., 2021).

Several studies reported multiple effect sizes of interest (e.g., included multiple childhood interpersonal trauma groups, used multiple informants to assess prosocial behavior; n = 8). Effect size estimates for these studies were combined to calculate a single effect size estimate for the study, which was included in the analysis of the overall effect. For moderation analyses, the separate effect sizes were used when relevant. Two

articles included data from 2 separate samples of participants. These effect sizes were always counted separately.

To detect possible publication bias, I visually inspected funnel plots, which depict study effects against standard errors to test for asymmetry. Asymmetric funnel plots indicate systematic variations in published effects (i.e., publication bias; Sedgwick, 2013). In addition, I computed Begg's rank correlation test (Begg & Mazumdar, 1994), which correlates the rank of the standardized effect of each study with the rank of its variance, and uses Kendall's tau as the measure of association. A large tau indicates that the size of the effect is significantly associated with the variance, suggesting that publication bias is present.

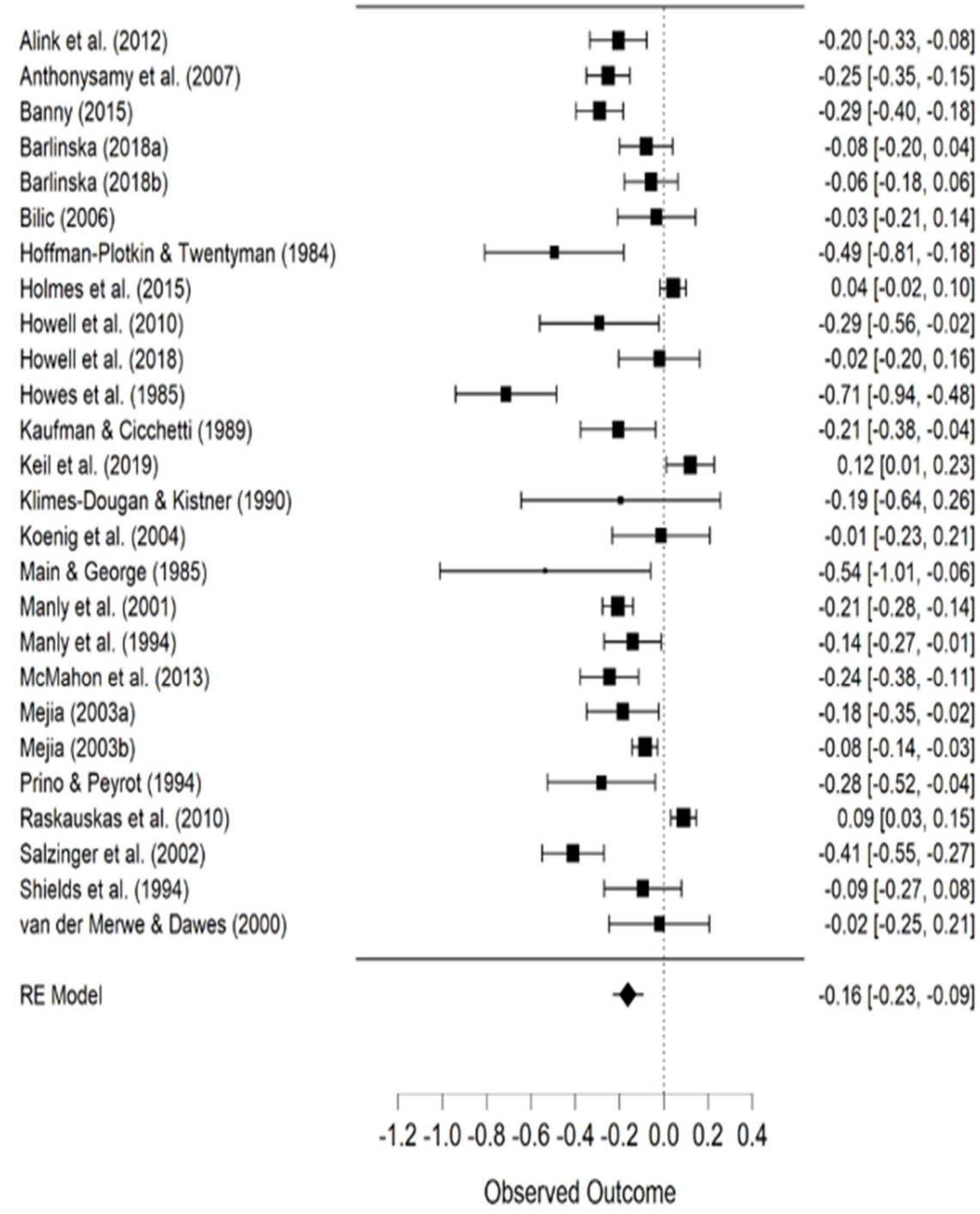
Results

Overall Meta-Analytic Results

The meta-analysis revealed a significant negative association between childhood interpersonal trauma and prosocial behavior (r = -.16, 95%, CI [-.23, -.09], k = 26, I^2 = 87.57, τ^2 = .03). Figure 2 presents a forest plot of study effect sizes and their 95% confidence intervals in addition to the overall effect.

Figure 2.

Forest Plot of Overall Meta-Analytic Effect



Moderator Analyses

The included studies evidenced substantial heterogeneity in the distribution of effect sizes $Q(25) = 183.93$, $p < .001$, which supported my exploration of potential moderating effects by a) participants' age at the time of assessment, b) the geographic region within which the research was conducted, c) the type of trauma assessed, d) the method trauma assessment, e) the scale of the trauma measurement, f) the type of prosocial behavior assessed, and g) the method of prosocial behavior measurement.

Age

There was a nonsignificant, but marginal moderating effect of age ($z = 1.88$, $p = .06$), such that the effect of childhood interpersonal trauma on prosocial behavior in early development tended to be stronger ($r = -.27$, 95% CI [-.42, -.12], $k = 10$, $I^2 = 86.11$, $\tau^2 = .04$) than in later development ($r = -.12$, 95% CI [-.19, -.05], $k = 16$, $I^2 = 84.53$, $\tau^2 = .02$).

Geographic region

There was a significant moderating effect of study region ($z = 2.64$, $p = .01$), such that U.S. samples evidenced a significant negative association between childhood interpersonal trauma and prosocial behavior ($r = -.23$, 95% CI [-.32, -.14], $k = 17$, $I^2 = 83.66$, $\tau^2 = .03$), whereas, non-U.S. samples did not ($r = -.05$, 95% CI [-.14, .03], $k = 19$, $I^2 = 82.58$, $\tau^2 = .01$).

Trauma type

There was a significant moderating effect of trauma type ($z = 2.55$, $p = .01$), such that children with maltreatment histories (i.e., physical abuse, emotional abuse, neglect) evidenced significant negative associations with prosocial behavior ($r = -.24$, 95% CI [-

.33, -.15], k = 23, I^2 = 86.29, τ^2 = .03), while children who experienced other types of interpersonal trauma (i.e., bullying victimization, violence exposure) did not (r = -.06, 95% CI [-.13, .00], k = 11, I^2 = 75.63, τ^2 = .01).

Trauma Informant

There was a significant moderating effect of informant type (z = 2.29, p = .02), such that studies that utilized child protection reports to assess childhood interpersonal trauma evidenced significant negative associations with prosocial behavior (r = -.23, 95% CI [-.29, -.18], k = 13, I^2 =40.48, τ^2 = .01), whereas, those using child self reports or caregiver reports did not find a significant relation (r = -.10, 95% CI [-.20, .01], k = 13, I^2 = 92.00, τ^2 = .03).

Trauma Scale

Trauma scale (i.e., dichotomous versus continuous) did not significantly moderate the impact of childhood interpersonal trauma on prosocial behavior (z = 1.41, p = .16).

Prosocial Behavior Type

There was not a significant moderating effect of prosocial behavior type on the observed relation between childhood interpersonal trauma and prosocial behavior (i.e., global versus specific; z = .02, p = .81).

Prosocial Behavior Measurement - Modality

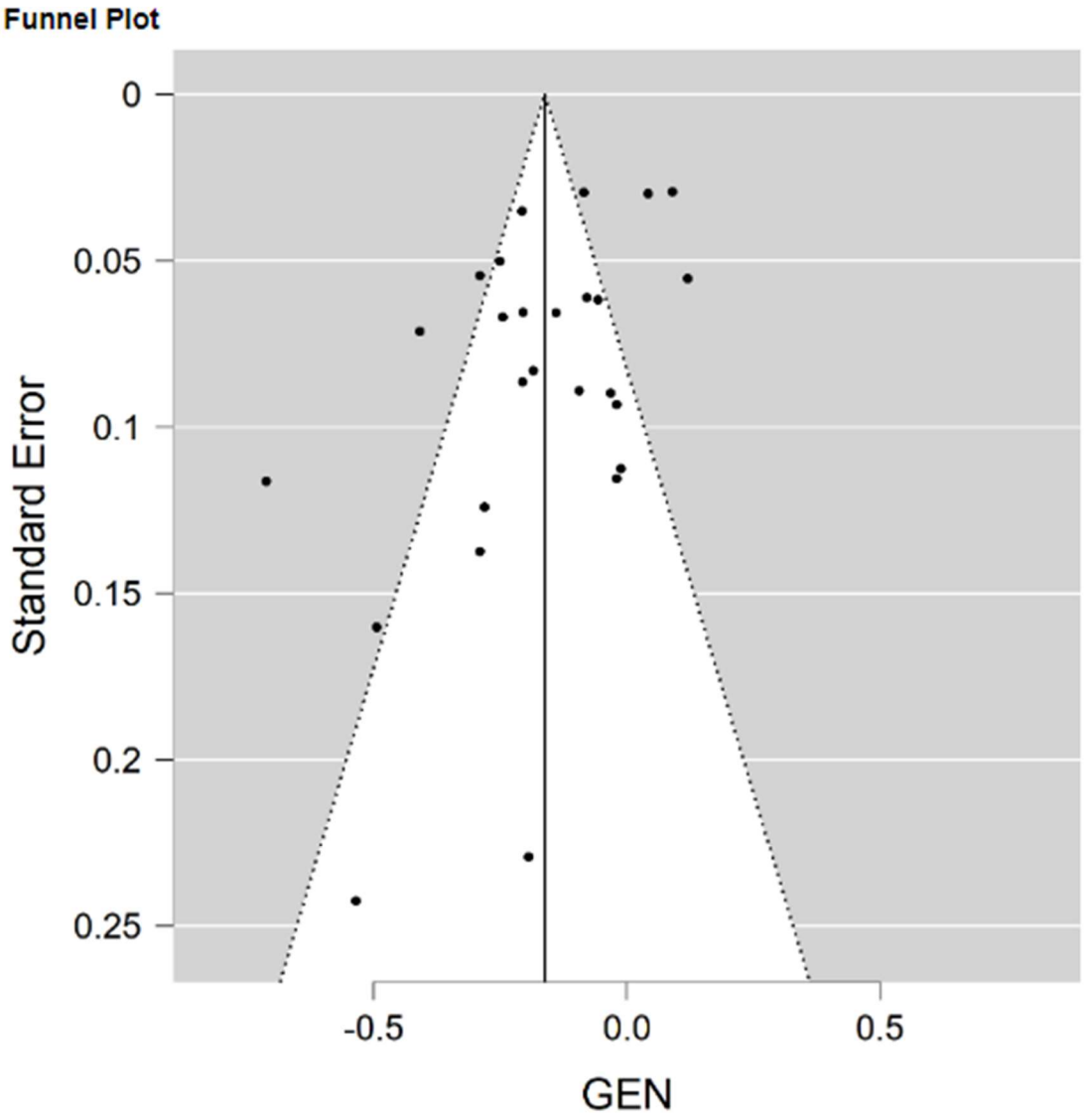
There was no significant moderating effect of assessment modality (i.e., observed versus reported measures; z = 1.28, p = .20).

Prosocial Behavior Measurement - Informant

There was a significant moderating effect of prosocial behavior informant (z = 4.14, p < .001) such that studies with prosocial informants from outside the home (i.e., examiners, teachers, peers) evidenced significant negative associations with childhood interpersonal trauma (r = -.23, 95% CI [-.28, -.19], k = 9, I^2 = .01, τ^2 < .001) while studies with prosocial informants from inside the home did not (i.e., children, caregivers; r = -.04, 95% CI [-.12, .05], k = 7, I^2 = 80.57, τ^2 = .01).

Publication Bias

The funnel plot was largely symmetrical with a few possible outliers (see Figure 3), and Begg's rank correlation test revealed no significant publication bias (t = -.145, p = .314).



Discussion

Building on prior theoretical (Vollhardt, 2009) and empirical (e.g., Hernández-Wolfe, 2011; Lim & DeSteno, 2016) suggestions that adverse life experiences can engender prosocial behavior, the current study offered a systematic meta-analysis of these effects in studies of survivors of childhood interpersonal trauma. The ABS model suggests that prosocial behavior may follow from communally-experienced, human-

caused trauma (e.g., war, genocide). The current study extended extant tests of this theoretical model by evaluating relations between individually-experienced, human-caused trauma in childhood (i.e., physical abuse, emotional abuse, neglect, bullying victimization, and community or domestic violence exposure), as well as potential moderators of this effect.

Is Childhood Interpersonal Trauma Related to Prosocial Behavior?

Meta-analytic results revealed a significant negative effect of childhood interpersonal trauma on prosocial behavior. Although some traumatic events may promote prosocial behavior, human-caused trauma that is experienced individually and in childhood appears to *undermine* prosocial development. This finding provides greater context to the larger ABS model by demonstrating that associations between adverse life experiences and prosocial behavior may differ when considering a wider variety of adverse life experiences and specifically those occurring in childhood.

As compared to individually experienced trauma, communally experienced trauma may encourage *communal coping*, which can serve as a risk-activated moderator or protective process that promotes collective problem solving and healing (Kaniasty, 2012). Consistent with evidence that communal coping is positively associated with post-traumatic growth (Wlodarczyk et al., 2016), so, too, may it promote prosocial behavior as communities develop a heightened sense of connectedness and meaning in their shared experience. It may also be that communal adversities, whether human-caused (e.g., terrorism) or naturally occurring (e.g., a flood), result in survivor guilt, which may further compel people to act in the service of the greater good as a form of atonement (Juni,

2016). In contrast, individually experienced traumatic events, such as those explored in the current study, are often accompanied by feelings of shame and isolation, which may undermine prosocial behavior (Dorahy & Clearwater, 2012).

As compared to adult studies that suggest positive associations between traumatic experiences and prosocial behavior (e.g., Hernández-Wolfe, 2011; Lim & DeSteno, 2016), the current meta-analysis documented a significant negative association within childhood. Attachment research suggests that early caregiving experiences form the basis for individuals' understanding of themselves, others, and relationships (i.e., internal working models; Bretherton & Munholland, 2008). In turn, internalized representations deriving from early experiences of care influence future adaptation across cognitive (Bernier et al., 2015), physiological (Gunnar et al., 1996), and behavioral (Marsh et al., 2003) levels of analysis. Thus, early experiences of adversity may be relatively more salient because they have a greater capacity to disrupt core representational and regulatory processes as compared to adverse events occurring later in life, when individuals' beliefs and expectations about themselves and their social world, as well as their regulatory stress response systems, are relatively more crystallized and resistant to perturbation.

What Factors may Influence Relations Between Childhood Interpersonal Trauma and Prosocial Behavior?

Despite the overarching negative relation between childhood interpersonal trauma and later prosocial behavior, the magnitude of this effect varied across groups. Indeed, the modest overall size of this effect and the marked heterogeneity in the distribution of

effect sizes across studies suggest that a number of factors may qualify the impact of childhood interpersonal trauma on prosocial development. Further, the current study does not eliminate the possibility that childhood interpersonal trauma may have motivated prosocial behavioral expressions for subsets of participants. Although none of the proposed moderator groups revealed a significant positive relation between childhood interpersonal trauma and prosocial behavior, the absence of a significant relation within several moderator groups (e.g., samples outside the U.S., survivors of extrafamilial trauma) is notable. Moreover, as discussed later, the available research to date did not support my evaluation of numerous theoretically- and developmentally-relevant moderators beyond those examined here.

First, there was a marginal moderating effect of age, such that younger samples tended to reveal stronger negative associations between childhood interpersonal trauma and prosocial behavior than older samples. As discussed previously, the notion that "time heals all wounds" may bear some truth as capacities and opportunities for meaning making (Reese et al., 2011) and coping skills (Zimmer-Gembeck & Skinner, 2011) increase over time. Of note, because younger samples were necessarily limited to younger ages of trauma exposure, this finding may also reflect the heightened impact of traumatic experiences early in development when assumptions about the self and the world are still developing, and are thus more vulnerable to distortion from outside influences. That said, though weaker, the negative association between childhood interpersonal trauma and prosocial behavior remained significant across samples of older children.

Second, there was a significant moderating effect of region such that studies conducted in the U.S. showed a significant negative association between childhood interpersonal trauma and prosocial behavior, whereas those outside the U.S. did not. It is possible that the emphasis on individualism in American culture (Bazzi et al., 2020) serves to discourage children facing interpersonal trauma from accessing social support systems. In turn, this emphasis on self-reliance may constrain children's own experiences receiving prosocial care and instill or strengthen expectations that others should manage difficult life events independently. Indeed, evidence suggests that individualist ideologies are negatively associated with prosocial behavior, while collectivistic ideologies enhance prosocial behavior (Irwin, 2009; Lampridis & Papastylianou, 2017).

Third, with regard to trauma assessment, negative associations between childhood interpersonal trauma and prosocial behavior were significant for children with maltreatment histories (relative to those with histories of violence exposure or bullying victimization), and for those with trauma reports from administrative records (relative to caregiver or self reports), but they did not vary as a function of whether the trauma was operationalized as dichotomous (relative to a continuous severity metric). Children with a history of childhood abuse or neglect may have been less able to process their experiences with caregiver support and guidance. Further, traumatic experiences at the hands of a caregiver are particularly deleterious because they constitute a major betrayal from which children cannot readily escape (Freyd, 1996). With regard to reporting methods, children whose trauma history was documented by administrative records may have had relatively more severe experiences than those that were self- or caregiver-

reported, though it is also notable that administrative records are more likely to capture experiences of maltreatment (rather than bullying victimization or violence exposure), which may have accounted for the observed pattern of findings.

Finally, there was a significant moderating effect of prosocial informant type and context, such that studies utilizing informants outside the home (i.e., teachers, peers, examiners) revealed a significant negative association between childhood interpersonal trauma and prosocial behavior, whereas those employing reporters from within the home (i.e., self, caregiver) did not support the significance of this relation. It is possible that teachers, peers, and examiners are able to give a more objective view of child behavior, as they are less likely to be influenced by social desirability, which has been shown to bias both caregiver (Sanzone et al., 2013) and self reports (Merydith et al., 2003) of child behavior. Likewise, caregivers and children themselves are more likely to be aware of the child's trauma history, which may influence their perceptions and interpretations of child behavior, particularly given negative behavioral expectations of children with trauma exposure. That is, caregivers and children might be predisposed to notice negative behaviors and/or be less sensitive to positive behaviors because they are aware of (and make assumptions about) the child's trauma history.

Interestingly, neither prosocial behavior type (i.e., global versus specific assessments), nor prosocial behavior method (i.e., observed versus reported prosocial behavior) moderated the relation with childhood interpersonal trauma. Unfortunately, the limited available data precluded my exploration of associations between childhood interpersonal trauma and specific expressions of prosocial behavior (e.g., helping,

sharing, comforting). The distinction between global versus specific (but variable) measures of prosocial behavior was less theoretically important than consideration of the actual behavioral expression in question because trauma experiences may differentially affect specific types of prosocial behavior. For example, early trauma may enhance children's comforting behaviors because survivors are more attuned to distressing emotional facial cues (Pollak & Tolley-Schell, 2003); however, they may undermine other expressions of prosocial behavior, such as sharing, because sharing constitutes a tangible sacrifice, which may be relatively larger for child trauma survivors, who, on average, come from lower socioeconomic backgrounds (Zilberstein, 2016). Further, the prosocial behavior groups were markedly different in size with most studies relying on a global measure (n = 20) and only a handful evaluating specific expressions of prosocial behavior (n =6). This dramatic difference in sample sizes across groups may have limited my power to detect an effect (Shieh & Jan, 2015).

With regard to assessment modality, the absence of a significant difference between observational and informant-report studies was somewhat surprising and may reflect divergent effects across laboratory versus naturalistic observational studies. Although some observational studies utilized contrived in-lab prosocial behavior paradigms (n = 4), the majority (n = 7) used naturalistic observations of child behavior. Laboratory paradigms offer clearly defined opportunities for prosocial behavior, which may be less readily observed in naturalistic settings. Indeed, naturalistic observations and observer reports may provide similar information, such that a more meaningful distinction may have been to examine laboratory versus naturalisitic observations, rather

than observations generally as compared to informant reports. Although the sample size was relatively small, a *post-hoc* analysis revealed a significant moderating effect of observation type ($z = 3.14$, $p = .002$), such that naturalistic studies evidenced a significant negative association ($r = -.34$, 95% CI [-.54, -.19], $k = 7$, $I^2 = 77.47$, $\tau^2 = .04$), whereas laboratory observations did not ($r = -.004$, 95% CI [-.11, .10], $k = 4$, $I^2 = 57.64$, $\tau^2 = .01$).

Limitations

The current study represents a major advance toward understanding whether, when, and for whom childhood experiences of interpersonal trauma may encourage or discourage prosocial behavior. These findings suggest that the original ABS model (Vollhardt, 2009) may not hold for individually-experienced adversities occurring in childhood. Although this study benefitted from the strengths of a systematic literature review and the increased power afforded by meta-analytic procedures (Cohn & Becker, 2003), several limitations qualify the current findings.

First, the current examination of participants' age as a potential moderator introduced an important developmental lens of analysis to the largely non-developmental ABS model. Unfortunately, participants' age was confounded by the age at the time of trauma exposure. Because many studies used retrospective reports of trauma, it was not possible to determine whether the older samples had experienced the trauma later in development, or whether more time had passed between the traumatic occurrence(s) and prosocial measurement. Both older age at trauma onset and greater elapsed time between trauma exposure and prosocial assessment would be likely to promote more positive associations between trauma and prosocial behavior. In the absence of future research

efforts that clarify the timing of trauma exposure, it will be difficult to fully understand if or how developmental factors may influence behavioral responses to trauma.

Second, although I was able to explore the moderating effect of geographic region, this was a necessarily reductive proxy for testing my true interest in understanding cultural influences on relations between childhood interpersonal trauma and prosocial behavior. Culture is a complex construct with multiple potential indicators, including, but not limited to, national origin. Moreover, related sample features, such as ethnic and racial composition, as well as relative orientations to mainstream or heritage cultures, may influence how individuals experience, process, and respond to childhood interpersonal trauma. Unfortunately, the relatively nascent literature on prosocial expression in the context of childhood interpersonal trauma does not yet support the evaluation of these potentially important moderators. Of note, there was also significant heterogeneity in the "non-U.S." sample of studies, with countries ranging from nations that are quite similar to the U.S. (e.g., Germany, Australia) to those that feature marked variations in political structure, ethnic-racial composition, and economic status from the U.S. (e.g., Colombia, South Africa).

Future studies should include more robust cultural indicators, including data on ethnic-racial composition, acculturation, or individualism. For example, evidence suggests that facets of acculturation may impact prosocial behavior. Further, some evidence suggests that the stress and challenges associated with acculturation may undermine prosocial development (De Guzman & Carlo, 2004). Findings are mixed, however, as acculturative stress sometimes positively predicts prosocial behavior

(McGinley et al., 2009). Likewise, cultural values may impact associations between trauma exposure and prosocial behavior. For example Hofstede (2011) suggests that cultures vary across several dimensions, including the degree of power governments hold relative to average citizens, comfort with uncertainty and the unknown, individualism and collectivism, the degree of expected social and power differences between genders, and the degree to which individuals indulge and restrain their desires. As discussed previously, substantial evidence suggests that relatively more collectivist cultures evidence higher levels of prosocial behavior (Lampridis & Papastylianou, 2017), and cultures that emphasize interdependence may also engage in more communal coping behaviors (Kuo, 2013) that promote prosocial behaviors in the wake of trauma. Other dimensions of cultural orientation may similarly impact these associations. For example, the degree to which cultures emphasize differences between the genders may impact these associations. Indeed, Hofstede's (2011) masculinity and femininity dimensions suggest that relatively more feminine cultures value and promote sympathy and caring behaviors among all cultural members.

Certain cultural groups may also be more likely to experience specific types of traumatic experiences, which may further influence associations with prosocial development. For example, levels of community violence exposure are relatively high in public housing settings (Foell et al., 2021; Griffiths & Tita, 2009) where ethnic and racial minorities are overrepresented. Further, evidence suggests that ethnic and racial minority groups are overrepresented in the child welfare system and are more likely to receive administrative reports of maltreatment (Wildeman & Emanuel, 2014) largely because of

factors associated with housing quality (Stokes & Schmidt, 2011), poverty (Wulczyn et al., 2013), and systemic racism and associated racial profiling (Roberts, 2009). Resultant disproportionalities in family separation constitute a major stressor for children of color, which may further undermine their prosocial expressions.

Third, although domestic and community violence do not represent widespread communal trauma on the scope of war or genocide, they are not entirely *individually*-experienced either. That said, given the limited number of available studies, the current meta-analysis included these forms of childhood interpersonal trauma. Domestic violence is experienced at the level of individual families, and thus children may have siblings or others in the home to help them cope (Callaghan et al., 2016; Lucas, 2002). Similarly, community violence experiences are likely to be shared among a specific, albeit larger, group of individuals.

Fourth, although none of the moderators I explored in this study or that I later propose for future consideration are likely to operate in isolation, the limited sample of available research studies did not support my examination of interactive effects. For example, trauma experiences disproportionately affect those of lower socioeconomic status (SES), who may be at greater risk for experiencing comorbid violence exposure in the home and the community (Assari, 2020; Markowitz, 2003). Moreover, SES is non-randomly distributed across racial and ethnic groups as a consequence of systemic racism (Caliendo, 2018; Kwok & Wallis, 2008). Intersectionalities across sociodemographic identities (e.g., ethnicity-race, gender, SES) may render certain groups better able to engage in prosocial behavior as a function of resource availability and access. Thus,

future studies should consider the interactive effects of study and sample features on prosocial expressions in the wake of childhood interpersonal trauma.

Finally, although the search criteria for this literature review included a wide variety of prosocial behavior terms, scanning through citations of initially included studies (n = 13) nearly doubled my sample size, yielding 11 additional eligible studies. These studies did not include both trauma and prosocial terms in the title, yet still measured both constructs of interest. This suggests that the search criteria were not broad enough to capture all studies of interest. Indeed, although some meta-analysis guidelines suggest researchers restrict searches to titles and keywords (e.g., Tawfik et al., 2019), others suggest including studies with the search terms anywhere in the article (e.g., Basu, 2017). The latter method may have produced a more comprehensive set of studies for this analysis, though the initial corpus of more than 35,000 studies in this meta-analysis was far greater than those surveyed in most prior meta-analyses (e.g., Ma et al., 2017; Thielmann et al., 2020). In an effort to balance sensitivity and specificity in my literature review, I may have been overly restrictive. Moving forward, I plan to broaden my search to include all studies with at least one childhood interpersonal trauma term and at least one prosocial term anywhere in the article, rather than only in the title.

Future Directions

The current study offers the first systematic evaluation of relations between childhood interpersonal trauma and prosocial behavior. The obtained findings represent an important addition to the emerging literature on ABS while providing a more nuanced

and developmental evaluation of its tenets. That said, the limited research to date constrained my ability to evaluate developmental moderators fully.

Developmental moderators. A developmental lens of analysis suggested several *a priori* moderators that could not be examined within the available literature. First, as previously discussed, the child's age at trauma exposure likely has important implications for their capacity for growth and prosocial development. Given the cumulative nature of development (Raeff, 2011; Sroufe, 1979), as well as the marked plasticity of biological, regulatory, and behavioral systems, particularly in early development (Bjorklund & Ellis, 2014), the age at which an individual is first exposed to adversity may have dramatic consequences for later development (Sroufe et al., 2010). Future studies should report and clearly discuss the implications of the timing of trauma exposure and its relation to developmental outcomes generally, and prosocial behavior in particular.

Second, the child's age at the time of the prosocial assessment may have multifaceted impacts on the obtained relations. Younger children are less able to engage in certain prosocial behaviors, such as donating blood or helping someone lift something heavy. Likewise, prosocial behavior serves different goals across the lifespan, such as forming positive peer relationships in childhood, establishing a moral identity in adolescence, or caring for younger generations and building a legacy in middle and older adulthood (Erikson, 1994; Lay & Hoppmann, 2015). As discussed earlier, the amount of elapsed time between the trauma exposure and the measurement of prosocial behavior opens possibilities for intervening life experiences that can enhance or undermine prosocial behavior. For example, many people seek therapy to cope with traumatic

childhood experiences, which, in turn, can promote prosocial behavior (Jackson, 1999). At the same time, however, the risk for subsequent adversity exposure can increase with prior exposure, which may influence the probability of prosocial behavioral expression in as yet undetermined ways (Van der Kolk, 1989). It is important to consider that chronological time has different meaning across the lifespan, such that the span of a year in toddlerhood may carry more weight than the span of a year in adulthood. Thus, there are likely to be differences in apparent relations between adversity and prosocial behavior as a function of the age(s) at which prosocial behavior is assessed.

Third, the developmental history of the individual leading up to the point of trauma exposure has potentially meaningful ramifications for their behavior following trauma exposure. Given the special significance of early life experiences (Sroufe et al., 2010), especially for building and maintaining core views of the self, others, and the world (Bowlby et al., 1989), individuals with relatively positive early childhood experiences may be more inclined toward prosocial responses to adverse life experiences than those with negative early childhood experiences. For example, positive caregiver-child relationships and parenting practices not only promote prosocial behavior (Pastorelli et al., 2016), but may also serve as a mechanism for healing following an adverse life experience (Gewirtz et al., 2008). Thus, individuals with relatively positive developmental histories may have an easier time integrating their adverse experience into their life history. In turn, the capacity for coherent meaning making about one's adverse experiences may, as Vollhardt (2009) suggests, lead to elevated levels of prosocial behavioral expression. By the same token, individuals with more negative life histories

may be less likely to engage in prosocial behaviors following an adverse life event, as suggested by evidence that children with hostile rearing experiences tend to engage in less prosocial behavior than their peers (Padilla-Walker et al., 2016; Romano et al., 2005) and suffer more severe psychological consequences as a result of adverse life events (Williamson et al., 2017). Importantly, studies that account for developmental history necessitate within-person designs that follow participants prior to, during, and following trauma exposure to capture a complete picture of factors influencing their response.

Contextual moderators. Future research will benefit from efforts to include other contextual factors that may influence the observed association between childhood interpersonal trauma and prosocial behavior. First, gender may have important implications both for the incidence and experience of childhood interpersonal trauma and for subsequent prosocial behavior. Gender is an oft-cited influence on expressions of prosocial behavior and may qualify the nature or magnitude of relations between childhood interpersonal trauma and prosocial outcomes. Several investigations find higher rates of prosocial behavior in women (Skoe et al., 2002) and girls (Hastings et al., 2007; Veenstra et al., 2008). Moreover, some evidence points to gender differences in the relations between trauma exposure and developmental outcomes. For example, though rates of childhood maltreatment do not differ by gender (Moody et al., 2018), meta-analytic evidence suggests associations between maltreatment and psychopathology may be stronger for girls than for boys (Gallo et al., 2018). In turn, these psychological symptoms may hinder girls' ability to engage in prosocial action. That said, many clinicians have noted heightened rates of prosocial action among female trauma survivors

(c.f., the rape crisis movement; Greensite, 2009). Socialization factors may promote increased prosocial action in the wake of trauma among girls and women, because they are socialized toward providing community and emotional support, and/or among boys and men, because they are socialized toward helping and heroism (Basu et al., 2017; Van der Graaff et al., 2018). Although most studies in this meta-analysis reported the gender of participants, few provided statistics broken down by gender. Thus, I was unable to test the moderating effect of child gender on relations between childhood interpersonal trauma and prosocial behavior.

As noted earlier, trauma, prosocial behavior, and their association may differ across socioeconomic groups. Studies examining prosocial behavior across groups defined by socioeconomic status (SES) have yielded mixed findings, with some suggesting that higher SES individuals engage in more prosocial behavior (Benenson et al., 2007; Lichter et al., 2002), and others finding that lower SES individuals are more prosocial (Chen et al., 2013; Piff et al., 2010). A robust body of evidence demonstrates that individuals from lower SES backgrounds are at heightened risk for experiencing childhood interpersonal trauma (Kim & Drake, 2018; Zilberstein, 2016). Disproportionate exposure to negative life events amidst limited resources (e.g., less access to mental health services; González, 2005) may render lower SES children less able to engage in prosocial behavior following traumatic events. At the same time, however, lower SES groups may be better able to empathize with other individuals who are facing adversity, and, thus, may be more likely to act in ways to support them (Piff et al., 2010). Alternately, individuals from higher SES backgrounds have more resources

and may be more likely to engage in prosocial behavior because they face comparatively fewer barriers to do so. Several studies reported overall mean levels of SES, but, as with gender, did not report separate statistics across these groups which prohibited the evaluation of the moderating impact of SES in this meta-analysis.

Finally, the intended target of the prosocial action assessed may have meaningful implications for outcomes. Traumatic experiences destabilize psychosocial equilibria, which may activate evolutionary motivations toward preservation of the ingroup. Thus, childhood interpersonal trauma may enhance tendencies toward prosocial behavior, but only as directed toward specific targets (Bernhard et al., 2006). For example, in a study of young adults, Maner and Gailliot (2007) found that participants expressed greater empathic concern and willingness to help kin members through an imagined emergency (e.g., an unexpected eviction) than strangers. The propensity to help ingroup members can also extend beyond kinship ties. For example, children are more likely to help members of their own ethnic-racial (Weller & Hansen Lagattuta, 2013) and gender (Weller & Lagattuta, 2014) groups. This may be particularly relevant in the family system. For example, children who are in the same maltreating family may behave more prosocially toward one another, but less prosocially toward outsiders. Indeed, thematic evidence suggests that siblings from maltreating families often report putting themselves in danger to protect each other from abuse (Katz & Hamama, 2018).

Conclusions and Implications

Interpersonal trauma is a major risk facing children today, with over 3.5 million child welfare cases investigated in 2018 (Administration for Children and Families,

2020). Moreover, evidence suggests that nearly 20% of children experience bullying (Lessne & Yanez, 2016), and children in general are at a high and increasing risk for violence exposure relative to other age groups (Klaus & Rennison, 2002; Stein et al., 2003). Childhood interpersonal trauma has demonstrably deleterious effects on children's multidomain adjustment (Jackson et al., 2016; Jaffee & Gallop, 2007; McLaughlin & Lambert, 2017). Given the high incidence of trauma exposure, it is important to identify developmental and contextual factors that may promote or undermine growth following traumatic experiences.

The overall negative effect of childhood interpersonal trauma on prosocial behavior revealed in this meta-analysis counters the appealing, yet problematic, assumption that "whatever doesn't kill you makes you stronger" (Seery et al., 2010). Indeed, no subgroup examined in these moderation analyses yielded a positive effect of childhood interpersonal trauma exposure on prosocial behavior. This suggests that childhood interpersonal trauma does not promote prosocial outcomes, but rather undermines them to varying degrees.

Significant moderation effects across subgroups evaluated in this meta-analysis illuminate potential areas for future intervention efforts to – at a minimum – mitigate the harm caused by childhood interpersonal trauma. First, the relatively stronger associations in younger samples highlights the importance of addressing trauma exposure in young children when negative behavioral effects may be most pronounced. These findings likewise support the examination of individual differences in the effects of childhood trauma on prosocial development to further elucidate which groups are at greatest risk for

maladaptation. Second, the nonsignificant effect of childhood interpersonal trauma on prosocial behavior in studies outside the U.S. points to potential strengths afforded by collectivist values, which may reduce the resultant harm of traumatic experiences through communal coping and broad support networks (Kuo, 2013), though more culturally sensitive research is needed to fully clarify this association. Further, if research can identify how and why some individuals respond to trauma with fierce motivation to prevent future suffering and help others cope, we may illuminate (and potentially enhance) important avenues by which cycles of abuse end.

The ABS model is, perhaps unsurprisingly, given its origins in social psychology, markedly non-developmental. Indeed, the term "altruism *born* of suffering" implies that prosocial behavior is (at least sometimes) created by suffering, and this idea neglects the importance of development in supporting or thwarting prosocial responses to adversity. Development is a cumulative process of adaptation to and engagement with the environment. Thus, development is coherent, and adaptation reflects the expression of probabilistic associations across time (Sroufe, 1979). In this way, no behavioral expression is *born* of any single experience, and, as such, traumatic experiences in childhood and beyond are not likely to create entirely new behavioral patterns. The destabilizing nature of traumatic events instead offers a marked opportunity for change. The direction, magnitude, and organization of that change will be informed by the individual's experiences prior to the traumatic event and their capacity to integrate the traumatic experience into their broader lived experience. This process of integration carries with it the possibility of growth, maladaptation, and everything in between. Thus,

altruism is never born of suffering per se, but rather reflects the quality of *reorganization* following suffering, which is itself influenced by the developmental organizations that antedate it.

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