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Examining Effects of Parent Warmth and Control on Internalizing Behavior Clusters from Age 8 to 12 in 12 Cultural Groups in Nine Countries

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Abstract

Background: Studies of U.S. and European samples demonstrate that parental warmth and behavioral control predict child internalizing behaviors and vice-versa. However, these patterns have not been researched in other cultures. This study examines associations between parent warmth and control and three child-reported internalizing behavior clusters to examine this question.

Methods: Data from 12 cultural groups in 9 countries were used to investigate prospective bidirectional associations between parental warmth and control, and three child-reported internalizing behavior types: withdrawn/depressed, anxious/depressed, and somatic problems. Multiple-group structural equation modeling was used to analyze associations in children followed from ages 8–12.

Results: Parent warmth and control effects were most pervasive on child-reported withdrawn/depressed problems, somewhat pervasive on anxious/depressed problems and least pervasive on somatic problems. Additionally, parental warmth, as opposed to control, was more consistently associated with child-reported internalizing problems across behavior clusters. Child internalizing behavior effects on parental warmth and control appeared ubiquitous across cultures, and behaviors, but limited to ages 8–10. Most effects were pancultural, but culture-specific effects emerged at ages 9–10 involving the associations between parent warmth and withdrawn/depressed and somatic behaviors.

Conclusions: Effects of parent warmth and control appear stronger on some types of child-reported internalizing behaviors. Associations are especially strong with regards to parental warmth across cultures, and culture-specific effects may be accounted for by cultural normativeness of parent warmth and child-reported somatic symptoms. Child internalizing behavior effects on subsequent parenting are common across cultures.

Keywords

warmth; control; internalizing behaviors; parenting; cross-cultural

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Parental warmth (i.e., acceptance, caring, and positive support for children; McKee, Colletti, Rakow, Jones, & Forehand, 2008) and parental behavioral control (i.e., parents' efforts to remain aware of, communicate clear expectations for, and redirect children's behavior; Lansford et al., 2018) are cornerstone behaviors in seminal theories linking parenting with child development (McKee et al., 2008). Indeed, myriad meta-analyses have identified lack of parental warmth and inappropriate behavioral control as robust predictors of the most common mental health problems in children and adolescents, including internalizing problems such as depression, anxiety, and somatic complaints (Merikangas, Nakamura, & Kessler, 2009). These investigations have found that low parental warmth and inappropriate behavioral control both prospectively predict subsequent internalizing behaviors experienced in childhood and adolescence (i.e., "parent effects"; Hipwell et al., 2008). However, elevated child internalizing behaviors also predict subsequent low parental warmth and inappropriate behavioral control (Pinquart, 2017) across ontogeny (i.e., "child effects"; Lansford et al., 2018). This work demonstrates that parent and child effects evoke one another in transacting fashion across development (Bornstein, 2015).

Yet, existing literature almost exclusively examines the transactional effects of parent warmth and control on child internalizing problems in US and European samples (Lansford et al., 2018). It is unknown whether effects generalize across cultures, and cross-cultural examination of these processes has been called for (Merikangas et al., 2009). Understanding the development of internalizing problems in diverse cultures is important because internalizing problems are the single largest contributor to young people's global burden of disease and suicide is one of three leading causes of adolescents' deaths worldwide (UNICEF, 2011).

Internalizing behaviors become more frequent in the transition from childhood to early adolescence (e.g., between ages 8 and 12) in cultures around the world (Avenevoli, Swendsen, He, Burstein, & Merikangas, 2015). Additionally, by age 8, children are able to accurately report on their own internalizing behaviors and consequently new insight can be gained about these internalizing behaviors from child self-reports that could not otherwise be revealed by reliance on parent/teacher reports that only identify observable internalizing behaviors (Garthe, Sullivan, & Kliewer, 2015). Therefore, the childhood-to-early adolescent transition may be an especially important period to investigate parent and child effects, because it capitalizes on children's emerging abilities to report on their own internal states, and because it is a period where emerging internalizing problems could be ameliorated by adaptive parenting in many cultures (UNICEF, 2011).

Our prior work highlights the importance of investigating parent and child effects in multiple cultures around the world (Lansford et al., 2018). When we examined associations between parent warmth and control and child internalizing behaviors in children ages 8–13 in the same 12 cultural groups examined currently, we did not find transacting effects. Rather, child effects of internalizing behaviors on subsequent parental warmth and control were ubiquitous across ages 8–13, but parent effects of warmth and behavioral control were rarer, and only emerged before age 10. According to these results, in many different cultures parenting effects did not endure into early adolescence (Lansford et al., 2018). These findings may be concerning, given that most gold-standard psychopharmacological and

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psychosocial treatments rely heavily on parental warmth and behavioral control to ensure treatment efficacy (Chorpita & Weisz, 2009). For example, parental warmth in the form of praise and support encourages adolescents to engage in effective pharmacological and cognitive-behavioral interventions for internalizing behaviors (Choprita & Weisz, 2009). Moreover, parental behavioral control in the form of scheduling time for treatment ensures that adolescents continue taking prescribed medication, attending treatment, and practicing evidence-based strategies regularly (Choprita & Weisz, 2009). Consequently, if parenting effects on child internalizing behaviors are indeed limited to pre-adolescence in diverse cultures, the possibility exists that treatments effective in US and European samples may be less effective in other cultures. Therefore, we need to explore why the same developmental transactions of warmth/control and child internalizing behaviors seen in Western samples are, thus far, unseen worldwide.

One explanation for the absence of transactions may be that existing cross-cultural investigations have examined internalizing behaviors in aggregate (e.g., all adolescent withdrawal, depression, anxiety, and somatic complaint behaviors are combined into a broad-band measure of internalizing behavior; Lansford et al., 2018). Yet, meta-analyses of Western samples find parent effects are greater in magnitude when associations between parent warmth/control and child depressive behaviors are examined, compared to child symptoms of anxiety (Pinquart, 2017), perhaps because parenting behaviors might more readily affect child mood than child fears or manifestations of anxiety (Pinquart, 2017). These differences could be masked if all internalizing behaviors are examined together. Moreover, given significant variability in parental expressions of warmth and control and adolescent endorsement of internalizing behavior clusters across cultures (Achenbach & Rescola, 2001), associations in parenting and child effects with regard to specific internalizing behavior clusters may vary differently from associations between parenting and broad-band measures of internalizing behaviors across cultures.

The present study examines parenting effects on specific internalizing behavior clusters to determine if transacting parent and child effects are indeed only specific to Western cultures, or are masked in other cultures due to the aforementioned aggregation issue. To do so, we investigate parent and child effects on three clusters of child-reported internalizing behaviors validated to guide clinical practice in over 100 cultures worldwide: the Withdrawn/depressed, Anxious/depressed, and Somatic behavior subscales of the Achenbach System of Empirically-Based Assessment (Achenbach & Rescorla, 2001). We examine associations between these behavior clusters and parent warmth and control over 4 years (child ages 8-to-12) in 12 different cultures with two objectives. First, we examine whether cross-cultural parent effects of warmth and control are more pervasive across development on some specific child-reported internalizing behavior clusters compared to others. Based on the aforementioned meta-analytic findings, we expect that parent effects might be stronger and more frequent on the Withdrawn/depressed symptom cluster. Second, we examine whether child effects of specific internalizing behavior clusters on parental warmth and control demonstrate ubiquity across time and culture. Given the strength and prevalence of child effects in our prior work, we expect child effects to do so.

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Method

Participants

Participants included 1,298 children (M = 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) at year 1 of 5 annual years (Supplemental Table S1). Families were recruited from 12 ethnic/cultural groups including: Shanghai, China (n = 121); Medellín, Colombia (n = 108); Naples (n = 100) and Rome (n = 103), Italy; Zarqa, Jordan (n = 114); Kisumu, Kenya (n = 100); Manila, Philippines (n = 120); Trollhättan/Vänersborg, Sweden (n = 101); Chiang Mai, Thailand (n = 120); and Durham, NC, United States (n = 111 White, n = 103 Black, n = 97 Latino). Participants were recruited through public and private schools to increase sample socioeconomic diversity and representativeness. Response rates varied primarily because of differences in schools' recruiting roles. For example, after United States schools agreed to participate, our team was allowed to leave letters explaining the study at the school to send home with students. If families were willing to participate, they returned the letter to the school and our team then contacted parents directly to interview them at a place they chose, yielding a 24% response rate. By contrast, in China once the schools agreed to participate, the parents agreed to participate as well, and interviews were conducted at the schools, leading to 99% participation rates. Unfortunately, we cannot estimate response rates for all sites because in some cases, there is no record of the number of students who were invited to participate. This is due to the differing ways in which schools informed parents about the study (e.g., verbal announcement versus paper letters).

Most parents lived together (82%) and were biological parents (97%); 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 (3rd largest ethnic group, 13% of population), and in the U.S., where we sampled equal proportions of White, Black, and Latino families. Socioeconomic status was sampled in proportions representative of each recruitment area. The present data were drawn from interviews during the first five study years. In year five, 82% of the original sample continued to provide data, and more than 75% of the original sample was retained in all but two sites: China (69%) and Sweden (64%). Both Chinese and Swedish, attrited participants did not differ from retained participants on any demographic or substantive variables. Additionally, across the whole sample, attrited participants did not differ from the original sample on any demographic variables or on baseline levels of any substantive study variable except for parental control. Attrited participants reported slightly lower parent control (M_{attrited} = 2.92, $M_{\text{non-attrited}}$ = 2.98; $t(1295) = 2.07$, $p = .04$).

Procedure

Measures were administered in the predominant language of each country, following forward- and back-translation. Interviews lasted 2 hours and were conducted after parent consent and child assent were given in participant-chosen locations. Participants chose whether to complete measures in writing or orally. Families were given modest monetary compensation for participating or compensated in other ways deemed appropriate by local IRBs.

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Measures

Demographics.—Child gender and number of years of mother and father education at child age 8 were included in analyses as covariates.

Parental warmth and control.—When children were ages 8–10 and 12, mothers, fathers, and children completed the Parental Acceptance-Rejection/Control Questionnaire-Short Form; Rohner, 2005). This measure is translated and used in at least 60 countries and has demonstrated good reliability and validity when used in the cultural groups and at the ages included in this study (Putnick et al., 2018). Each parent reported on their own warmth and control, and children used the same scales to provide their own ratings about both their mothers' and fathers' warmth and control. Eight items captured parental warmth (e.g., "parents say nice things to child"), and 5 items captured behavioral control (e.g., "parents insist child do exactly as told"). Behavior frequency was rated on a 4-point scale (1 = *almost never* to 4 = *every day*). The measure demonstrated strong internal consistency across reporters in the present sample (αs = .84–.89). We calculated time-specific family means (i.e., average of all child and parent reports) of parental warmth and control. The decision to combine reports to compute mean scores is supported by significant correlations among parent and child reports of parental warmth (*r*s = .21–.70, $p < .01$), and control (*r*s = .18–.62, $p < .01$) across all time points. Additionally, sensitivity analyses revealed that combining mother, father, and child reports best captured measures of parent warmth and control in our sample. These sensitivity analyses indicated that, AIC/BIC model fit measures were significantly lower, and therefore model fit was significantly better, when the combined mother, father, and child-reported measure of family-wide parenting was used, compared to child reports of parenting alone.

Child internalizing behaviors.—Children completed the Youth Self-Report Form (YSR) of the Child Behavior Checklist (Achenbach & Rescorla, 2001) at ages 8–10 and 12. Children were asked to rate how true each item was during the last six months (0 = *not true* to 2 = *very/often true*). We used three child-reported internalizing subscales: Withdrawn/depressed (9 items, e.g., "Don't have much energy", αs = .81 to .88 across reporters), Anxious/depressed (14 items, e.g., "Nervous or tense", αs = .91 to .92 across reporters), and Somatic (9 items, e.g., "Nausea, feels sick", αs = .86 to .87 across reporters). Item scores were summed to create scale scores. The YSR is among the most widely used measures of child mental health in international research, with translations in over 100 languages and strong, well-documented psychometric properties (Achenbach & Rescorla, 2001). The measure has been demonstrated to be valid and reliable in all of the cultural groups included in the present study (e.g., Lansford et al., 2018).

We measured child-reported internalizing behavior in the current study because as children transition into early adolescence (e.g., ages 8–12), they are more likely to experience increasing autonomy and less likely to communicate their internalizing behaviors to their parents (Garthe, Sullivan, & Kilewer, 2015). Therefore, parents may be less likely to be able to accurately report their early adolescents' internalizing behaviors than adolescents themselves (Garthe et al., 2015). Indeed, a comprehensive meta-analysis found that child

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reports of internalizing behaviors show stronger positive associations with parental warmth and control than parent, teacher, or researcher/clinician reports (Pinquart, 2017).

Analysis Plan

Consistent with prior work (Lansford et al., 2018), we utilized a path analytic framework in M*plus* Version 7 to evaluate hypotheses. Analyses proceeded in several steps. First, path models testing the associations of study covariates with parent warmth and control and child-reported internalizing behaviors at each time point were examined, and significant ($p < .05$) associations were retained in further analyses. Then, six separate path models exploring longitudinal associations between parent warmth and 1) child-reported withdrawn/depressed, 2) child-reported somatic, and 3) child-reported anxious/depressed behaviors, as well as identical (4–6) models for parent behavioral control were each estimated utilizing full-information maximum likelihood estimation procedures to handle missing data (Kline, 2011). Each model was autoregressive (e.g., age 8 warmth predicted age 9 warmth, which predicted age 10 warmth, etc.) and cross-lagged (e.g., age 8 warmth predicted age 9 somatic behaviors, and age 8 somatic behaviors predicted age 9 warmth, etc.) to test both parent and child effects. Additionally, contemporaneous measures were correlated in each model.

Once path models were fit, multiple-group comparisons of the 12 cultural groups were conducted to examine cultural differences. All paths in each model were initially constrained to be equal across cultures. Then, paths were freed to vary across cultures if a χ^2 difference test revealed that the model fit significantly better when a path was freed. Analyzing the data in this way allowed identification of effects that vary across cultural groups.

Results

Findings from the six models are discussed in turn. Skewness and kurtosis estimates for all mean scores fell in acceptable ranges (skew < 2.0, kurtosis < 7.0). Model fit evaluation was based on recommended fit index cut-off values (CFI/TLI > 0.95, RMSEA < 0.05; Kline, 2011). Demographic covariate effects (available on request) were controlled for but not presented because effects were largely non-significant. When effects were significant they were associated with study constructs in expected directions. Girls occasionally demonstrated higher levels of all three types of internalizing behaviors. More mother and father education was occasionally associated with greater parental warmth, less parental control, and less severity in all three child internalizing behavior clusters.

Parental Warmth – Child Withdrawn/Depressed Behaviors

The final model (Figure 1) fit the data significantly better than the initial model that was constrained equal across cultures (χ^2 [110] = 322.731, $p < .01$) and fit the data well (χ^2 [368] = 481.14, $p < .01$, RMSEA = 0.05, CFI/TLI = 0.95/0.93). All parent warmth autoregressive paths, and the age 10 to 12 child-reported withdrawn/depressed behavior autoregressive path were freed to vary across cultures, and substantive differences between cultures on these paths are noted in Figure 1 (See Supplementary Figures 1–2 for all culture-specific autoregressive path estimates). Additionally, of the six cross-lagged paths, only the path from age 9 warmth to age 10 withdrawn/depressed behavior was freed to vary across

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cultures. Freeing any other autoregressive or cross-lagged paths to vary across cultures did not improve model fit.

Most importantly, three parenting effects and two child effects paths were significant. Regarding parenting effects, results revealed that in all cultures, higher parental warmth at ages 8 and 10 predicted lower child-reported withdrawn/depressed scores at ages 9 and 12, respectively. Additionally, culturally-specific parenting effects were found. Specifically, in the Italy-Naples, US-Black, and US-Latino samples, higher age 9 parental warmth predicted lower age 10 child-reported withdrawn/depressed scores. Regarding child effects, results revealed that in each culture, more severe child-reported withdrawn/depressed behaviors at ages 8 and 9 predicted lower parental warmth at ages 9 and 10, respectively.

Parental Control-Child Withdrawn/Depressed Behaviors

The final model (Supplemental Figure 3) fit the data significantly better than the initial model that was constrained equal across cultures (χ^2 [88] = 224.771, $p < .01$) and fit the data well (χ^2 [462] = 518.90, $p = .03$, RMSEA = 0.03, CFI/TLI = 0.96/0.95). As with parent warmth, all parent behavioral control autoregressive paths were freed to vary across cultures, and substantive differences between cultures on these paths are noted in Supplementary Figures 1–2. None of the autoregressive child withdrawn/depressed paths, nor any cross-lagged paths were freed to vary across cultures because doing so did not improve model fit.

In contrast to the parent warmth-child withdrawn/depressed model, the parental control-child withdrawn/depressed model only had a single significant parent effect, and no significant child effects. Specifically, in each culture, higher parent behavioral control at age 9 predicted higher child-reported withdrawn/depressed behaviors at age 10.

Parental Warmth – Child Anxious/Depressed Behaviors

The final model (Figure 2) fit the data significantly better than the initial model that was constrained equal across cultures (χ^2 [99] = 343.15, $p < .01$) and fit the data well (χ^2 [379] = 491.53, $p < .01$, RMSEA = 0.05, CFI/TLI = 0.95/0.94). Two of three warmth autoregressive paths (the paths from age 9 to 10 and from age 10 to 12 warmth) and child-reported anxious/depressed autoregressive paths (the paths from age 8 to 9 and age 9 to 10 anxious/depressed behavior) were freed to vary across cultures. Once again, no cross-lagged paths were freed to vary across cultures because doing so did not improve model fit.

Most importantly, one parent effect and one child effect emerged as significant. Specifically, in all cultures, higher age 8 parent warmth predicted lower age 9 child-reported anxious/depressed behavior, and higher age 9 child-reported anxious/depressed behavior predicted lower age 10 warmth.

Parental Control – Child Anxious/Depressed Behaviors

The final model (Figure 3) fit the data significantly better than the initial model that was constrained equal across cultures (χ^2 [132] = 378.30, $p < .01$) and fit the data well (χ^2 [463] = 569.33.56, $p < .01$, RMSEA = 0.05, CFI/TLI = 0.95/0.93). All control autoregressive paths and the child-reported anxious/depressed autoregressive path from age 9 to 10 were freed to

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vary across cultures. No other autoregressive or cross-lagged paths were freed to vary across cultures because doing so did not improve model fit.

As with the warmth-anxious/depressed model, one parent and one child effect emerged, though the parent effect emerged later in development and the child effect emerged earlier in development compared to the warmth-anxious/depressed model. Specifically, in all cultures, higher age 10 parent behavioral control predicted lower age 12 child-reported anxious/depressed behavior, and higher age 8 child anxious/depressed behavior predicted higher age 9 behavioral control.

Parental Warmth – Child Somatic Behaviors

The final model (Figure 4) fit the data significantly better than the initial model that was constrained equal across cultures (χ^2 [132] = 421.22, $p < .01$) and fit the data adequately (χ^2 [346] = 432.01, $p < .01$, RMSEA = 0.05, CFI/TLI = 0.96/0.94). All warmth and somatic behavior autoregressive paths, and two cross-lagged paths (the path from age 9 child-reported somatic behavior predicting age 10 warmth, and the path from age 9 warmth predicting age 10 child-reported somatic behavior) were freed to vary across cultures. Freeing all other cross-lagged paths to vary across cultures did not improve model fit.

One parent effect emerged across all cultures, and two additional culture-specific effects emerged (one parent and one child). Regarding parenting effects, in every culture, higher age 8 parent warmth predicted lower age 9 child-reported somatic behavior. Moreover, in the Italy-Naples and Philippines samples, higher age 9 parent warmth predicted lower age 10 child-reported somatic behavior. The lone child effect was also culture-specific; higher age 9 child somatic behavior predicted lower age 10 parent warmth in the China, Kenya, Sweden, and United States Latino samples.

Parental Control – Child Somatic Behaviors

The final model (Figure 5) fit the data significantly better than the initial model that was constrained equal across cultures (χ^2 [132] = 370.74, $p < .01$). The model fit the data well (χ^2 [345] = 394.42, $p = .03$, RMSEA = 0.04, CFI/TLI = 0.97/0.95). As with the warmth-somatic behavior model, all autoregressive paths were freed to vary across cultures. However, unlike the warmth-somatic model, none of the cross-lagged paths were freed to vary because doing so did not improve model fit. One lone child effect was significant; greater age 8 child-reported somatic behavior predicted greater age 9 parent behavioral control in all cultures.

Discussion

We evaluate support for our study hypotheses first, then consider culture differences in study results, and finally offer additional observations before concluding with limitations, future directions, and study implications.

Our first hypothesis was largely supported, as parent effects of warmth and control appeared to vary in their pervasiveness across cultures depending on the child-reported internalizing behavior cluster examined. Parent effects on child-reported withdrawn/depressed behavior

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appeared most pervasive. Earlier parent warmth or control prospectively predicted child-reported withdrawn/depressed behavior at every age studied, and four total parent effects were found. Parent effects on child-reported anxious/depressed behavior were less pervasive but still notable, as two pancultural parent effects were found. Parent effects were least pervasive on child-reported somatic symptoms, with two total effects found, but only one pancultural effect, and no effects on child behavior after age 10. These findings align with those of previous meta-analyses of primarily US/European samples, which indicated that parent effects might more readily influence child withdrawal/depression, as opposed to anxiety (Pinquart, 2017). We build on this work by providing preliminary evidence that this pattern may emerge in many cultures and exploring parenting effects on child somatic behaviors. Moreover, as evidenced by pancultural effects of warmth and behavioral control that endure into early adolescence (i.e., age 12), it appears that evidence-based interventions for withdrawn, depressed, and anxious behaviors that integrate parental support and guidance may be beneficial across the transition to adolescence in many cultures (Chorpita & Wesiz, 2009).

Therefore, our decision to disaggregate the broadband measure of child-reported internalizing symptoms and investigate specific behavior clusters “paid off”. We identified new parenting effects, revealed differences in the pervasiveness of such effects across symptom clusters, and discovered that in the case of some behavior clusters (e.g., child-reported withdrawn/depressed, anxious/depressed) but not others (e.g., child-reported somatic symptoms) parenting effects endured into early adolescence.

Our second hypothesis was partially supported. Child effects of internalizing behaviors on subsequent parenting were pervasive before age 10, as child-reported withdrawn/depressed, anxious/depressed, and somatic behaviors each predicted both less parental warmth and more parent control across cultures at ages 9 or 10. These results align with past cross-cultural and meta-analytic studies that found evocative effects of broadband measures of child internalizing behavior on parent warmth and control (Lansford et al., 2018; Pinquart, 2017). We suspect that such child effects emerge because parents often do not know what to do in the face of child maladjustment. Across cultures, parents may find it more difficult to find opportunities to show high levels of warmth and affection toward children who are exhibiting internalizing problems because children are likely to withdraw from social interactions (Lansford et al., 2018). Parents also may respond to internalizing problems by more heavily controlling their children’s environment to protect them from exposure to triggers of internalizing behavior (Hipwell et al., 2008). Our results indicate that educating parents about how their parenting is affected by child internalizing problems and teaching parents strategies to regulate their emotions and parenting in response could be cross-culturally beneficial (Lansford et al., 2018).

However, unlike our past investigation of broadband measures of internalizing problems, we did not find that child effects persisted after age 10 in the current study. This difference may have emerged because our earlier study combined parent perceptions of child internalizing behavior and actual child experiences of internalizing behavior in one measure (by averaging mother, father, and child reports). However, parent perceptions of child internalizing behaviors might be less accurate as children age into adolescence, spend more time outside

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the home, and share less about their internal states (Garthe et al., 2015). Thus, child effects on parenting may be less prevalent in adolescence in studies (like ours) that primarily capture child self-reported internalizing behavior.

Our study also contributes to existing literature by demonstrating that most parent and child effects that emerge from ages 8 to 12 do so in many different cultures. Specifically, 5 of 7 parent effects and 5 of 6 child effects emerged in every sample culture. These “universal” effects align with existing theories and meta-analyses that posit that humans have an innate need for adaptive parenting that includes warmth and acceptance (Khaleque & Rohner, 2012). Moreover, these pancultural effects align with theoretical frameworks of parenting in different cultures, which posit that even if parenting behaviors take on different *forms* across cultures (e.g., warmth expressed with physical affection in one culture, gifts in another, etc.), as long as behaviors serve the same communicative *function* (e.g., all warmth expressions are interpreted by children within each culture as love and acceptance), than the protective effects of such parenting should emerge across cultures (Bornstein, 2015). Our parenting measures primarily assess communicative *function*, and therefore are well positioned to capture such universality.

However, there were three effects (two parent, one child) that demonstrated variability across cultures in the present sample. We cautiously interpret these effects given their emergence in only 8.33% (3 of 36) paths. Nevertheless, it is notable that all three effects involved the age 9–10 transition. These culture-specific effects may be explainable by cultural normativeness theory (Deater-Deckard & Dodge, 1997).

Regarding parent effects, cultural normativeness theory posits that in cultures where adaptive parenting behaviors are more normative, such behaviors are more strongly linked to beneficial child outcomes. This appears to be the case for our culture-specific parenting effects. All four cultures (US-Black, US-Latino, Italy-Naples, and Philippines) where age 9 warmth protected against age 10 child-reported withdrawn/depressed or somatic behaviors had age 9 warmth scores that were above the overall sample average. The benefits of high warmth in these cultures might be especially apparent during the age 9–10 early adolescent transition period as adolescents seek parental support to navigate newfound stressors and responsibilities at the dawn of adolescence (Lansford et al., 2018).

Regarding child effects, cultural normativeness theory posits that in cultures where maladaptive child behaviors are less normative, the presence of such behaviors is more strongly linked to maladaptive parenting (Deater-Deckard & Dodge, 1997). Our results follow this pattern. All four cultures (i.e., China, Kenya, Sweden, and the US-Latino sample) where higher age 9 child-reported somatic scores predicted lower age 10 warmth had significantly lower mean levels of somatic symptoms, compared to the sample as a whole.

Ultimately, our results indicate a large degree of universality in parent and child effects in the current sample, but also tentatively identify that culture-specific effects may emerge especially during periods of developmental transition (e.g., early adolescence), and especially in cultures with comparatively high levels of adaptive parenting or low levels of internalizing behavior.

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Moving beyond discussion of our primary study objectives, we note three other findings. First, we found it interesting that one of our significant parent effects of behavioral control was opposite in direction of both our other behavioral control effect and of meta-analytic findings (Pinquart, 2017). Specifically, greater age 9 behavioral control predicted greater age 10 child-reported withdrawn/depressed behavior in all cultures. It may be that, especially during the transition to adolescence around age 10, children interpret behavioral control perceived as appropriate at younger ages as over-controlling, and consequently withdraw from family interactions. Alternatively, this finding could be a spurious result of normative trends because parent behavioral control and withdrawn/depressed internalizing behaviors both increase in early adolescence (e.g., Avenevoli et al., 2015).

Second, parent warmth were associated with a broader range of child-reported internalizing behaviors, at many more time points, than parent control. Overall, there was at least one parent warmth effect on all three internalizing behavior clusters, and seven such significant pathways across all models. In contrast, there were only two significant cross-cultural effects of behavioral control. This pattern aligns with meta-analytic findings (Pinquart, 2017) that the association between warmth and child internalizing behaviors was twice the strength of the association between behavioral control and child internalizing behaviors. It may be that there was greater variation in the manner in which behavioral control strategies were used by parents, and received by children, in our sample compared to warmth (Lansford et al., 2018).

Third, it appears that parenting and child internalizing behaviors show strong stability over time in virtually all cultures (i.e., over 90% of the autoregressive paths were significant in most cultures). Due to the rarity of non-significant, culture-specific effects, and that examining the stability of parent and child behaviors was not a focus of the current study, we refrain from interpreting such effects further. However, such culture-specific instability is worthy of future investigation.

Conclusion

This study has numerous strengths, including use of a longitudinal, multicultural sample, prospective examination of parent and child effects simultaneously and with cultural specificity, and examination of specific child-reported internalizing behavior clusters used in assessments that informs treatment worldwide. However, there are several limitations. First, parenting and internalizing behaviors were reported; future investigations could identify whether parent and child effects replicate when directly observed. Second, inclusion of all reporters of parenting behavior represented the best fit of the model to the data. However, this approach does not reflect any single reporters' perspective, and therefore future investigations that build on the current study by disaggregating reports of parenting may be useful. Third, cultural diversity is a strength, but subsamples were not fully representative of the countries in which they were embedded. Therefore, results should not be generalized to reflect country-wide effects.

Despite these limitations, the present investigation is the first to examine cross-cultural generalizability of parent and child effects in relation to specific types of child-reported internalizing behaviors. Parent effects are more pervasive across ontogeny on child-reported

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withdrawn/depressed behaviors, somewhat pervasive on child-reported anxious/depressed behaviors, and less pervasive on child-reported somatic behavior clusters. Parental warmth, as opposed to behavioral control, is more consistently associated with child-reported internalizing problems across behavior clusters. Child effects appear ubiquitous across behavior clusters on or before age 10, probably because the current study examines child-reported internalizing behaviors. Finally, most parent and child effects were significant in all 12 cultures studied, but some culture-specific effects emerged at age 9–10. These culture-specific effects might be due to the increased potency of parent warmth in cultures where warmth is more normative, and child-reported somatic symptoms in cultures where somatic symptoms are less normative. Results inform understanding of parenting-child internalizing behavior transactions across culture, and the development of treatments to combat internalizing behaviors around the world.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgements

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Key Points

- Whether parent warmth and control predict child-reported internalizing behaviors (and vice versa) across cultures is unknown.
- Higher parent warmth prospectively predicted lower child-reported withdrawn/depressed, anxious/depressed, and somatic problems, and higher parent behavioral control prospectively predicted higher child-reported withdrawn/depressed and lower child anxious/depressed problems in all studied cultures.
- Parenting effects were most pervasive across ages 8–12 when associated with child-reported withdrawn/depressed problems, then anxious/depressed problems, and were least pervasive when associated with somatic problems.
- Higher child-reported withdrawn/depressed, anxious/depressed, and somatic problems were associated with lower subsequent warmth or higher subsequent control in all cultures.
- Evidence-based treatments that promote parent warmth and appropriate behavioral control to reduce internalizing behaviors could be beneficial across cultures.

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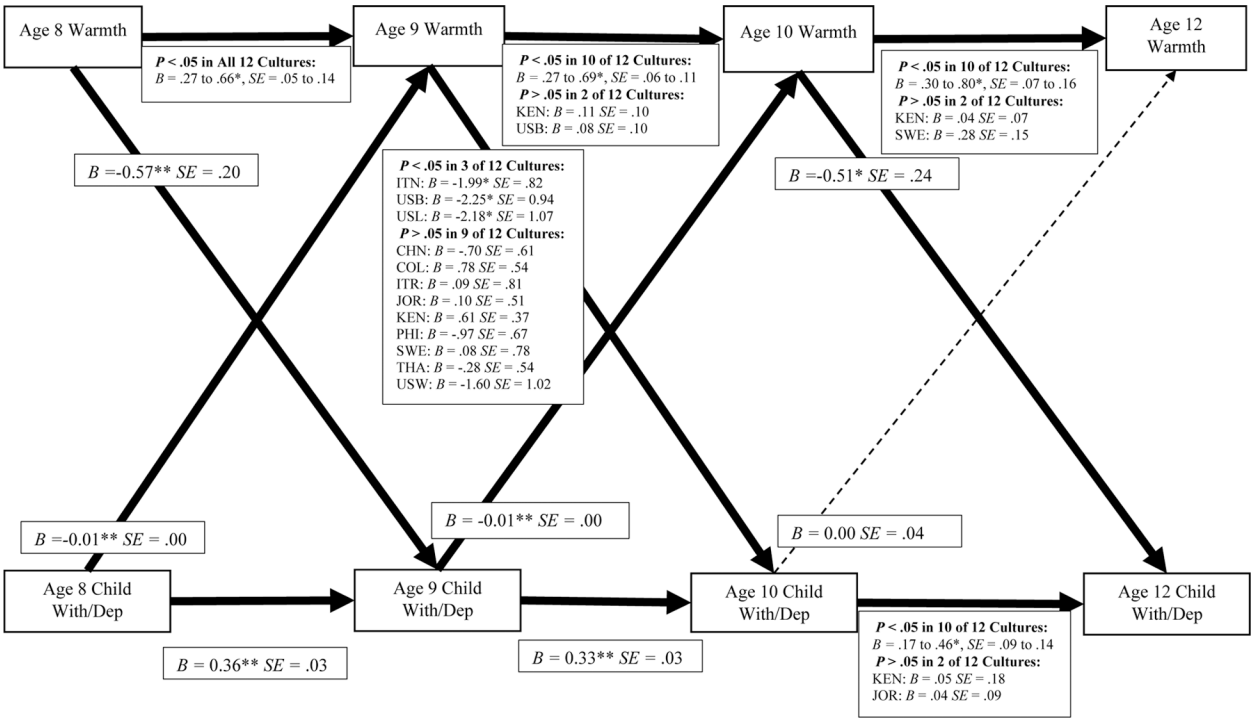

Figure 1.

Model depicting pathways between parental warmth and child withdrawn-depressed behavior. Bold lines indicate paths significant ($p <$. 05) in at least one culture, dashed lines indicate non-significant paths. Unstandardized parameter estimates are reported. Within time correlations and covariates (child age, child gender, mother/father education) were controlled for but not depicted here due to space constraints. *$p < .05$, **$p < .01$. If path was constrained equal across cultures, single cross-cultural parameter estimate is reported. If path varies across cultures, cross-cultural results reported. See Supplemental Figures 1–2 for full report of all autoregressive cross-cultural parameter estimates. CHN = China, COL = Colombia, ITN = Italy-Naples, ITR = Italy-Rome, JOR = Jordan, KEN = Kenya, PHI = Philippines, SWE = Sweden, THA = Thailand, USB = US Black Sample, USL = US Latino Sample, USW= US White Sample.

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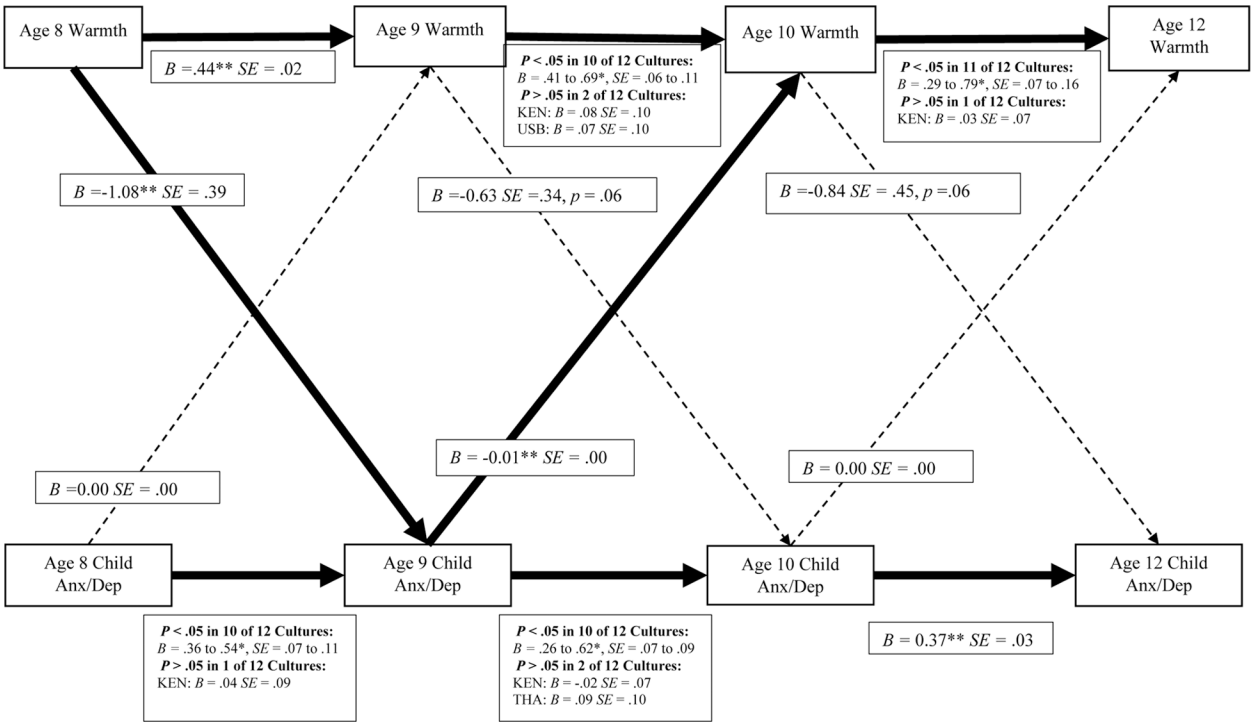

Figure 2.

Model depicting pathways between parental warmth and child anxious-depressed behavior. Bold lines indicate paths significant ($p <$. 05) in at least one culture, dashed lines indicate non-significant paths. Unstandardized parameter estimates are reported. Within time correlations and covariates (child age, child gender, mother/father education) were controlled for but not depicted here due to space constraints. *p < .05, **p< .01. If path was constrained equal across cultures, single cross-cultural parameter estimate is reported. If path varies across cultures, cross-cultural results reported. See Supplemental Figures 1–2 for full report of all autoregressive cross-cultural parameter estimates. KEN = Kenya, THA = Thailand, USB = US Black Sample.

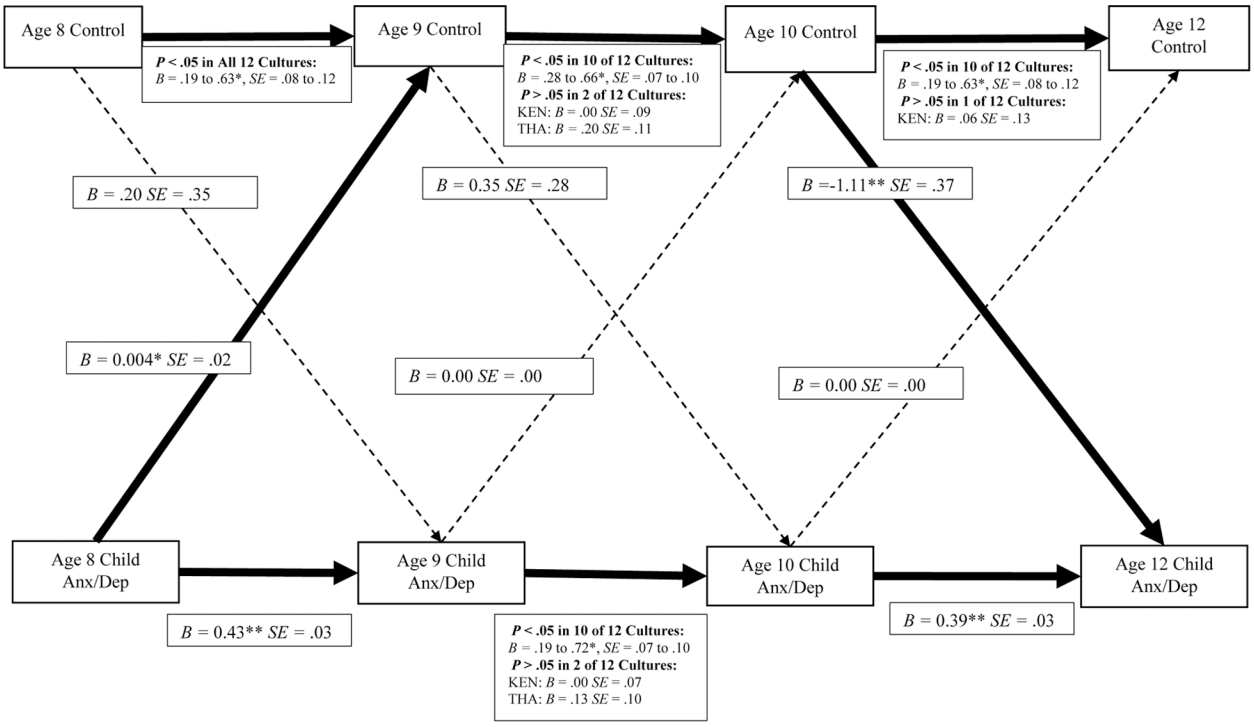

Figure 3.

Model depicting pathways between parental behavioral control and child anxious-depressed behavior. Bold lines indicate paths significant ($p <$. 05) in at least one culture, dashed lines indicate non-significant paths. Unstandardized parameter estimates are reported. Within time correlations and covariates (child age, child gender, mother/father education) were controlled for but not depicted here due to space constraints. *p < .05, **p< .01. If path was constrained equal across cultures, single cross-cultural parameter estimate is reported. If path varies across cultures, cross-cultural results reported. See Supplemental Figures 1–2 for full report of all autoregressive cross-cultural parameter estimates. KEN = Kenya, THA = Thailand.

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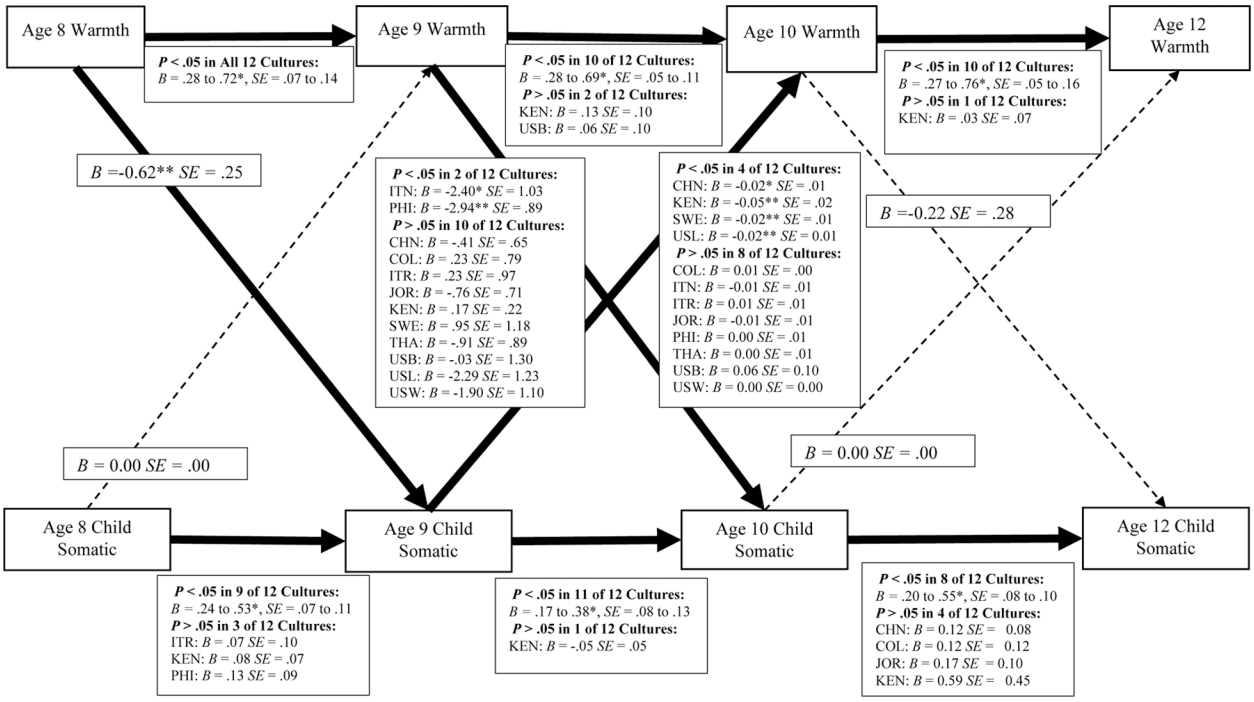

Figure 4.

Model depicting pathways between parental warmth and child somatic behavior. Bold lines indicate paths significant ($p <$. 05) in at least one culture, dashed lines indicate non-significant paths. Unstandardized parameter estimates are reported. Within time correlations and covariates (child age, child gender, mother/father education) were controlled for but not depicted here due to space constraints. *p < .05, **p< .01. If path was constrained equal across cultures, single cross-cultural parameter estimate is reported. If path varies across cultures, cross-cultural results reported. See Supplemental Figures 1–2 for full report of all autoregressive cross-cultural parameter estimates. CHN = China, COL = Colombia, ITN = Italy-Naples, ITR = Italy-Rome, JOR = Jordan, KEN = Kenya, PHI = Philippines, SWE = Sweden, THA = Thailand, USB = US Black Sample, USL = US Latino Sample, USW= US White Sample.

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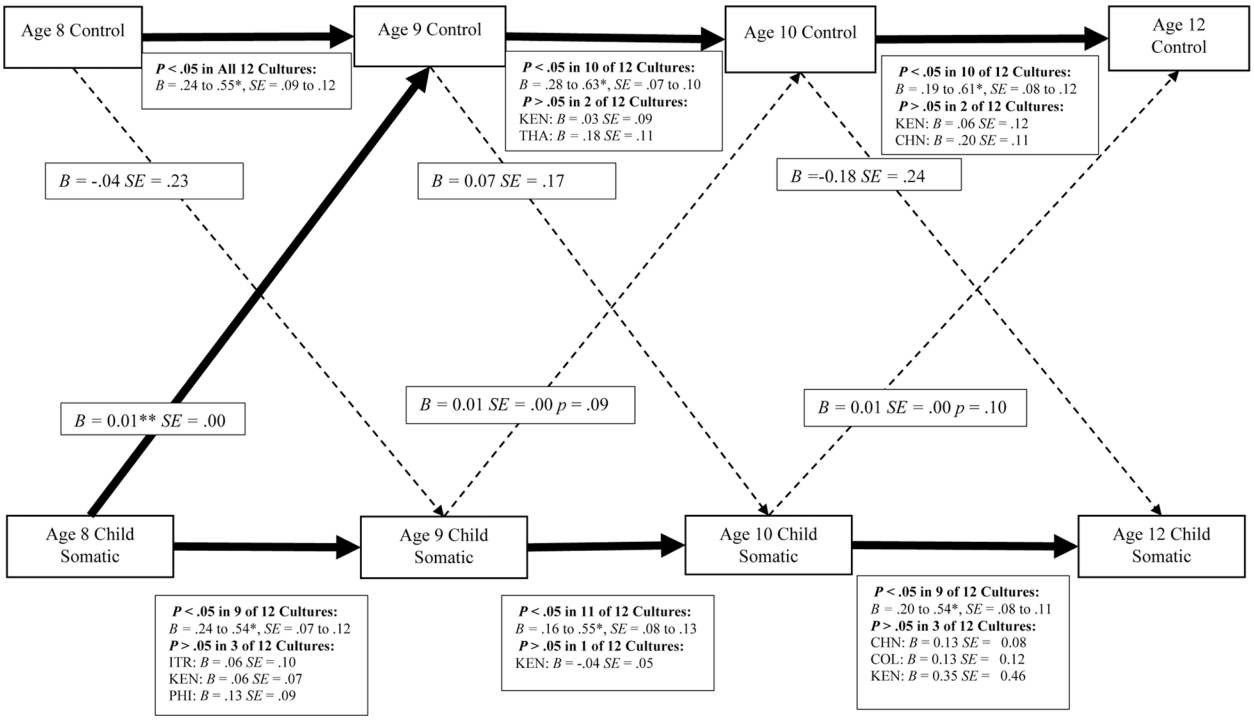

Figure 5.

Model depicting pathways between parental behavioral control and child somatic behavior. Bold lines indicate paths significant (p <. 05) in at least one culture, dashed lines indicate non-significant paths. Unstandardized parameter estimates are reported. Within time correlations and covariates (child age, child gender, mother/father education) were controlled for but not depicted here due to space constraints. *p < .05, **p< .01. If path was constrained equal across cultures, single cross-cultural parameter estimate is reported. If path varies across cultures, cross-cultural results reported. See Supplemental Figures 1–2 for full report of all autoregressive cross-cultural parameter estimates. CHN = China, ITR = Italy-Rome, KEN = Kenya, PHI = Philippines, THA = Thailand

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