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Effects of Parental Acceptance-Rejection on Children's Internalizing and Externalizing Behaviors: A Longitudinal, Multicultural Study

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Conflicts of Interest/Competing Interests

The authors declare no financial or non-financial conflicts of interest.

Ethics Approval & Informed Consent Statement

We obtained written consent for parents and participants over age 18 and assent (for children under age 18) as appropriate. All procedures performed in our study involving human participants were in accordance with the ethical standards of the institutional and/or national research committees at respective sites and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The Duke University IRB approved the entire data collection, and local institutional IRBs approved data collection at each site.

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Abstract

Background: Grounded in interpersonal acceptance-rejection theory, this study assessed children’s (N=1,315) perceptions of maternal and paternal acceptance-rejection in nine countries (China, Colombia, Italy, Jordan, Kenya, the Philippines, Sweden, Thailand, and the United States) as predictors of children’s externalizing and internalizing behaviors across ages 7-14 years.

Methods: Parenting behaviors were measured using children’s reports on the Parental Acceptance-Rejection Questionnaire. Child externalizing and internalizing behaviors were measured using mother, father, and child reports on the Achenbach System of Empirically-Based Assessment.

Results: Using a multilevel modeling framework, we found that in cultures where both maternal and paternal indifference/neglect scores were higher than average–compared to other cultures –children’s internalizing problems were more persistent. At the *within-culture* level, all four forms of maternal and paternal rejection (i.e., coldness/lack of affection, hostility/aggression, indifference/neglect, and undifferentiated rejection) were independently associated with both externalizing and internalizing problems across ages 7-14 even after controlling for child gender, parent education, and each of the four forms of parental rejection.

Conclusions: Results demonstrate that the effects of perceived parental acceptance-rejection are panculturally similar.

Keywords

parental acceptance-rejection; internalizing; externalizing; multicultural; longitudinal

Many decades of research on different styles of parenting have shown that parental warmth (acceptance and rejection) and behavioral control are two quintessential dimensions of parenting, though they are by no means the only important forms of parental behavior. For example, in their early reviews of parent-child relationships, Peterson and Becker (1965) and others (e.g., Maccoby & Martin, 1983; Martin, 1975) commented on the developmental salience of parental acceptance-rejection and behavioral control—though they sometimes used different terms such as parental warmth, love, and hostility, or parental discipline, permissiveness, and strictness. Baumrind's (1971) conceptual model of parenting prototypes —including the concepts of authoritative (warm and firm control), authoritarian (rejecting and restrictive control), permissive (warm but lax control), and rejecting/neglecting is arguably the best-known of all parenting models. It has been incorporated into the research of a great many investigators internationally. Her parenting prototypes have also generated more controversy than any other parenting model--especially her conclusion that the authoritative style of parenting produces the most competent and healthy youth. Increasingly, doubt is growing whether the authoritative style is necessarily associated with optimal developmental outcomes. Baumrind's (1972) own early work among African American youth raised questions about this conclusion. Additionally, questions have been raised about the conclusion by many other researchers internationally, including Chao (1994), Garcia and Garcia (2009, 2010), Garcia et al. (2019), and Kim and Rohner (2002), among others.

Interpersonal acceptance-rejection theory (IPARTheory), on which this study is grounded, is in agreement with Baumrind's view that parental warmth (acceptance-rejection) and behavioral control are two primary forms of parenting having long-term implications for lifespan development. Unlike Baumrind's typological approach, however—where discrete categories of parenting are emphasized—IPARTheory focuses exclusively on the developmental implications of parental warmth (acceptance-rejection) and to a lesser extent on behavioral control as two semi-autonomous dimensions of parenting. Moreover, IPARTheory attempts to identify whether parental acceptance-rejection is responsible for optimal developmental outcomes across cultures in ways that Baumrind's discrete categories may not be (Rohner & Lansford, 2017). Contemporary parenting researchers support this shift from examining categories or styles of parenting to examining parenting dimensions. For instance, in a review of developments in the study of parenting, Smetana (2017) concludes that the field has shifted from focusing on parenting styles to parenting dimensions (such as the warmth dimension in IPARTheory) and to understanding cultural contexts of parenting, which is consistent with the idea of testing the generalizability of different aspects of parenting in relation to child outcomes around the world.

IPARTheory is an evidence-based theory of socialization and lifespan development that attempts to explain major consequences, causes, and other correlates of interpersonal (especially parental) acceptance and rejection worldwide (Rohner, 1986, 2004, 2020).

The present study draws from the theory's personality subtheory (Rohner, 2020), which postulates that (1) over the course of shared biocultural evolution, humans everywhere have developed the enduring, biologically-based emotional need for positive response from the people most important to them, especially parents in childhood. The theory also postulates that (2) children the world over—regardless of differences in culture, gender, race, and other such defining conditions—understand themselves to be cared-about (accepted) or not cared-about (rejected) in the same four ways described below. Finally, the theory postulates that (3) children everywhere tend to respond in the same seven to 10 ways that include internalizing and externalizing behaviors when they experience themselves to be rejected by their parents or other attachment figures.

As construed in IPARTheory (Rohner, 2020), parental acceptance and rejection form the warmth dimension of parenting. This dimension is composed of four expressions of parental caring or lack of caring: (1) warmth/affection as an expression of acceptance, or coldness/lack of affection as an expression of rejection, (2) hostility/aggression, (3) indifference/neglect, and (4) undifferentiated rejection. Undifferentiated rejection refers to children's feeling their mothers or fathers do not really love them, care about them, appreciate them, or that they devalue them in other ways without having objective indicators that the parents are aggressive, neglecting, or emotionally or physically hurtful.

IPARTheory, like other seminal theories, indicates that optimal child development occurs in the presence of adaptive and supportive parenting. The warmth dimension in IPARTheory is represented in a variety of ways in other theories of parenting. For example, Grusec's (2019) approach describes different domains of socialization, including protection (when parents act as caregivers and comfort children when they are distressed), reciprocity (an egalitarian aspect of the relationship in which parents and children are mutually responsive to one another), control (a hierarchical aspect of the relationship in which parents try to manage children's behaviors), guided learning (when parents teach children their values and ways of thinking), and group participation (when children learn by watching others and interacting with the larger community). Parents may convey warmth, hostility, indifference, or undifferentiated rejection in each of these domains (e.g., by protecting the child or not, by attending to children's needs for reciprocity in the relationship or not). We review existing evidence for the effects of each of the four expressions of parent acceptance-rejection on child psychological adjustment (including externalizing and internalizing behaviors).

Warmth/Affection and Child Psychological Adjustment

Several meta-analyses (Khaleque, 2013; Khaleque & Ali, 2017; Pinquart, 2017a; Pinquart, 2017b) and longitudinal studies (Lansford et al., 2018; Rothenberg et al., 2020a; Rothenberg et al., 2020b; Rothenberg et al., 2020c) have demonstrated that greater parent warmth and affection is associated with healthier child psychological adjustment. One meta-analysis based explicitly on IPARTheory found that both maternal (mean weighted effect size of r = .31) and paternal (mean weighted effect size of r = .34) warmth was positively associated with greater child psychological adjustment (including less hostility, greater independence, more positive self-esteem, and self-adequacy, greater emotional responsiveness, greater emotional stability, and a more positive worldview) in a sample of 12,087 children (Mage =

12 years old) from 16 countries (Khaleque, 2013. Similarly, other meta-analyses examining associations between warmth and child externalizing behavior (in over 1,000,000 children; Pinquart, 2017a) and internalizing behavior (in over 700,000 children; Pinquart, 2017b) found that greater warmth predicted less externalizing and internalizing problems both contemporaneously and when measured an average of approximately 3 years later.

Longitudinal associations between greater warmth and more adaptive child functioning have also been found in other studies investigating the current sample. Greater parent warmth at age 9 predicted less child externalizing behavior at age 10 (including aggression and rule-breaking) even after controlling for previous levels of externalizing behavior (Lansford et al., 2018; Rothenberg et al., 2020c) in all 12 cultural groups studied. When mothers and fathers were examined separately, the effect of father warmth at child age 9 persisted even after controlling for normative differences in warmth across the 12 cultural groups studied (Rothenberg et al., 2020a). A similar pan-cultural pattern emerged for internalizing behaviors. Greater parent warmth at ages 8 and 9 predicted fewer internalizing behaviors (including child withdrawn, depressed, anxious, and somatic behaviors) at ages 9 and 10 (Lansford et al., 2018; Rothenberg et al., 2020b). Therefore, both meta-analytic and longitudinal studies appear to indicate that higher parent warmth is associated with better child psychological adjustment, and lower child externalizing and internalizing problems across a wide range of cultures. Additionally, results appear to indicate that father warmth is just as, if not more, important in promoting health child psychological adjustment as mother warmth (Khaleque & Ali, 2017; Rothenberg et al., 2020a).

Hostility/Aggression and Child Psychological Adjustment

As with parent warmth, several meta-analyses (Khaleque, 2017; Pinquart 2017a; Pinquart, 2017b) and longitudinal investigations (Lansford et al., 2005; Lansford et al., 2014) have demonstrated that greater parent hostility and aggression is associated with deleterious child psychological outcomes. Another meta-analysis derived from IPARTheory found that both maternal (mean weighted effect size of $r = .46$) and paternal (mean weighted effect size of $r = .42$) hostility/aggression were positively associated with child psychological maladjustment in a sample of 13,406 children from 16 countries (Mage = 12 years old, range = 9 to 18), and was positively associated with child hostility and aggression, dependence, negative self-esteem, negative self-adequacy, emotional unresponsiveness, emotional instability, and negative worldview (Khaleque, 2017). Similarly, other meta-analyses examining associations between aspects of parent hostility and aggression (including harsh control and psychological control) and child externalizing behavior (in over 1,000,000 children; Pinquart, 2017a) and internalizing behavior (in over 700,000 children; Pinquart, 2017b) found that greater hostility and aggression predicted more externalizing and internalizing problems both contemporaneously and when measured an average of approximately 3 years later.

Cross-cultural longitudinal studies have largely examined associations between a physical manifestation of parent hostility and aggression (i.e., corporal punishment) and child adjustment in cultures around the world (e.g., Lansford et al., 2005). These investigations find that, though magnitude of effects may differ based on how normative corporal

punishment is in a particular culture, overall greater parent use of corporal punishment when children were between 8-10 predicted greater child externalizing problems (including aggression) and internalizing problems (including anxiety) up to two years later pan-culturally (Lansford et al., 2005; Lansford et al., 2014). Furthermore, these pan-cultural effects persist regardless of how "mild" such corporal punishment is, regardless of how justified parents feel in providing it (Lansford et al., 2021; Alampay et al., 2017). Notably, these studies investigated 10 of the 12 cultural samples used in the present investigation from Colombia, Italy, Jordan, Kenya, the Philippines, Thailand, and the United States. In sum, current meta-analytic and longitudinal work indicates that hostile/aggressive parent behavior is associated with pan-culturally deleterious effects on child mental health (Khaleque, 2017).

Indifference/Neglect and Child Psychological Adjustment

IPART theorists have also conducted meta-analyses to investigate associations between greater parental indifference/neglect and worse child psychological outcomes (Khaleque, 2015; Khaleque & Ali, 2017). Meta-analytic results indicated that both maternal (mean weighted effect size of $r = .50$) and paternal (mean weighted effect size of $r = .50$) indifference/neglect was positively associated with child psychological maladjustment in a sample of 11,705 children from 15 countries (*M*age = 12 years old, range = 9 to 18; Khaleque, 2015). Similar to parent hostility/aggression, parent indifference/neglect was also positively associated with child hostility and aggression, dependence, negative self-esteem, negative self-adequacy, emotional unresponsiveness, emotional instability, and negative worldview in this pan-cultural sample (Khaleque, 2015). Similarly, other meta-analyses examining child externalizing behavior (in over 1,000,000 children; Pinquart, 2017a) and internalizing behavior (in over 700,000 children; Pinquart, 2017b) also found cross-sectional associations between more neglectful parenting styles and higher externalizing and internalizing problems. Notably, unlike parent warmth and hostility/aggression, no longitudinal studies to our knowledge examine the extent to which parent indifference/neglect predicts child psychological adjustment across cultures, and this has been identified as a critical future direction for IPART work (Khaleque & Ali, 2017). Nevertheless, existing evidence indicates that parent indifference/neglect is associated with contemporaneous child adjustment pan-culturally, and to a similar extent in both mothers and fathers (Khaleque, 2015).

Undifferentiated Rejection and Child Psychological Adjustment

The most recent meta-analysis published by IPART theorists investigates the association between parent undifferentiated rejection and child psychological adjustment (Ali, Khatun, Khaleque, & Rohner, 2019). Meta-analytic results indicated that both maternal (mean weighted effect size of $r = .48$) and paternal (mean weighted effect size of $r = .35$) undifferentiated rejection was negatively associated with child psychological maladjustment (including greater aggression, dependence, negative self-esteem, emotion dysregulation, and negative world view) in a sample of 16,983 children from 17 countries (*M*age = 15 years old, range = 6 to 19; Ali et al., 2019). Notably, though both mother and father undifferentiated rejection behaviors were deleterious, mother undifferentiated rejection had

a stronger effect on child psychological maladjustment. As with parent indifference/neglect, no longitudinal studies have yet investigated the prospective deleterious effects of parent undifferentiated rejection on subsequent child mental health. Therefore, existing evidence indicates pan-cultural cross-sectional associations between parent undifferentiated rejection and child psychological maladjustment (Ali et al., 2019).

In sum, twelve meta-analyses (Khaleque & Ali, 2017) representing an aggregate of nearly 150,000 children and adults on every continent except Antarctica support the conclusion that perceived parental (both maternal and paternal) acceptance-rejection are significantly associated panculturally with children's and adults' psychological adjustment, as specified in IPARTheory's personality subtheory. None of the studies contained in these meta-analyses, however, used a longitudinal, multilevel modeling framework similar to the one employed here. In fact, longitudinal research of any kind has been limited in six decades of international research drawing from IPARTheory. Therefore, little of that research has been able to show that parental rejection actually *precedes* the development of children's psychological and behavioral problems. The vast majority of IPARTheory studies completed so far are cross-sectional in nature. They show that parental rejection is associated--but not necessarily causally--with children's psychological and behavioral problems. On the rare occasions when these processes have been examined longitudinally, results demonstrate that greater parent rejection is associated with next-year increases in child externalizing and internalizing behavior and decreased school performance, social competence, and prosocial behavior (e.g., Putnick et al., 2015). However, longitudinal studies investigating overall parent rejection have not examined associations with child mental health in samples where the average age is greater than 10, have not examined unique effects of each of the four expressions of parent acceptance and rejection, and have not examined effects between and within cultures simultaneously.

The current study examines these associations longitudinally across ages 7-14. This age range is especially important to examine because a child's ability to perspective take, and therefore begin to report accurately on both their own externalizing and internalizing difficulties and their parents' behavior, begins to emerge around age 7 (Achenbach & Rescorla, 2001). Therefore, examining this age range allows us to measure mother, father, and child reports of all three constructs. Additionally, examining this age range is important because 50% of those with an adult mental disorder exhibit problems by early adolescence, and the median age of onset for many externalizing and internalizing disorders is age 11 (Kessler et al., 2005). Consequently, inferences drawn about parenting and child mental health between ages 7-14 may have especially important prevention implications.

Objectives of the Current Study

A major objective of the current study is to correct the longitudinal deficiency in IPARTheory research. That is, this study provides longitudinal (prospective) data about the effects of parenting on child development over the span of ages 7 through 14 years. Those few longitudinal studies that now exist in IPARTheory generally only examine the effects of parenting from one year to the next (e.g., Rothenberg et al., 2020a; Putnick et al., 2015).

They do not examine the way in which parenting can have lasting developmental effects over multiple years.

This study also provides more nuanced tests of two of the theory's central postulates. First, this study examines the effects of each form of perceived acceptance-rejection on children's psychological and behavioral adjustment, while simultaneously controlling for the effects of the other three forms of acceptance-rejection. Thus, it is possible to estimate the *unique* effects over time of each form of rejection individually. This question is important to examine because each of the parenting behaviors examined by IPARTheory responds to unique parenting interventions. For instance, parent warmth can be promoted by having parents provide positive attention and labeled praise to their children (McMahon & Forehand, 2003). Parent hostility/aggression can be diminished by encouraging parents and children to engage in emotion regulation exercises to break coercive cycles of interaction (McMahon & Forehand, 2003; Rothenberg et al., 2019a). Parent indifference/neglect and perceived undifferentiated rejection can be diminished by prompting daily, child-led play exercises between parent and child (Gardner, Montgomery, & Knerr, 2016; McMahon & Foreheand, 2003). Therefore, it is vital to identify what IPARTheory behaviors are uniquely associated with child outcomes panculturally so that world health organizations with finite resources select parsimonious parenting interventions that most promote child health (Lansford et al., 2021).

Second, the study provides the opportunity to test for possible *between-culture* versus *within-culture* similarities and differences in parenting, and in children's adjustment and behavior. Parsing the effects of parenting behaviors at each of these levels is vitally important given evidence that within-culture variations in parenting are often larger than between-culture differences (Deater-Deckard et al., 2018). Doing so will also aid in understanding how cultural norms around acceptance-rejection are associated with trajectories of child adjustment. IPARTheory researchers find approximately 25% of the world's cultures tend to be mildly or severely rejecting (Rohner & Lansford, 2017). Given the universally deleterious effects of rejecting parenting behaviors on child mental health found in IPART meta-analyses (Khaleque & Ali, 2017), we expected that cultures higher in rejecting behaviors (i.e., coldness/lack of warmth, hostility/aggression, indifference/neglect, and undifferentiated rejection) would have adolescents with higher externalizing and internalizing problems (Rohner & Lansford, 2017). Moreover, given that within-culture variations in parenting are larger than between-culture differences (Deater-Deckard et al., 2018), we expected that, even after controlling for differences between cultures, parents higher than their cultures' average on parent rejecting behaviors would have children who experienced worse externalizing and internalizing behaviors.

Method

Participants

At the time of initial recruitment into the project, participants included 1,315 children ($M_{\text{AgeAtRecruitment}}$ = 8.29 years, SD = .66, 51% girls), their mothers (N = 1,275, M = 36.93 years, SD = 6.27), and their fathers (N = 1,032, M = 39.96 years, SD = 6.52; Table 1). Families were recruited from 12 ethnocultural groups across nine countries

including: Shanghai, China (n = 123); Medellín, Colombia (n = 108); Naples (n = 102) and Rome (n = 111), Italy; Zarqa, Jordan (n = 114); Kisumu, Kenya (n = 100); Manila, the Philippines (n = 120); Trollhättan/Vänersborg, Sweden (n = 106); Chiang Mai, Thailand (n = 120); and Durham, NC, the United States (n = 110 White, n = 102 Black, n = 99 Latinx). These ethnocultural groups were selected because they vary across a number of important dimensions. For example, included countries rank between 8th and 147th out of 189 countries on the Human Development Index (UNDP, 2019), a composite indicator of a country's status with respect to health, education, and income.

Participants were recruited through schools serving students from diverse socioeconomic backgrounds (including both public and private schools) in all nine countries. Response rates varied from 24% to nearly 100%, primarily because of differences in the schools' roles in recruiting. For example after the schools agreed to participate in China, parents did as well. Interviews were conducted in these schools, leading to participation rates of nearly 100%. After schools agreed to help with recruitment in the U.S., however, our team was allowed to leave letters explaining the study for teachers to send home. If parents were willing to have their families participate, they returned a letter to the school indicating their willingness to do so. Our team then contacted them directly. This approach yielded a 24% response rate. We are unable to estimate response rates for all sites, however, because in some cases there is no record of the number of students who were potentially invited to participate versus those who actually agreed to participate due to the differing ways in which schools informed parents about the study (e.g., letters, email, or verbal announcement).

Most parents lived together (82%), and were biological parents (97%) of the sample children; nonresidential and non-biological parents also provided data. Sampling included families from each country's majority ethnic group, except in Kenya where we sampled Luo (13% of the population), and in the U.S., where we sampled equal proportions of Black, Latinx, and White families. SES and parental education were sampled in proportions representative of each recruitment area. For example, Colombia has six well-defined socioeconomic strata; we sampled families from each of the six strata in proportion to their representation in these strata in the city of Medellín (our data collection site). Data for the study were collected four times over the span of five years of annual data collection. In the final year, 83% of the original sample provided data. Attrited participants (i.e., those families who were part of the original 1315 family sample that agreed to start the study, but stopped participating in the study before the most recent wave of data collection described in this manuscript) did not differ in child gender or maternal education, nor did they differ on any parenting variable or child externalizing/internalizing behavior at first assessment. Fathers in families that attrited were significantly better educated ($M_{Attrited}$ = 13.54 years of education vs $M_{Retained}$ = 12.78 years of education). Thus, paternal education was included in all analyses as a covariate, and maximum likelihood estimation procedures were used to account for missing data (Curran & Bauer, 2011).

Procedures

Measures were administered in the predominant language of each culture, following forward- and back-translation. Translators were fluent in English and the target language.

Measures were administered in Mandarin Chinese (China), Spanish (Colombia and the United States), Italian (Italy), Arabic (Jordan), Dholuo (Kenya), Filipino (the Philippines), Swedish (Sweden), Thai (Thailand), and English (the United States and the Philippines). Interviews were conducted by trained research assistants. Interviews lasted two hours and were conducted after parent consent and child assent were provided. Participants were given the choice of completing the measures in writing or orally (with rating scales provided as visual aids). Families were given modest monetary compensation for participating or were compensated in other ways (e.g., donations to children's schools) deemed appropriate by local Institutional Review Boards (IRBs) at universities in each of the nine participating countries, which approved the study procedures.

Measures

Internal consistency for all study variables was strong ($\alpha \geq .75$; Table 2).

Demographics.—Child gender and number of years of maternal and paternal education at the beginning of the study were included in all analyses as covariates.

Maternal and Paternal parenting behaviors.—At the first wave of data collection, when children were age 8, on average, children completed the Parental Acceptance-Rejection Questionnaire-Short Form (PARQ-SF; Rohner, 2005) to assess their perceptions of maternal and paternal warmth/affection (or coldness/lack of affection), hostility/aggression, indifference/neglect, and undifferentiated rejection. Three major systematic reviews and meta-analyses have established that this measure demonstrates excellent reliability ($\alpha = .89$; Khaleque & Rohner, 2002), convergent and discriminant validity (Rohner & Khaleque, 2005), and factorial invariance (Khaleque & Ali, 2017; Rohner & Khaleque, 2005) in over 60 countries worldwide. Reliability, validity, and measurement invariance have been replicated in several longitudinal studies using this measure (e.g., Lansford et al., 2018; Putnick et al., 2015; Rothenberg et al., 2020d), as well as in several meta-analytic reviews (see, for example, Khaleque & Rohner, 2002).

The PARQ-SF is a 24-item questionnaire on which children report their perceptions of parenting behaviors on a 4-point scale that was slightly modified from the original. The original response scale was 1 = *almost never true*, 2 = *rarely true*, 3 = *sometimes true, or* 4 = *almost always true*, but we modified the scale to 1 = *never or almost never*, 2 = *once a month*, 3 = *once a week, or* 4 = *every day* to tie the response options to specific time periods rather than leaving it to individuals to interpret how frequently "rarely" or "sometimes" might be. Eight items assess parental warmth/affection (e.g., "my mother[father] makes me feel wanted and needed") reverse-scored to indicate coldness/lack of affection; six items assess hostility/aggression (e.g., "my mother[father] goes out of her[his] way to hurt my feelings"), six items assess indifference/neglect (e.g., "my mother[father] pays no attention to me"); and, four items assess undifferentiated rejection (e.g., "my mother[father] does not really love me"). Items on each subscale were averaged. Average maternal and paternal item-scores across the entire sample and within each culture are reported in Table 2.

Children's externalizing and internalizing problems.—At waves 1, 2, 3, and 5 of annual data collection (when children were ages 8, 9, 10, and 12, on average), mothers and fathers completed the Child Behavior Checklist, and children completed the Youth Self-Report (Achenbach & Rescorla, 2001) to measure externalizing and internalizing problems. Participants were asked to rate how true each item was of the child during the last six months (0 = *not true*, 1 = *somewhat or sometimes true*, 2 = *very or often true*). Following measure scoring guidelines (Achenbach & Rescorla, 2001), the *Externalizing Behavior* scale was summed across 33 items for parent reports and 30 items for child reports and assessed behaviors such as lying, truancy, vandalism, bullying, drug and alcohol use, disobedience, tantrums, sudden mood change, and physical violence. The *Internalizing Behavior* scale was summed across 31 items for parent reports and 29 items for child reports and assessed behaviors and emotions such as loneliness, self-consciousness, nervousness, sadness, and anxiety. Once separate sum scores were generated for the child, mother, and father reports, these three sum scores were averaged together to generate a mean sum score that ranged from 0-66 for externalizing behavior and 0-62 for internalizing behavior.

The Achenbach measures are among the most widely used instruments in international research and in clinics around the world, with translations in over 100 languages and strong, well-documented reliability, as well as convergent and discriminant validity (e.g., Achenbach & Rescorla, 2006). Measurement invariance and consistency of the factor structure have been demonstrated in several cultural groups within and between countries (e.g., Ivanova et al., 2007; Yarnell et al., 2013). These strong psychometric properties have been replicated and reported in previous publications using these scales in the present sample (e.g., Rothenberg et al., 2020a; Rothenberg et al., Rothenberg et al., 2020d). Higher scores indicated greater externalizing or internalizing problems. Average scores across cultures are reported in Table 2.

Analysis Plan

Multilevel Modeling (MLM) via the PROC MIXED procedure in SAS 9.4 was used to evaluate study objectives. Data were restructured to analyze trajectories by child age (which made it possible to estimate trajectories from ages 7-14), with age nested within persons nested within cultures. Restricted maximum likelihood estimation procedures were used to adjust parameter estimates for data missingness (Curran & Bauer, 2011). Unconditional growth trajectories were estimated to examine how children's externalizing and internalizing behaviors changed over time. We compared four functional forms of growth (intercept-only differences, linear, quadratic, cubic) to determine which trajectory-form best estimated changes in externalizing or internalizing behaviors across development. The best-fitting among these nested models according to chi-square likelihood ratio tests was retained.

Then we investigated the effects of the four forms of parental acceptance-rejection on children's externalizing and internalizing trajectories. We included child gender and parent education as covariates in each model. Four models were computed. Two examined the effects of maternal and paternal parenting on children's *externalizing* trajectories, and two examined the effects of maternal and paternal parenting on children's *internalizing* trajectories. Following best practice recommendations (Curran & Bauer, 2011), the

parenting variables were *grand-mean centered* to predict the between-culture effects on externalizing and internalizing behavior and *person-mean centered* to predict within-culture, family-level effects on child trajectories.

Additionally, in initial models, at both the between-culture and within-culture, family-level, effects of parent variables on both the starting point (i.e., intercept) and rate of change (i.e., slope) in child externalizing and internalizing behavior were examined. Following MLM best practices, we examined parent effects on rates of change by investigating the significance of parenting variable-by-slope (parenting variable*age) and parenting-variable-by-quadratic effect (parenting variable*age^2) interactions (Curran & Bauer, 2011). If a quadratic slope effect interaction term was significant, then it was retained in the model. If the quadratic slope effect interaction term was significant, then the linear slope interaction term was included in the model regardless of whether the linear interaction term was significant, because lower-order (e.g., linear) interaction terms need to be included in the model if higher order (i.e., quadratic) interaction terms are significant, to ensure that that model estimates appropriately. However, in line with expert recommendations (e.g., Curran & Bauer, 2011) if the quadratic (parenting variable*age^2) interaction term was non-significant, it was dropped from the model, to ensure that the lower order effects could be properly interpreted. Using the same logical process, linear slope effect interaction terms (parenting variable*age) were retained in the model if they were found to be significant, but dropped from the model if they were not significant (unless the quadratic term was significant, as mentioned above), to ensure that the parenting variable main effects could be properly interpreted and to ensure that the model was as parsimonious as possible. This is why, in the final models depicted in Table 3, some interaction effects (e.g., Indifference/Neglect x Age in the within-culture effects portion of the father parenting model predicting externalizing behavior) are reported as “N/A.” These interaction terms were probed, found to be non-significant, and therefore removed from the model to ensure that other effects (e.g., the main within-culture effect of indifference/neglect in the same father/externalizing model) could be interpreted properly.

If any interaction terms involving between-culture predictors were significant, then they were probed by examining differences in cultural trajectories of the child behavior (i.e., externalizing or internalizing behavior) at one standard deviation below average, average, and one standard deviation above average scores on the parenting variable in question. Examining interaction effects in this way documented how trajectories of child externalizing and internalizing behavior changed due to between-culture differences in parenting variables. If any interaction terms involving within-culture predictors were significant, then the time-specific effects of the parenting variable on the child externalizing or internalizing behavior at each of the ages examined in the current study (i.e.,7-14) were probed to determine at what ages, exactly, the parenting variable had its strongest effects. Both of these methods of probing interaction terms at the between- and within-culture level align with best practices in the MLM literature (e.g., Curran & Bauer, 2011). Estimate statements in SAS 9.4 were utilized to probe both interactions.

Results

Correlations among study variables are in Appendix Table 1. The four domains of parenting behaviors were moderately correlated in both mothers (r = .24-.52, p < .05) and fathers (r = .44-.62, p < .05), indicating that the four parenting domains are distinct enough from one another to serve as independent predictors of child outcomes.

Parenting Behaviors Predicting Children's Externalizing Behavior Trajectories

Initial random-effects ANOVAs indicated that 85.79% of the variance in children's externalizing behaviors was due to within-culture differences (p < .05), justifying examination of both between- and within-culture effects (Curran & Bauer, 2011).

Next, we determined the trajectory form that best estimated changes in children's externalizing behaviors across ages. A quadratic trajectory model fit the data significantly better than a linear model (χ^2 [2] = 21.8, p < .01). Adding a cubic term did not significantly improve model fit beyond that of the quadratic model. The quadratic model indicated that the average child in the sample scored 9.83 on the externalizing scale at age 7. Furthermore, this score initially decreased across ages by 0.71 points, but the decrease slowed over time at a rate of 0.09 points each year. Random effects analyses indicated that the starting point of this trajectory differed both between cultures (p = .01) and between families within a culture (p < .01). Additionally, significant residual variance remained (p = .01). This indicated that even after accounting for the effects of child age, significant variance remained unexplained both between and within cultures. Therefore, we examined the effects of both maternal and paternal accepting-rejecting behaviors on this trajectory between and within cultures in separate models, as follows

Maternal Behaviors Predicting Trajectories in Children's Externalizing Behavior.—None of the parenting behaviors (i.e., maternal coldness/lack of warmth/affection, hostility/aggression, indifference/neglect, undifferentiated rejection) significantly predicted differences between cultures in children's externalizing trajectories (Table 3). However, maternal education did significantly predict differences between cultures in rates of change in child externalizing behaviors. Specifically, children in cultures one standard deviation above average in maternal education, had low externalizing scores at age 7 ($M_{\text{Age7Score}}$ = 9.93, p < .01), more rapid linear decreases in externalizing behaviors across ages 7-14 (at a rate of .78 points per year, p < .01), and greater slowing in those decreases over time (at a rate of .12 points per year, p < .01). In contrast, children in cultures one standard deviation below average maternal education, had high externalizing scores at age 7 ($M_{\text{Age7Score}}$ = 16.34, p < .01), and no significant changes in those scores over time.

At the within-culture level, three of the four maternal parenting behaviors were significantly associated with externalizing problems. Specifically, mothers who were higher than average in their culture on hostility/aggression and lack of warmth/affection had children who demonstrated more externalizing behaviors at age 7. Moreover, these effects did not significantly change by age and therefore remained stable over time. Additionally, mothers who were higher than average in their culture on undifferentiated rejection also had children who demonstrated more externalizing behaviors at age 7, but these effects did change

over time (see significant Undifferentiated Rejection x Age and Undifferentiated Rejection * Age^2 interaction terms in the Within Culture effects portion of Table 3). Therefore, using SAS 9.4 ESTIMATE statements to examine the age-specific within-culture effects of maternal undifferentiated rejection on child externalizing behavior, we found that the aforementioned association was significant at ages 7-8 and 12-14, but not ages 9-11. Child gender and maternal education were also significant predictors of externalizing behavior at age 7, with boys on average scoring 0.79 points higher than girls, and with children of better educated mothers reporting fewer externalizing symptoms. Both of these effects remained constant across ages 7-14. All parenting effects remained significant even after controlling for child gender and maternal education.

Paternal Behaviors Predicting Trajectories in Child Externalizing Behavior.— None of the parenting behaviors or paternal education significantly predicted differences between cultures in children's externalizing trajectories over time. However all four paternal parenting behaviors were significantly associated in all cultures with children's externalizing problems (Table 3). Specifically, fathers who were higher than average in their culture on coldness/lack of affection, hostility/aggression, indifference/neglect, and undifferentiated rejection had children who demonstrated more externalizing behaviors at age 7. Moreover, none of these effects significantly changed by age. These deleterious effects remained constant across ages 7-14. Child gender and paternal education were also significant predictors of externalizing behavior at age 7, with boys on average scoring 0.90 points higher than girls, and with each additional year of paternal education predicting a .09 point decrease in externalizing symptom scores. Both of these effects remained constant across ages 7-14. Notably, all parenting effects remained significant even after controlling for child gender and paternal education.

Parenting Behaviors Predicting Trajectories in Child Internalizing Behavior

Initial random-effects ANOVAs indicated that 82.81% of the variance in children's internalizing behaviors was due to within-culture differences ($p < .05$), justifying examination of both between- and within-culture effects (Curran & Bauer, 2011).

Next, we determined the trajectory form that best captured changes in children's internalizing behaviors across ages. A quadratic trajectory model fit the data best, as it fit significantly better than a linear model (χ^2 [2] = 52.9, $p < .01$). Adding a cubic term did not significantly improve the model-fit beyond that of the quadratic model. The quadratic model indicated that the average child in the sample scored an 11.71 on the internalizing scale at age 7. Furthermore, this score decreased across ages 7-14 by 1.28 points each year at first, but the decrease slowed over time at a rate of 0.15 points each year. Random effects analyses indicated that the intercept of this trajectory differed both between cultures ($p = .01$) and between families within a specific culture ($p < .01$). Additionally, random effects analyses indicated that slope of the trajectory also differed between families within a specific culture ($p < .01$). Moreover, significant residual variance remained ($p = .01$). This indicated that even after accounting for the effects of age, significant variance remained unexplained both between and within cultures. Therefore, we examined the effects of both maternal

and paternal accepting-rejecting behaviors on this trajectory between and within cultures in separate models, as follows.

Maternal Behaviors Predicting Trajectories in Children's Internalizing Behavior.—Coldness/lack of affection, hostility/aggression, undifferentiated rejection, and maternal education did not significantly predict differences between cultures in internalizing trajectories (Table 3). However, maternal indifference/neglect did significantly predict differences between cultures in rates of change (but not at the starting point) in child internalizing behaviors. Children in cultures one standard deviation above average in maternal indifference/neglect initially reported age 7 internalizing symptoms that were approximately the same as those one standard deviation below average in maternal indifference/neglect. However, internalizing symptoms decreased less quickly over ages 7-14 in cultures where maternal indifference/neglect scores were 1 *SD* above average, compared to average or below average.

At the within-culture level, three of the maternal behaviors were significantly associated with internalizing problems (Table 3). Mothers who were higher than average in their culture on hostility/aggression had children who demonstrated more internalizing behaviors at age 7. Moreover, this effect endured at the same level across ages 7-14. Second, mothers who were higher than average in their culture on indifference/neglect or undifferentiated rejection also had children who experienced more internalizing behaviors at age 7. But these effects did change over time (Table 1). Indifference/neglect effects grew over time. At age 7 a 1-point increase in maternal indifference/neglect above cultural average predicted a .87 point increase in child internalizing scores. This effect grew to 1.73 points by age 11 and 2.26 points by age 14.

Change over time in undifferentiated rejection was more complicated. From ages 7-9, maternal behavior that was greater-than- culture-average in undifferentiated rejection was associated with significantly higher child internalizing scores. From ages 10-12, there was no significant association between maternal undifferentiated rejection and child internalizing scores. But at ages 13 and 14 the effect reversed. That is, higher-than-culture - average levels of maternal undifferentiated rejection predicted *lower* child internalizing scores.

Child gender and maternal education were also significant predictors of internalizing behaviors at age 7, with girls on average scoring 0.76 points higher than boys. Children of mothers with higher than culture-typical levels of education reported fewer internalizing symptoms. Both of these effects remained constant across ages 7-14. All parenting effects remained significant even after controlling for child gender and maternal education.

Paternal Behaviors Predicting Trajectories in Children's Internalizing Behavior.—Coldness/lack of affection, hostility/aggression, undifferentiated rejection, and paternal education did not significantly predict differences between cultures in internalizing trajectories (Table 3). However, as in the maternal model, indifference/neglect did significantly predict differences between cultures in rates of change (but not at the starting point) in children's internalizing behaviors. Specifically, children in cultures one standard deviation above average in paternal indifference/neglect, initially reported age-7

internalizing symptoms that were approximately the same as those one standard deviation below average in father indifference/neglect. However, internalizing symptoms decreased at a slower rate over time in cultures with paternal indifference/neglect scores that were 1 *SD* above average. For instance, by age 14, child internalizing scores were 16.88 in cultures with 1 *SD* above average indifference/neglect, versus a 15.03 score in cultures with average levels of father indifference/neglect and a 13.16 score in cultures with 1 *SD* below average father neglect/indifference. Thus, cultures with high levels of paternal indifference/neglect reported less rapid decreases in child internalizing behaviors across ages 7-14 than did those with average or below average levels of paternal indifference/neglect.

At the within-culture level, all four paternal behaviors were significantly associated with children's internalizing problems (Table 3). Specifically, fathers who were higher than average in their culture on lack of warmth/affection, hostility/aggression, indifference/neglect, and undifferentiated rejection had children who demonstrated more internalizing behaviors at age 7. Moreover, these effects did not significantly change across ages 7-14. Additionally, fathers who were higher than average in their culture on education had children who demonstrated fewer internalizing behaviors at age 7. But this effect decreased over time, such that by age 9 the protective effect of parental education was no longer significant. Child gender was also a significant predictor of internalizing behavior at age 7, with girls on average scoring 0.72 points higher than boys. This effect remained constant across ages 7-14. All parenting effects remained significant even after controlling for child gender and paternal education.

Summary

Between-culture differences in maternal and paternal parenting behaviors did not predict child externalizing behaviors. However, between-culture differences in both maternal and paternal indifference/neglect were associated with child internalizing behaviors. In cultures where maternal and paternal indifference/neglect scores were higher than average compared to other cultures, child internalizing problems decreased less quickly over adolescence.

At the within-culture level, all four parenting behaviors were *uniquely* associated with children's externalizing and internalizing behaviors for both mothers and fathers. Children had higher externalizing and internalizing problems if at least one parent was perceived to be higher-than-average within their culture on coldness/lack of affection, hostility/aggression, indifference/neglect, and undifferentiated rejection. This was true even after controlling for the effects of each of the other three forms of parenting, child age, child gender, and parents' education. Most of the time, these effects were constant over the full age-range, 7-14 years. The only exceptions were a few associations pertaining to perceived maternal rejection. Specifically, the effects of maternal (but not paternal) indifference/neglect grew over time in that mothers who were perceived to be higher than typical in levels of indifference/neglect within any given culture had children who experienced increasing levels of internalizing problems over time. Additionally, higher than typical levels of maternal (but not paternal) undifferentiated rejection within a culture predicted higher child externalizing behaviors from ages 7-8, and internalizing symptoms from ages 7-9. But these deleterious effects tended to diminish after these ages.

Discussion

Our first objective was to examine whether measures of parental acceptance-rejection predicted longitudinal changes in externalizing and internalizing behaviors. This objective was met. If at least one parent's coldness/lack of affection, hostility/aggression, indifference/neglect, and undifferentiated rejection was higher than average within their culture, children reported higher externalizing and internalizing problems across most ages between 7-14. Our second objective was also met: Each of the aforementioned within-culture parenting effects endured even after the other parenting behaviors, and between-culture differences in parenting, were controlled. Moreover, we discovered that of the parenting behaviors examined, only maternal and paternal indifference/neglect demonstrated effects between cultures. In cultures where maternal and paternal indifference/neglect scores were higher than average compared to other cultures, child internalizing problems decreased less quickly over adolescence. These findings highlight several insights about pancultural parenting, between-culture differences, and future parenting interventions.

Pancultural Effects of IPARTheory's Parenting Behaviors

For the most part, if parents were higher than average within their culture on coldness/lack of affection, hostility/aggression, indifference/neglect, or undifferentiated rejection then their children had higher externalizing and internalizing problems across ages 7-14. These within-culture effects persisted even after between-culture differences were accounted for, and therefore were pancultural. Each parenting behavior may have demonstrated pan-cultural effects because they each may be driven by different underlying mechanisms that persist across cultures.

The finding that parent hostility/aggression demonstrated deleterious longitudinal effects on children's externalizing and internalizing problems aligns with Khaleque's (2016) cross-sectional meta-analysis. However, the current work builds on this meta-analysis by demonstrating the lasting nature of these effects across ontogeny. These lasting pancultural effects may emerge because the coercive process of interaction by which parent hostility and aggression leads to children's externalizing and internalizing behavior may act similarly across cultures. Coercive processes of interaction were first identified in Patterson's seminal Coercion Theory (Patterson, 1982). A coercive process of interaction occurs when one person in a parent-child dyad begins to argue or yell to get their way, and then the other person increases their own hostility/aggression to match or exceed that of the first person (McMahon & Forehand, 2003; Patterson, 1982). This mutual hostility and aggression intensifies until one person "gets their way" and/or the other person withdraws (McMahon & Forehand, 2003; Patterson, 1982). Such hostility/aggression is then reinforced because it leads to goal obtainment within the interaction (McMahon & Forehand, 2003; Patterson, 1982). Children then manifest such hostility/aggression by enacting hostile, aggressive externalizing behaviors to get their way over ontogeny and, eventually, in their own families (Rothenberg et al., 2019a). Alternatively, if the child is the person who consistently withdraws from the coercive interaction, such withdrawal may be immediately reinforcing (because it avoids parent hostility/aggression), but it also leads to lack of social support, security, greater loneliness, and, eventually, internalizing problems that persist over time

(Rothenberg et al., 2019d). Thus, the coercive interactional process that reinforces parent hostility and aggression also begets long-term child externalizing and internalizing problems (Patterson, 1982; Rothenberg et al., 2019a). Moreover, there is emerging evidence that this coercive process emerges in many different cultures, because behavioral parent training interventions that target such coercive cycles of interaction are effective across cultures (Gardner et al., 2016).

The finding that parents with higher than average indifference/neglect within their culture have children with higher levels of externalizing behavior (for father indifference/neglect) and internalizing behavior (for both parents' indifference/neglect) across ages 7-14 builds on similar cross-sectional meta-analytic findings (Khaleque, 2015). IPARTheory posits that all humans have a biological need to feel supported and attached to their caregivers, and such secure attachment leads to greater trust and emotional security about the world (Rohner, 2020; Rohner & Lansford, 2017). Parental indifference/neglect leads children to view their caregivers as unreliable, and therefore makes it difficult for children to establish healthy trust and emotional security (Rohner & Lansford, 2017). This emotional insecurity leads to difficulties with regulating emotions that make it harder for children to both control prepotent aggressive responses (e.g., externalizing behaviors; Rothenberg, 2020c) and to cope when faced with anxiety and depression (e.g., internalizing symptoms; Rothenberg et al., 2020b). Thus, it may be that parental indifference/neglect levies pancultural effects on children's adjustment because it denies children the universal need for emotional security that subsequently leads to emotion dysregulation and externalizing and internalizing problems (Rohner & Lansford, 2017).

Our findings that parental coldness/lack of affection is associated with greater externalizing problems, and lack of father warmth is associated with greater internalizing problems over time expands results from Khaleque's (2013) cross-sectional meta-analysis longitudinally. In addition to building a sense of secure child attachment that drives adaptive functioning, parent demonstration of warmth also provides children with positive attention for appropriate behavior (Forehand & McMahon, 2003). When children are not provided with such attention for appropriate behavior, they seek attention by turning to inappropriate behavior such as arguing, yelling, or tantruming in bids for attention (i.e., externalizing behavior) or withdrawing from interactions (i.e., internalizing behavior; McMahon & Forehand, 2003). Therefore, lack of parental warmth may lead to enduring externalizing and internalizing behaviors because such behaviors are reinforced from an early age when they successfully obtain parental attention, and subsequently crystallize across the lifecourse (Rothenberg, 2019a). Evidence for the pancultural effects of this positive attention mechanism comes from a meta-analysis of parent training programs that teach parental warmth skills. These programs build parent positive attention and are effective in improving children's behavior in many cultures around the world (Gardner et al., 2016).

If parents are higher than average in undifferentiated rejection for their culture, their children have greater externalizing problems (for both parents) and internalizing problems (for fathers) over most ages between 7-14. These longitudinal findings align with cross-sectional meta-analyses (e.g., Ali et al., 2019). These pancultural findings may emerge because, even more than other measures, undifferentiated rejection relies on child perceptions of rejection.

That is, undifferentiated rejection by definition can occur even if parents display no outward evidence of coldness/lack of affection, hostility/aggression, or indifference/neglect (Ali et al., 2019). These results indicate that children's subjective experience of their parents clearly matters for child mental health, consistent with sociology's Thomas Theorem (Thomas & Thomas, 1928; "If men define situations as real, they are real in their consequences."). Therefore, it may be that, regardless of cultural differences in parenting, once children reach the point of feeling rejected by their parents, they are likely to experience psychological disruption due to perceived loss of emotional security and parent as an attachment figure (Rohner & Lansford, 2017).

In summary, all four IPARTheory's warmth dimension parenting behaviors may demonstrate within-culture effects even after controlling for between-culture differences because the mechanisms by which they facilitate their deleterious effects (i.e., children's perceptions of rejection, coercive cycles of interaction, loss of emotional security and attachment, and lack of positive attention for appropriate behavior) are each pan-cultural in nature.

Indifference/Neglect Between-culture Effects

Interestingly, only indifference/neglect demonstrated distinct cultural differences in effects. In cultures where parental indifference/neglect scores were higher than average compared to other cultures, child internalizing problems decreased less quickly over adolescence. We have several hypotheses about why indifference/neglect was the only strong predictor of difference between cultures. First, other parenting behaviors, like warmth and hostility/aggression, can be demonstrated in numerous ways across cultures. For instance, in some cultures warmth is more highly verbal in nature (like in the United States, where praise and compliments are common), whereas in other cultures, warmth may be expressed by parent provision of gifts, meals, or via other physical manifestations (Lansford et al., 2018). Similarly, in some cultures certain physical or verbal acts (e.g., calling someone "fat," kissing someone on the cheek) might be considered aggressive acts, whereas in others they might be symbols of greeting or affection (Lansford et al., 2018; Rohner & Lansford, 2017). High variability in these differential expressions makes it less likely that differences across cultures in these expressions would predict differences in child mental health, because what is considered a parental act of aggression in one culture may be considered an act of warmth in another culture. In other words, disaggregating between- and within-person effects helps distinguish what exactly the "pancultural effect of warmth" posited by IPARTheory is and is not. It is less likely that the between-culture *expressions* or *forms* of warmth are completely similar across cultures. It is more likely that the *functions* of IPARTheory's parenting behaviors demonstrate pan-cultural effects (Bornstein, 1995; Rothenberg et al., 2020a). That is, once a particular form or expression is agreed upon within a cultural context to convey "warmth" or "hostility/aggression," it is likely to have effects on children's psychological functioning that are similar pan-culturally. Different *expressions* of IPARTheory's parenting behaviors account for the relative lack of between-culture effects. Similar *functions* of IPARTheory's parenting behaviors account for relative pan-cultural ubiquity of within-culture effects.

Yet, this explanation still does not account for why parent indifference/neglect demonstrates between-culture differences. We posit that indifference/neglect emerges as a rare significant predictor between cultures because its *expression* or *form* is more universal across cultures. In almost all cultures "high neglect" means withdrawal of parent attention, and parental inability to meet child emotional or physical needs (Rohner & Lansford, 2017). Therefore, it is less likely that a "neglectful" behavior in one culture is a "warm" behavior in another. Similarities in form across cultures makes cross-cultural comparison of the effects of indifference/neglect possible. However, this hypothesis is admittedly speculative and needs formal testing in future observational studies that directly compare neglectful behaviors across cultures.

Suggestions for Future Intervention Based on Between- and Within-culture Findings

Our within-culture analyses suggest that deployment of behavioral parent training programs that increase attachment, reduce coercive cycles of interaction, promote positive attention, and reduce child perceptions of rejection may be helpful across all cultures. These programs teach parents positive attention and appropriate discipline strategies using live, in-vivo coaching, and have been demonstrated to work in numerous cultures around the world with minimal adaptation (Gardner et al., 2016). Among these behavioral parent training programs that have been demonstrated in many different contemporary cultural contexts to promote accepting parenting behaviors, decrease rejecting parenting behaviors, and decrease child externalizing and internalizing behavior are Parent-Child Interaction Therapy (Eyberg & Funderburk, 2011; Garcia et al., 2021; Rothenberg et al., 2019b), Helping the Noncompliant Child (McMahon & Forehand, 2003; Rothenberg et al., 2020e), and the Triple P Positive Parenting Program (Sanders, 2012). In fact, these parenting programs have demonstrated such promising cross-cultural effects that the United Nations has started pilot programs to test behavioral parent training interventions based on these programs' principles in high-need areas (UNICEF, 2017). It is our hope that our findings provide additional empirical evidence that promotes the broader roll-out of these interventions around the world.

Our between-culture results indicate that it might be useful to identify nations that demonstrate higher levels of indifference/neglect. In those nations, it may be appropriate to pair parent training programs with broader public health initiatives to reduce indifference/neglect. For instance, provision of job training, nutritional, or early-childhood nursing programs can meet family financial and material needs, and reduce parent neglect (UNICEF, 2017). Public health messaging and marketing efforts could also be created to encourage parents to engage in simple but effective positive parenting behaviors. For instance, parental play with children for 5 minutes a day is a strategy proven to reduce child abuse and neglect (McMahon & Forehand, 2003). In sum, when studies disaggregate between- and within-culture effects, opportunities to pair national-level (e.g., marketing campaigns) and individual family-level (e.g., behavioral parent training programs) interventions are made possible.

Support for Other Aspects of IPARTheory and Other Variables of Interest

Although not related to focal objectives, other study findings replicate or expand on prior IPARTheory studies. For instance, prior IPARTheory meta-analyses found that father

parenting matters just as much as mother parenting in predicting child outcomes (Rohner & Lansford, 2017). Our study supports this assertion, as both father and mother parenting predicted externalizing and internalizing trajectories over time. Additionally, father and mother indifference/neglect were both significant between-culture predictors of these trajectories. The mechanisms by which these paternal and maternal effects emerge may differ. For instance if fathers are perceived to have higher interpersonal power and prestige in the family hierarchy, the effects of paternal acceptance and rejection on child development may be especially pronounced (Rohner & Lansford, 2017). In contrast, in the majority of families, mothers provide more frequent daily caregiving, and therefore their acceptance-rejection behaviors may be especially likely to influence child development (Rothenberg et al., 2020a). Future studies are needed to directly examine the roles that daily interaction and family hierarchy have in the associations between parent acceptance-rejection and child externalizing and internalizing problems to empirically test these hypotheses.

Between- and within-culture differences in parent education also predict differences in children's externalizing and internalizing trajectories. At the between-culture level, cultures with mothers who are more highly educated than average also demonstrate greater decreases in children's externalizing problems over time. At the within-culture level, mothers and fathers who are more educated than average in their culture had children who demonstrated fewer externalizing and internalizing problems over time. Greater education provides more employment opportunities, greater ability to access parenting information and information about child development (through increased literacy; Bornstein, Cote, Haynes, Hahn, & Park, 2010; Bornstein, Yu, & Putnick, 2020), and greater access to healthcare among numerous other benefits (Conger & Donnellan, 2007). Each of these accrued advantages makes it less likely that children will develop externalizing and internalizing problems.

Limitations and Future Directions

Although this study has numerous strengths, it also has several limitations that should be acknowledged. First, even though it is longitudinal in nature, it cannot be presumed to be causal because numerous confounding variables such as shared genotypes could account for some of the variation in both maladaptive parenting and in child internalizing and externalizing behaviors. Future studies can determine the relative contribution of genetic and environmental effects.

Second, the study focuses on children's perceptions of parenting, which can—in some instances—misrepresent true parenting behaviors. However, a large body of cross-sectional IPARTheory research consistently shows that children's reports of parental acceptance-rejection are typically better predictors of children's mental health status than are parents' reports–especially in families where children perceive one or both parents to be rejecting (Rohner, 2020). Future longitudinal studies could explore both children's and parents' perceptions of parental acceptance-rejection.

Finally, we caution that participants in this study are not necessarily fully representative of the sociocultural populations of which they are a part. Specifically, the samples drawn were representative of the proximate geographic areas in which they resided (e.g., Rome), but not the nations in which they resided (e.g., Italy). Additionally and relatedly, although the

overall sample size was large (over 1300 participants), the sample sizes drawn from each of the 12 cultural groups were somewhat small (approximately 100 families from each cultural group). Generalizability of study findings would be enhanced with larger samples. Thus, conclusions drawn in this work should not be generalized to the national level until they are confirmed in future studies based on nationally representative samples.

Conclusions

Despite these limitations, the current study also has numerous strengths. For example, the study is the first of its kind to show that parental (maternal as well as paternal) coldness/lack of affection, hostility/aggression, indifference/neglect, and undifferentiated rejection each has a *unique* (i.e., independent) effect on children's internalizing and externalizing problems over time and within a wide range of sociocultural populations internationally. The study is also the first of its kind to disaggregate between-culture versus within-culture effects. In doing this, the study reveals that children across all ages (7-14 years) experience more internalizing problems in those cultures where they perceive significant maternal and paternal indifference/neglect than in cultures where parents are not perceived to be indifferent or neglecting.

Taken together, the findings of this research have significant public health implications in that they provide essential information for national and international health organizations that are interested in intervening on behalf of children's mental health. These findings suggest that behavioral parent-training programs that reduce parental hostility/aggression, indifference/neglect, and undifferentiated rejection, and that increase parental warmth/affection may be beneficial over long periods of time. These findings also suggest public health interventions that identify societies high in indifference/neglect and intervene to change societal norms around these parenting behaviors could prove effective. It is also worth noting that the results of this multicultural, longitudinal study provide further support for IPARTheory's central postulate specifying that humans everywhere—across all nations, ethnicities, races, genders, and other such defining conditions—have the enduring, probably biologically-based emotional need for positive response (love, caring, acceptance) from the people most important to them, especially from parents in childhood.

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Appendix

Appendix Table 1

Zero-Order Correlations Among Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Mother Coldness	1												
2. Mother Hostility/ Aggression	**.42***	1											
3. Mother Indifference/ Neglect	**.41***	**.52***	1										
4. Mother Undifferentiated Rejection	**.24***	**.48***	**.39***	1									
5. Father Coldness	**.60***	**.34***	**.34***	**.21***	1								
6. Father Hostility/ Aggression	**.34***	**.66***	**.42***	**.37***	**.44***	1							
7. Father Indifference/ Neglect	**.32***	**.42***	**.59***	**.33***	**.46***	**.51***	1						
8. Father Undifferentiated Rejection	**.29***	**.49***	**.39***	**.46***	**.40***	**.62***	**.51***	1					
9. Child Externalizing Behavior	**.13***	**.26***	**.22***	**.26***	**.17***	**.26***	**.23***	**.26***	1				
10. Child Internalizing Behavior	**.13***	**.25***	**.28***	**.20***	**.15***	**.22***	**.25***	.24*	**.54***	1			
11. Child Gender	.01	**.03***	.02	**.04***	−.02	**.07***	.02	**.06***	**.08***	**−.07***	1		
12. Mother Education	**−.12***	**−.10***	**−.10***	**−.07***	**−.10***	**−.08***	**−.07***	**−.08***	**−.11***	**−.14***	.01	1	
13. Father Education	**−.08***	**−.07***	**−.07***	**−.06***	**−.07***	**−.07***	**−.04***	**−.09***	**−.12***	**−.15***	−.01	.72*	1

Note.

*p<.05, bolded items indicate p<.05. For Child Gender, 0 = Female, 1 = Male. Correlations reported here are at the "time-point" unit or level of analysis, instead of the person level of analysis. For instance, our study includes 4738 reports of adolescent internalizing problems across all study ages from 1315 children. Therefore, the correlations reported here are correlations between those 4738 reports of adolescent internalizing behavior and other study variables (as opposed to the 1315 person-level reports of internalizing behavior). This ensures the correlation table reflects the level of analyses on which the rest of our study was conducted.

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Highlights

- Studied effects of parent coldness, hostility, neglect, and rejection on age 7-14 mental health in 12 cultural groups.
- In cultures where mother and father neglect was higher than average, children's internalizing problems persisted.
- Higher than culturally-average levels of the 4 parenting behaviors predicted higher externalizing/internalizing problems.
- These between- and within-culture parenting effects persisted controlling for child gender and parent education.
- Results demonstrate that the effects of perceived parental acceptance-rejection are panculturally similar.

Table 1

Descriptive Statistics for Demographics by Cultural Group

Group	Mother's Age at Recruitment	Mother's Education	Father's Age at Recruitment	Father's Education	Child Gender (% girls)	Child's Age at Recruitment (years)
Shanghai, China (*n* = 123)	35.42 (3.24)	13.55 (2.88)	37.98 (3.88)	14.00 (3.07)	52	8.51 (.34)
Medellín, Colombia (*n* = 108)	37.03 (7.80)	10.64 (5.60)	40.75 (8.78)	9.91 (5.32)	56	8.22 (.49)
Naples, Italy (*n* = 102)	38.14 (5.62)	10.14 (4.35)	41.17 (5.67)	10.73 (4.16)	52	8.31 (.49)
Rome, Italy (*n* = 111)	40.24 (5.09)	14.14 (4.07)	43.52 (5.25)	13.75 (4.09)	50	8.34 (.77)
Zarqa, Jordan (*n* = 114)	36.43 (6.03)	13.13 (2.18)	41.77 (5.50)	13.24 (3.16)	47	8.47 (.50)
Kisumu, Kenya (*n* = 100)	32.45 (6.21)	10.69 (3.65)	39.28 (6.87)	12.29 (3.60)	60	8.45 (.65)
Manila, Philippines (*n* = 120)	37.936 (6.19)	13.61 (4.07)	40.21 (7.09)	13.90 (3.84)	49	8.03 (.35)
Trollhättan, Sweden (*n* = 106)	38.07 (4.82)	13.92 (2.48)	40.45 (5.68)	13.73 (2.98)	48	7.77 (.42)
Chiang Mai, Thailand (*n* = 120)	37.58 (6.18)	12.30 (4.76)	39.95 (7.28)	12.76 (4.22)	49	7.71 (.63)
U.S. Black (*n* = 102)	36.90 (8.41)	13.65 (2.36)	38.84 (8.02)	13.45 (2.66)	52	8.60 (.61)
U.S. White (*n* = 110)	40.95 (6.33)	16.95 (2.84)	42.21 (5.81)	17.29 (3.04)	42	8.63 (.57)
U.S. Latino (*n* = 99)	32.86 (5.59)	9.83 (4.08)	35.09 (7.05)	9.61 (3.90)	54	8.58 (.74)

Note. Mother's and father's education = mean number of years of education completed. All numbers in parentheses are standard deviations.

Table 2

Descriptive Statistics for Substantive Measures by Cultural Group

Group	Coldness/Lack of Warmth (1-4 Scale)		Hostility/Aggression (1-4 Scale		Indifference/Neglect (1-4 Scale)		Undifferentiated Rejection (1-4 Scale)		Externalizing Behavior (0-66 Scale)	Internalizing Behavior (0-62 Scale)
	Mother α = .89	Father α = .91	Mother α = .86	Father α = .85	Mother α = .80	Father α = .81	Mother α = .76	Father α = .75	α = .79	α = .78
Whole Sample (*n* = 1315)	1.37 (.55)	1.46 (.62)	1.37 (.47)	1.33 (.46)	1.53 (.52)	1.56 (.55)	1.28 (.45)	1.24 (.43)	8.84 (5.25)	9.67 (5.24)
Shanghai, China (*n* = 123)	1.66 (.59)	1.77 (.70)	1.63 (.53)	1.56 (.57)	1.54 (.50)	1.59 (.55)	1.29 (.47)	1.25 (.47)	7.00 (3.97)	7.60 (4.55)
Medellín, Colombia (*n* = 108)	1.27 (.52)	1.30 (.53)	1.28 (.46)	1.22 (.39)	1.42 (.52)	1.45 (.52)	1.20 (.44)	1.17 (.35)	11.24 (5.52)	13.40 (5.90)
Naples, Italy (*n* = 102)	1.27 (.46)	1.43 (.59)	1.31 (.36)	1.24 (.37)	1.48 (.52)	1.50 (.51)	1.17 (.32)	1.15 (.39)	10.13 (4.46)	11.25 (4.80)
Rome, Italy (*n* = 111)	1.35 (.51)	1.45 (.62)	1.28 (.34)	1.28 (.35)	1.43 (.49)	1.50 (.54)	1.15 (.31)	1.14 (.33)	9.34 (4.54)	10.09 (4.97)
Zarqa, Jordan (*n* = 114)	1.37 (.53)	1.54 (.63)	1.62 (.55)	1.55 (.56)	1.71 (.56)	1.77 (.60)	1.68 (.57)	1.61 (.58)	12.30 (6.51)	10.64 (5.16)
Kisumu, Kenya (*n* = 100)	1.70 (.66)	1.77 (.68)	1.65 (.47)	1.56 (.42)	1.75 (.50)	1.77 (.51)	1.43 (.50)	1.41 (.45)	8.52 (4.51)	8.97 (4.65)
Manila, Philippines (*n* = 120)	1.36 (.52)	1.43 (.56)	1.40 (.49)	1.34 (.50)	1.71 (.53)	1.74 (.61)	1.30 (.49)	1.24 (.46)	11.08 (5.58)	12.47 (5.04)
Trollhättan, Sweden (*n* = 106)	1.20 (.39)	1.22 (.44)	1.08 (.18)	1.08 (.21)	1.49 (.46)	1.53 (.52)	1.12 (.27)	1.10 (.26)	5.63 (3.31)	5.83 (3.44)
Chiang Mai, Thailand (*n* = 120)	1.63 (.65)	1.70 (.69)	1.57 (.53)	1.45 (.50)	1.56 (.50)	1.54 (.52)	1.38 (.50)	1.28 (.45)	8.50 (4.73)	10.30 (4.55)
U.S. Black (*n* = 102)	1.19 (.42)	1.27 (.51)	1.23 (.47)	1.17 (.42)	1.43 (.54)	1.39 (.51)	1.20 (.40)	1.16 (.41)	7.24 (5.29)	7.18 (4.68)
U.S. White (*n* = 110)	1.11 (.28)	1.15 (.35)	1.12 (.22)	1.11 (.22)	1.37 (.39)	1.37 (.40)	1.12 (.23)	1.07 (.18)	7.29 (4.46)	8.95 (4.82)
U.S. Latino (*n* = 99)	1.24 (.49)	1.27 (.51)	1.22 (.35)	1.18 (.33)	1.45 (.53)	1.43 (.50)	1.19 (.38)	1.14 (.34)	7.01 (4.38)	8.69 (4.77)

Note. All numbers in parentheses are standard deviations. α = Chronbach's Alpha, which measures internal consistency.

Table 3.

Results of Conditional Multilevel Models Predicting Child Externalizing and Internalizing Trajectories

	Predictors of Age 7-14 Child Externalizing Behavior Trajectory		**Predictors of Age 7-14 Child Internalizing Behavior Trajectory**	
	Mother Parenting Model *B* (*SE*)	**Father Parenting Model *B* (*SE*)**	**Mother Parenting Model *B* (*SE*)**	**Father Parenting Model *B* (*SE*)**
Intercept	**13.13 (1.53)** **	**14.46 (1.55)** **	**13.70 (1.64)** **	**18.61 (1.63)** **
Age (i.e., Slope Term)	**−0.55 (.13)** **	**−0.66 (.14)** **	**−0.89 (.16)** **	**−1.46 (.20)** **
Age^2 (i.e., Quadratic Term)	**0.08 (.02)** **	**0.08 (.02)** **	**0.11 (.02)** **	**0.13 (.02)** **
	Between Culture Effects			
Coldness/Lack of Affection	0.15 (.30)	0.08 (.35)	0.00 (.42)	−0.31 (0.46)
Hostility/Aggression	20.50 (12.92)	22.28 (23.25)	21.01 (19.19)	56.97 (31.14)
Indifference/Neglect	4.22 (7.70)	5.49 (8.05)	7.04 (11.78)	2.99 (10.33)
Indifference/Neglect x Age	N/A	N/A	**−2.70 (1.34)** *	−2.08 (1.25)
Indifference/Neglect x Age^2	N/A	N/A	**0.60 (.16)** **	**0.52 (.16)** **
Undifferentiated Rejection	−5.72 (10.10)	−4.80 (13.20)	−12.88 (15.01)	−22.02 (17.72)
Parent Education	−17.04 (9.53)	−16.85 (14.03)	−16.48 (14.09)	−36.96 (18.81)
Parent Education x Age	−1.21 (.66)	N/A	N/A	N/A
Parent Education x Age^2	**0.22 (.10)** *	N/A	N/A	N/A
	Within Culture Effects			
Coldness/Lack of Affection	**0.27 (.12)** *	**0.35 (.11)** **	0.09 (.45)	**0.37 (.12)** **
Hostility/Aggression	**0.86 (.17)** **	**0.59 (.18)** **	**1.26 (.16)** **	**0.55 (.19)** **
Indifference/Neglect	0.23 (.14)	**0.36 (.14)** **	**0.87 (0.25)** **	**0.93 (.14)** **
Indifference/Neglect *Age	N/A	N/A	**0.17 (.07)** *	N/A
Undifferentiated Rejection	**2.38 (.45)** **	**0.38 (.18)** *	**1.19 (0.30)** **	**1.04 (.18)** **
Undifferentiated Rejection x Age	**−1.27 (.31)** **	N/A	**−0.29 (.09)** **	N/A
Undifferentiated Rejection x Age^2	**0.18 (.05)** **	N/A	N/A	N/A
Parent Education	**−0.08 (.03)** **	**−0.09 (.03)** **	**−0.11 (.03)** **	**−0.21 (.04)** **

	Predictors of Age 7-14 Child Externalizing Behavior Trajectory		Predictors of Age 7-14 Child Internalizing Behavior Trajectory	
	Mother Parenting Model *B* (*SE*)	**Father Parenting Model *B* (*SE*)**	**Mother Parenting Model *B* (*SE*)**	**Father Parenting Model *B* (*SE*)**
Parent Education x Age	N/A	N/A	N/A	**0.03 (.01)** **
Child Gender	**0.79 (.22)** **	**0.90 (.23)** **	**−0.77 (.21)** **	**−0.72 (.22)** **

Note:

** $p \leq .01$

* $p \leq .05$. Significant parameters are also bolded for easier identification. Intercept indicates parents' score on parenting measure at age 7. Some parenting X age and parenting X age^2 slope terms are reported as "N/A" in some models but not others. This is because if a slope term was significant, it was kept in the model and reported. However, if a slope term was non-significant it was trimmed from the model in the interest of parsimony and to ensure other effects were interpreted correctly. Importantly, some parenting X age and parenting X age^2 slope terms were not significant in any model, and therefore trimmed from all models and not reported at all in the table. For instance, both the coldness/lack of affection and hostility/aggression slope terms were found to be non-significant at both the between-culture and within-culture level in every model examined. Therefore, those Hostility/Aggression X Age and Coldness/Lack of Affection X Age interaction terms are not shown in the table at all because they would take up needless space (i.e., every cell in their rows would read "N/A"). In other words, slope terms are listed as N/A in models where they are non-significant if those same terms are significant in other models. However, they are not listed at all if they were non-significant in all models, to save space.