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A Longitudinal Examination of the Family Stress Model of Economic Hardship in Seven Countries

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Abstract

The Family Stress Model of Economic Hardship (FSM) posits that economic situations create differences in psychosocial outcomes for parents and developmental outcomes for their adolescent children. However, prior studies guided by the FSM have been mostly in high-income countries and have included only mother report or have not disaggregated mother and father report. Our focal research questions were whether the indirect effect of economic hardship on adolescent mental health was mediated by economic pressure, parental depression, dysfunctional dyadic coping, and parenting, and whether these relations differed by culture and mother versus father report. We conducted multiple group serial mediation path models using longitudinal data from adolescents ages 12–15 in 2008–2012 from 1,082 families in 10 cultural groups in seven countries (Colombia, Italy, Jordan, Kenya, the Philippines, Thailand, and the United States). Taken together, the indirect effect findings suggest partial support for the FSM in most cultural groups across study countries. We found associations among economic hardship, parental depression, parenting, and adolescent internalizing and externalizing. Findings support polices and interventions aimed

at disrupting each path in the model to mitigate the effects of economic hardship on parental depression, harsh parenting, and adolescents' externalizing and internalizing problems.

Keywords

Economic Hardship; Parent-Child Relationships; Family Processes; Cross-Cultural

1. Introduction

Based on the World Bank definition of poverty (percentage of people living below USD $1.90 per day), one indicator of economic hardship, 9.2 percent of the world's population was living in poverty in 2017. Although poverty is prevalent in high-income countries such as the United States and the United Kingdom, global poverty disproportionally affects children living in sub-Saharan Africa and South Asia (World Bank, 2020).

Macroeconomic crises, including the 2008 global recession and the global economic crisis surrounding the COVID-19 pandemic, intersecting with the effects of conflict and climate change, have caused a situation where the percentage of people living in poverty is expected to rise for the first time since 1998 (Bornstein, 2020). This crisis also disproportionately affects those who were already poor and vulnerable, including those with low levels of education and assets, with insecure employment, and in lower-skilled occupations (World Bank, 2020).

1.1 Economic hardship and child and adolescent mental health

Global macroeconomic crises have a significant impact on the well-being and mental health of children and adolescents generally (Gudmundsdóttir et al., 2016; Parker et al., 2016) and among vulnerable groups such as those who were already receiving government services (Rajmil et al., 2015). A study of four cohorts of Australian youth found that global financial downturns are related to significant decreases in well-being in young adults (Parker et al., 2016).

Economic hardship is a social determinant of inequalities in child and adolescent mental health (Dashiff et al., 2009; Reiss, 2013; Yoshikawa et al., 2012), including mental health disorders, behavioral problems, reduced language functioning, and lower levels of executive functioning (Hackman & Farah, 2009). Children who are persistently economically disadvantaged over time have more long-term mental health disorders compared to children who experience acute economic disadvantage (Tracy et al., 2019). Additionally, natural experiments (Costello et al., 2003) and randomized experiments (Morris & Gennetian, 2003) show that increasing household income improves youth psychological adjustment. Higher household income is consistently related to lower levels of child internalizing and externalizing across high-, middle-, and low-income countries (Lansford et al., 2019).

1.2 Theoretical and empirical framework

Family relational processes have been identified as mediators in a large number of studies on the relation between economic hardship and child mental health (Conger et al., 2010,

2020; Masarik & Conger, 2017). Conger (1994) first proposed the Family Stress Model of Economic Hardship (FSM) as a theoretical framework of these family relational processes in studying Iowa farmers who experienced an economic downturn in the 1980s. The model examines family-based mechanisms through which economic hardship influences child mental health outcomes, focusing on parenting behaviors and the parent-child relationship. FSM posits that economic situations create differences in developmental outcomes for children and psychosocial outcomes for their parents (Dearing et al., 2001).

The conceptual model is depicted in Figure 1. First, economic hardship (e.g., low income, loss of income, high debt-to-asset ratio) leads to increased economic pressure in the household. Economic pressure represents day-to-day stressors such as difficulty paying bills or buying groceries. According to FSM, this economic pressure then mediates the relation between economic hardship and parental psychological distress, such as parental depression. Increased parental psychological distress is then expected to cause more conflict and less support within couples, causing marital discord. Parental depression and marital discord are expected to lead to disrupted parenting (increased harsh parenting and disengaged parenting). This change in parenting puts children at increased risk of internalizing (e.g., symptoms of depression and anxiety) and externalizing (e.g., aggressive and antisocial behavior) problems (Masarik & Conger, 2017). These processes are particularly important to study during the sensitive period of early-to-mid adolescence, a period in which internalizing and externalizing problems often increase in frequency and severity (Collishaw, 2015).

1.3 FSM and empirical support in low-and middle-income countries

There is strong empirical support for FSM from several cross-sectional and a few longitudinal studies (for reviews see Conger et al., 2010; Masarik & Conger, 2017). Additionally, in response to criticism that previous studies have not validated the FSM in the context of young children, in the context of complex and changing family structures, and in various racial/ethnic contexts (Barnett, 2008), Masarik and Conger (2017) reviewed the evidence and validated this model in multi-ethnic families representing various family structures. However, despite this support for the expansion of FSM to different family circumstances, to our best knowledge, all studies providing empirical support for the FSM come from high-income countries, the majority from the United States (mostly from predominantly European American samples, but some on African Americans and Mexican-Americans), but also from Belgium, Canada, Czech Republic, Finland, Germany, and South Korea (Fonseca et al., 2016; Masarik & Conger, 2017). Links among economic hardship, economic pressure, parental psychological distress, marital discord, disrupted parenting, and child internalizing and externalizing may differ across countries because of differences in the broader economic and social contexts in which families are situated. Additionally, parenting response to economic stressors may vary based on cultural value orientations. For instance, White et al. (2016) found that among Mexican origin families in the United States, mothers' level of familism value orientation buffered the effects of economic pressure on maternal warmth.

Several studies from low- and middle-income countries have analyzed specific sets of pathways of the FSM. In previous work in this study's sample, Lansford et al. (2019) found

that in low-, middle-, and high-income countries, household income is related to children's internalizing and externalizing problems and these relations are not significantly different by country. However, the study did not examine the developmental mechanisms that mediate the relation between household income and child externalizing and internalizing behaviors in different countries (Lansford et al., 2019).

Zhang (2013) found in a sample of parents of 2- to 3-year-old children in Beijing, China that income negatively predicted externalizing symptoms and predicted internalizing symptoms, but only among boys. These relations were fully mediated by mother-child and father-child conflict (Zhang, 2014). Additionally, an economic strengthening intervention significantly reduced parenting stress among caregivers of AIDS-orphaned children in Uganda (Nabunya et al., 2014). Botcheva and Feldman (2004) found that harsh parenting mediated the positive relation between economic pressure and adolescent depression in a sample in Bulgaria. In Turkey, economic strain had a direct effect on marital problems, and the indirect effect of economic strain through emotional distress was only significant for mothers (Aytaç & Rankin, 2009). However, no studies compare specific pathways in the FSM across countries. It is important to compare pathways in the FSM in different countries and different cultures. For instance, in cultural groups with generous social safety nets or where helping extended family members is more normative, economic hardship may be less predictive of worse parent and child psychosocial outcomes.

1.4 Potential mother, father, and child interactions in FSM

Most research on FSM has focused on mother-child interactions and has not examined the roles of paternal vs. maternal reports of economic hardship, paternal psychological distress, and paternal parenting (Barnett, 2008). Including both mother and father reports could reduce single source biases, helping to make the findings more generalizable. Additionally, it acknowledges the importance of fathers when so much of the literature has relied on mothers. For instance, in family systems theory, fathers' behaviors are related to children's behaviors directly and indirectly through other family relationships and environmental factors, such as the socioeconomic and sociocultural context (Cabrera et al., 2018; Schoppe-Sullivan & Fagan, 2020). Cabrera et al. (2014) argue that it is important to not only control for the characteristics of each parent, but also to consider reciprocal processes among fathers, mothers, and children (Cabrera et al., 2014). This fits within a framework that conceptualizes the child's environment as "a multidimensional space in which parenting influences children systemically, thus including fathers, father-mother relationships, gene-environment interplay, co-parenting, and adjunctive influences external to the family because few, if any, children are raised exclusively in parent-child relationships" (Fitzgerald et al., 2021, p. 64).

There is evidence to support including both mothers and fathers in the FSM. For instance, White, Liu, Nair, and Tein's (2015) longitudinal study testing the FSM in Mexican-origin adolescents found that mothers' perceptions of economic pressure were associated with increases in adolescent externalizing symptoms via intermediate increases in harsh parenting. They also found that fathers' perceptions of economic pressure had important implications for adolescent internalizing, via reductions in paternal warmth, but only at

certain levels of neighborhood adversity. Additionally, Ponnet et al. (2016) found in a sample of mothers, fathers, and children in Belgium that the impact of financial stress on positive parenting was greater for fathers than mothers. Additionally, the effect of culture on the FSM could be specific to mother or father report. White et al. (2016) found that among Mexican origin families in the United States, mothers with high levels of familism value orientation were protected from having economic pressure affect their parenting. However, this effect was not seen in fathers.

1.5 Current study

The overall goal of this study is to address the gaps identified above through longitudinally testing the generalizability of the FSM separately for mothers and fathers and across a diverse range of international contexts. The present study is an analysis of longitudinal data from 1,082 families in 10 cultural groups in seven countries (Colombia, Italy, Jordan, Kenya, Philippines, Thailand, and United States). We selected the seven countries included in this study because they are diverse on several economic indicators as well as sociodemographic dimensions that might be related to parenting and child development in important ways. For example, on the Human Development Index, a composite indicator of a country's status with respect to health, education, and income, participating countries ranged from 3 to 145 of 186 countries with available data (United Nations Development Programme, 2013). The seven participating countries also vary widely on sociodemographic indicators and on psychological constructs, such as individualism versus collectivism. Using Hofstede's (2001) rankings, the participating countries ranged from the United States, with the highest individualism score in the world to Colombia and Thailand, countries that are among the least individualist countries in the world (Hofstede, 2016). The countries also vary on a "looseness-tightness" continuum in which loose countries are characterized by weak social norms and high tolerance for deviant behavior, and tight countries are characterized by strong social norms and little tolerance for deviant behavior (Gelfand et al., 2011). In a ranking of 68 countries on a looseness-tightness continuum, Jordan was in the top five for tightness, and the United States was one of the looser countries (Uz, 2015). Both individualism-collectivism and tightness-looseness might be related to both economic stressors and family coping across countries (Gelfand et al., 2011; Jackson et al., 2020; Probst & Lawler, 2006). The data on economic hardship were collected between 2011 and 2013, a period when many of the countries were either in recession or just starting to recover from a period or multiple periods of recession. Table 1 includes differences in macro-level indicators by study country.

The analytical model is included in Figure 2. Hypotheses are included below.

H1: When adolescents are age 12, family economic hardship will positively predict higher levels of maternal and paternal economic pressure.

H2: Economic pressure when adolescents are 12 years old will positively predict maternal and paternal depression when adolescents are age 13.

H3: When the adolescents are age 13, maternal and paternal depression will predict higher levels of mother-reported and father-reported partner dysfunctional dyadic coping.

H4: Maternal and paternal depression when adolescents are age 13 will predict higher levels of maternal and paternal harsh parenting and higher levels of maternal and paternal disengaged parenting when adolescents are age 14.

H5: Dysfunctional dyadic coping when adolescents are age 13 will predict higher levels of maternal and paternal harsh parenting and higher levels of maternal and paternal disengaged parenting when adolescents are age 14.

H6: Higher levels of harsh parenting and higher levels of disengaged parenting when adolescents are age 14 will predict higher levels of adolescent internalizing and externalizing at age 15.

H7: The indirect effects through the paths in H1-H6 will be positive and significant.

We did not have specific hypotheses about cultural differences in the model. However, developmental science recently has emphasized the importance of testing whether findings are generalizable across diverse demographic groups and expanding participants in research studies beyond Western, educated, industrialized, rich, and democratic societies that historically have biased the study of human development (e.g., Nielsen et al., 2017). Evidence for generalizability in the paths hypothesized in the FSM would be supported to the extent that similar relations are found in countries that differ widely in national-level indicators of economic hardship. Cultural specificity in paths would indicate relations that may be more contingent on macro features of the environment.

2. Method

2.1 Participants

Participants included 1,082 adolescents (51% girls), their mothers, and their fathers in the Parenting Across Cultures study. Families were recruited from Medellín, Colombia (n = 108), Naples (n = 100) and Rome (n = 109), Italy, Zarqa, Jordan (n = 114), Kisumu, Kenya (n = 100), Manila, Philippines (n = 120), Chiang Mai, Thailand (n = 120), and Durham, North Carolina, United States (n = 110 European Americans, n = 102 African Americans, n = 99 Hispanic). The parent study includes data from Sweden and China; however, these samples are not included in the analysis due to low variability in economic hardship in Sweden (0% endorsed experiencing household income loss of more than 25%) and low variability in economic pressure in China (0% of mothers and fathers reported experiencing money problems that made it hard to pay for basic living expenses in the past year).

Sampling focused on including families from the majority ethnic group in each country; two exceptions were in Kenya where we sampled Luo (3rd largest ethnic group, 13% of population) and in the United States where we sampled equal proportions of European American, African American, and Hispanic families. To ensure economic diversity, we included students from private and public schools and from high- to low-income families, 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). Child age and gender did not vary across countries. Most parents were married (80%) and biological parents (96%); nonresidential/non-biological parents also provided data. Participants were followed for 8 consecutive years. Data for the present study were drawn when the adolescent participants were ages 12–15 on average. At the 8th wave of data collection, 79% of families who participated at year 1 (n = 854) continued to provide data. Missing data analyses revealed that in all countries, families who attrited did not differ from continuous participants on child gender, parent education at year 1, whether the mother was not married or cohabitating at year 1, number of adults in the household at year 1, mother's age, household income at year 2, child internalizing at year 1, or child externalizing at year 1.

2.2 Procedures and measures

Participants were recruited through letters sent from schools. Our research team includes investigators at universities in all seven of the countries included in this study. Each investigator worked with local authorities to gain permission to recruit in local schools. Local authorities helped identify appropriate schools, and our research team then visited the schools to explain the study to school principals or head teachers, who gave permission for us to recruit students in their schools.

Once families were invited to participate, they were enrolled in the study as they agreed to participate until we reached the target sample size. At that point, families were no longer enrolled, so we do not know how many families would eventually have said yes had we continued to enroll families. Measures were administered in the predominant language of each country, following forward- and back-translation and methodological validation to ensure the conceptual equivalence of the instruments; meetings were held to resolve any item-by-item ambiguities in linguistic or semantic content (Erkut, 2010). Measures were administered in Spanish (Colombia and the United States), Italian (Italy), Arabic (Jordan), Dholuo (Kenya), Filipino (the Philippines), Thai (Thailand), and American English (the United States and the Philippines).

At all time points, interviews were conducted primarily in person in locations chosen by the participants. Adolescents, mothers, and fathers were interviewed out of hearing of one another so they did not influence one another's responses. Parents provided written informed consent for their own and their child's participation, and adolescents provided assent. In most cases, interviews were conducted face-to-face with interviewers either recording participants' responses or participants writing their own responses, depending on participants' preferences. If families had moved or other logistics made face-to-face interviews impossible or difficult, interviews were conducted over the telephone, through mailed questionnaires, or through online platforms. Adolescents were given small gifts or monetary compensation for their participation, and parents were given modest financial compensation, families were entered into drawings for prizes, or modest financial contributions were made to adolescents' schools. Procedures were approved by local Institutional Review Boards (IRBs) at universities in each participating country including the Parenting Across Cultures study.

2.2.1 Economic hardship at adolescent age 12—Economic hardship was measured using two different variables. The first variable was household income in local currency, which was reported by mothers in a demographic questionnaire. For the structural analysis, household income was standardized within each study site to aid in comparison of path coefficients and was multiplied by negative one to reflect low income. The second variable was household income loss measured using mothers' response to the question *in the last 12 months, did your household annual income change?* Response options ranged from *Yes, it decreased a lot (more than 25%) to yes, it increased a lot (more than 25%)*. We considered a decrease by more than 25% to amount to a significant economic shock as most closely approximating the thresholds in other work by which family income changes were investigated in relation to changes in child development outcomes (Elder, 2018; Gennetian et al., 2015).

2.2.2 Economic pressure at adolescent age 12—Economic pressure was measured using a question from the Life Events Scale that asked both mothers and fathers if their family had experienced money problems that made it hard to pay for basic living expenses in the past year (Dodge et al., 1994). Two dichotomous variables (yes/no) were created, one for mother report and one for father report. The correlation of mother-report and father-report of money problems was .55 (ranging from .18 in the Philippines to .83 in Jordan).

2.2.3 Maternal and paternal depression at adolescent age 13—Four items of The Beck Depression Inventory were administered to mothers and fathers (Beck et al., 1996). The scale asked mothers and fathers about what describes them best in the past 2 weeks. The Likert-type response options (e.g., 0 = *I do not feel sad*, 1 = *I feel sad or unhappy*, 2 = *I am unhappy or sad all of the time and I can't snap out of it*, 3 = *I am so unhappy or sad that I can't stand it*). Separate average scores were created for mothers (α = .73) and fathers (α =.65). The correlation of mother-report of depression and father-report of depression was .22 (ranging from −.02 in the Philippines to .50 in Jordan). There was a floor effect for mother and father depression.

2.2.4 Dysfunctional dyadic coping at adolescent age 13—Dyadic Coping was measured using ten items from the Dyadic Coping Inventory (DCI; Bodenmann, 2008). This scale reports how well each parent felt supported by his/her partner during stressful times and how well the couple jointly handled stress (e.g., "When one of us is stressed, we consider it as our stress." and "My partner shows empathy and understanding when I need it."). Reliability and validity of the DCI was established using French-, German-, and Italian-speaking samples (Ledermann et al., 2010). Respondents chose which of five responses best characterized their relationship with their partner, where 1 = *never/very rarely* and 5 = *very often*. Six items were reverse coded to reflect poor coping, and all 10 items were averaged to create separate scores for mothers (α =.87) and fathers (α =.83) The correlation of mother-report and father-report of dysfunctional dyadic coping is .43 (ranging from .22 in Kenya to .72 in Jordan). The dyadic coping scale was completed by participants who considered themselves to be in a romantic partnership (N=672).

2.2.5 Parenting at adolescent age 14—We had two indicators of parenting. The first was harsh parenting. Maternal harsh parenting and paternal harsh parenting were measured using two items from the Discipline Interview (Huang et al., 2012; Lansford et al., 2005). Mothers and fathers separately indicated how frequently they used each of two forms of harsh corporal punishment when an adolescent misbehaved in the last year (spanked, slapped, or hit your child; grabbed or shook your child). Responses ranged from 1 = *never* to 5 = *almost every day*). Average scores were created for maternal reports of harsh parenting (average correlation between two items=.53) and paternal reports of harsh parenting (average correlation for two items=68). The correlation of mother-report of harsh parenting and father-report of harsh parenting is .43 (ranging from −.02 in European Americans to .49 in Jordan). The second indicator of parenting was disengaged parenting measured by adolescent report. The measure consisted of four items from the Oregon Youth Study rating how much time parents spent with the adolescent and how much they engaged in positive parenting behaviors such as spending time with their adolescent doing something special that he/she enjoys (Capaldi & Patterson, 1989). Adolescents reported on their mothers and fathers separately. Three of the four items were measured on a 5-point response scale (1 = *never*; 2 = *less than once a month*; 3 = *about once a month*; 4 = *about once a w*eek; 5 = *almost every day*). The remaining item "How many days a week does your mother/father sit and talk with you?" was measured from 1–7. Items were reverse coded to reflect disengaged parenting. Because the items were measured on two different response scales, the responses for adolescent reports of mother and adolescent reports of father were standardized and averaged to create maternal disengaged parenting (α = .74) and paternal disengaged parenting variables (α = .82). The correlation between adolescent-reported mother disengaged parenting and adolescent-reported father disengaged parenting is .51 (ranging from .24 in African Americans to .76 in Thailand).

2.2.6 Adolescent internalizing and externalizing behaviors at ages 12 and 15 —Adolescents completed the Youth Self-Report (Achenbach, 1994). Adolescents indicated whether each behavior was *not true* (0), *somewhat or sometimes true* (1), or *very true or often true* (2). The Achenbach measures have been translated into at least 100 languages and have been used with at least 100 cultural groups (Achenbach & Rescorla, 2013). The *Internalizing Behavior* scale was generated by summing the responses from 29 items including behaviors and emotions such as loneliness, self-consciousness, nervousness, sadness, feeling worthless, anxiety, withdrawn behavior, and physical problems without medical causes (α = .89). The *Externalizing Behavior* scale was created by summing the responses from 30 items including behaviors such as lying, truancy, vandalism, bullying, disobedience, tantrums, sudden mood change, and physical violence (α = .86) We also controlled for age 12 internalizing behavior (α = .86) and externalizing behavior (α = .89).

2.2.8 Measurement invariance—To ensure that the depression, dyadic coping, parenting, and internalizing and externalizing scales were suitable for use in our sample, we examined measurement invariance across the 10 cultures using the alignment method (Asparouhov & Muthén, 2014). Muthén and Asparouhov (2014) suggest that approximate measurement invariance is attained if less than 20%–25% of parameters are noninvariant. Overall, level of noninvariance for mother depression (0%), father depression (1.25%),

mother dyadic coping (2.5%), father dyadic coping (1.5%), maternal disengaged parenting (3.75%), paternal disengaged parenting (3.75), adolescent internalizing (6.38%), and adolescent externalizing fell below the 25% threshold indicating acceptable measurement invariance across groups.

2.3 Analysis

Table 2 provides the means, standard deviations, and sample sizes for each of the study variables by cultural group. Table 3 provides variable correlations and Bonferroni-corrected significant *p*-values. 21% of the data points were missing overall; range = 8.26% in Italy-Rome to 37% among U.S. Hispanic participants, χ^2=52.43, p<.001). However, there was no difference in missing data by child gender, mother education, father education, low household income, or household income loss.

All analyses were conducted as 10-cultural group path analyses in M*plus8* (Muthén & Muthén, 2017). Our serial mediation model had the two economic hardship variables at age 12 (income and income loss) predicting maternal and paternal report of economic pressure at age 12 (H1), predicting maternal and paternal depression at adolescent age 13 (H2), which then predicted maternal and paternal report of dysfunctional dyadic coping at adolescent age 13 (H3; which also predicted maternal and paternal report of harsh parenting and disengaged parenting at adolescent age 14; H4) and maternal and paternal report of harsh parenting and disengaged parenting at adolescent age 14 (H5), which then predicted adolescent internalizing and externalizing behavior at age 15 (H6). Adolescent gender was included as a covariate in each path and the outcomes of adolescent internalizing and externalizing at age 15 controlled for adolescent internalizing and externalizing at age 12. In all models, full information maximum likelihood was used to account for missing data. A model was considered to have good fit if the χ^2 test was non-significant ($p > .05$), the CFI and TLI ≥ .90, the RMSEA ≤ .06, and the SRMR ≤ .08 (Hu & Bentler, 1999). We gave greater weight to the incremental/approximate fit indices than to the significance of the χ^2 because the χ^2 value is known to be sensitive to sample size (Cheung & Rensvold, 2002).

Our a priori model was tested constraining all path coefficients to be equal across groups. We then used an iterative process of referencing modification indices to indicate whether to release a path in a specific culture (Wang & Wang, 2012). We then used χ^2 difference tests to assess whether the restricted model with equal paths fit significantly worse than the alternative model allowing a path to differ in one culture. Additionally, if the fit of the a priori model was still poor after releasing the next theoretically plausible paths, we added the largest theoretically plausible additional paths from modification indices that were not in the a priori model (e.g., the direct effect between economic hardship and adolescent internalizing behavior). We tested the mediation model using indirect effects, which have been suggested to be the most rigorous method for estimating these effects (MacKinnon, 2008; Preacher, Rucker, & Hayes, 2007). Indirect effects from our serial mediation were estimated with bootstrapping using 5,000 iterations. Simulations have found that bootstrapping also performs well with variables with floor effects such as mother and father depression in this sample (Nevitt & Hancock, 2001).

3. Results

3.1 Descriptive statistics

Across all sites, when the adolescent was 12 years old (referencing a 12-month period somewhere between 2011 and 2013), mean household income (on a scale from 1–10) was 4.16. When the adolescent was 12 years old, 15% of families had experienced a decrease in their household annual income by more than 25% (ranging from 5% of families in Colombia to 28% of families in Naples, Italy). Across all sites, 39% of mothers and 34% of fathers reported that they had money problems that made it hard to pay for basic living expenses (ranging from 12% of European Americans to 74% in Kenya for mothers and 10% for European Americans and 62% in Kenya for fathers).

3.2 Iterative model fit

The initial a priori model had poor fit ($\chi^2(1204) = 2506.041$, $p < .0001$, RMSEA = .081 90% CI: .075, .087; CFI/TLI = .688/.673; SRMR = .164). The final a priori model released an average of 5.4 paths per culture (out of a possible 57), but had a low CFI and TLI and a high SRMR ($\chi^2(1151) = 1478.774$, $p < .0001$, RMSEA = .051 90% CI: .043, .059; CFI/TLI = .880/.869; SRMR = .132). We then added 18 theoretically plausible paths from the modification indices (ranging from 0 in Naples, Italy, Kenya, African Americans, and Jordan to 5 in European Americans). All of the added paths were of direct effects that were not hypothesized in the FSM, but were theoretically plausible, such as the direct effect between age 12 household income loss and age 15 externalizing in Colombia and the direct effect between age 13 paternal depression and age 15 adolescent internalizing among European Americans. The final model had more acceptable fit ($\chi^2(1133) = 1361.057$, $p < .0001$, RMSEA = .043 90% CI: .034, .051; CFI/TLI = .916/.907; SRMR = .128), and a significant p-value in the χ^2 difference test indicated that we should reject the null hypothesis that adding these additional paths does not significantly improve model fit. Results from the final model are displayed in Table 4.

Due to the large number of predictors and mediators and our two outcomes, our serial mediation model tested 4 total indirect effects and at least 192 possible specific indirect effects across the ten sites. Indirect effects that are significant for at least one group are reported in Table 5, we only describe below those that are significant for at least half of the sites.

3.3 Indirect effects

3.3.1 Indirect effect 1—The indirect effect in Figure 3 was significant and positive in all sites except among European Americans, where it was significant and negative. In this indirect effect, household income loss positively predicted mother-report of economic pressure, which positively predicted maternal depression, which positively predicted mother-report of dysfunctional dyadic coping, which positively predicted maternal-reported harsh parenting, which positively predicted adolescent externalizing.

3.3.2 Indirect effect 2—Indirect Effect 2 (shown in Figure 4) was significant in all sites. In this indirect effect, household income loss positively predicted father-reported economic

pressure, which positively predicted father depression, which negatively predicted child-reported maternal disengaged parenting, which positively predicted adolescent internalizing.

3.3.3 Indirect effect 3—Indirect Effect 3 (shown in Figure 5) was significant and positive in all sites except among European Americans, where it was insignificant. In this indirect effect, income loss positively predicted mother report of economic pressure, which positively predicted maternal depression, which positively predicted paternal-report of disengaged parenting, which positively predicted adolescent internalizing.

3.3.4 Indirect effect 4—Indirect Effect 4 (shown in Figure 6) was significant and positive in all sites except among Kenyans, European Americans, and US-Hispanic samples. In this indirect effect, low income positively predicted mother report of economic pressure, which positively predicted maternal depression, which positively predicted mother-report of dysfunctional dyadic coping, which positively predicted paternal disengaged parenting, which positively predicted adolescent externalizing.

3.3.5 Indirect effect 5—Indirect Effect 5 (shown in Figure 7) was significant except among Kenyans and European Americans. In this indirect effect, low income positively predicted father report of economic pressure, which positively predicted paternal depression, which negatively predicted maternal disengaged parenting, which positively predicted adolescent internalizing.

3.4 Culture-specific effects

3.4.1 Kenya—Indirect effects 4 and 5 were not significant among Kenyans. Examining the individual paths in Table 4, we found that for Kenyans, low household income was not related to maternal (.026 95% CI: .097, .125) or paternal report (.128 95% CI: −.065, .176) of economic pressure. Average income was lowest in Kenya (1.42 compared to the overall average of 4.16).

3.4.2 US-European Americans—In all but one of the significant indirect pathways, European Americans differed from the other sites. Examining the individual paths in Table 4, we found that for European Americans, maternal economic pressure was not significantly related to maternal depression (−.147 95% CI: −.385, .065), mother-reported harsh parenting was not significantly related to child externalizing (10.970 95% CI: - 9.093, 24.468), and mother-reported dysfunctional dyadic coping was not significantly related to paternal disengaged parenting (−.053 95% CI: −.206, .120).

3.4.3 US-Hispanic—Indirect effect 4 was not significant for US-Hispanic participants. Examining the individual paths in Table 4, we found that for US Hispanic participants, adolescent-reported father disengaged parenting was not significantly related to adolescent externalizing (−1.118 95% CI: −2.402, .283).

3.4 Direct Effects

Though direct effects were not hypothesized in the model, we found a number of direct effects in certain cultures that strengthened model fit. For the outcome of age 15 adolescent

externalizing, we found that father-reported dysfunctional dyadic coping was significantly positively related to adolescent externalizing in Rome (2.077 95% CI: .822, 3.24) and negatively related to adolescent externalizing among European Americans (−2.77 95% CI: −4.707, −1.142). We also found a negative direct effect between maternal depression and adolescent externalizing in Rome (−1.948 95% CI −3.82, −.12) and a positive direct effect between father depression and adolescent externalizing in European Americans (5.09 95% CI: 2.73, 7.72). Also, there was a direct effect between age 12 household income loss and adolescent externalizing in Colombia (6.04 95% CI: 3.43, 12.78). For the outcome of age 15 adolescent internalizing, there was a negative direct effect of father depression on adolescent internalizing in Colombia (−4.02 95% CI: −7.87, −0.31).

3.5 Key differences by mother and father report

The first key difference by parent is that although maternal depression was related to mother-reported dysfunctional dyadic coping (.589 95% CI: .464, .715) and mother-reported harsh parenting (.057 95% CI: .002, .156), there were no significant mediated pathways from paternal depression to child internalizing and externalizing through father parenting. We did find that fathers' depression was significantly related to less disengaged parenting among mothers (−.165 95% CI: −.325, −.008). We also found that mother-report of dysfunctional dyadic coping was associated with higher levels of disengaged parenting in fathers (.263 95% CI: .170, .361), which was related to adolescent externalizing (.706 95% CI: .064, 1.325).

4. Discussion

The present study tested the FSM in a sample of adolescents and parents from 10 cultural groups in seven countries. Our focal research questions were whether the indirect effect of economic hardship on adolescent mental health was mediated by economic pressure, parental depression, dysfunctional dyadic coping, and parenting, and whether these relations differed by culture and mother vs. father report. These questions are particularly important given the limitations that prior studies guided by the FSM have been mostly in high-income countries and have included only mother report or have not disaggregated mother and father report. Overall, although the indirect effect sizes were small due to the many serial mediators, we found support for many of the indirect paths of the FSM. Because all of the effects of household income *loss* were controlling for low income, our results indicated that, regardless of one's level of income, losing 25% or more of one's income is associated with feeling economic pressure, which has a number of deleterious effects on family health and well-being. More research is needed to understand whether there is an interaction between level of income and income loss and how this interaction might affect the FSM.

Overall, our findings support the FSM. Also, although our findings were largely consistent across cultures, we did find some key differences. Additionally, we found several key differences in pathways based on mother and father report, particularly in the relations between mothers' and fathers' depression and perception of dyadic coping with each other's parenting behavior. These findings are important because they expand the current evidence

base on FSM that has largely focused on mother-report and on single populations, mostly within high-income countries (Fonseca et al., 2016; Masarik & Conger, 2017).

4.1 Differences across cultures

Though our findings were largely consistent across cultures, we did find some key differences, specifically in European American, Kenyan, and US-Hispanic participants.

4.1.1 European Americans—In all but one of the significant indirect pathways, European Americans differed from the other sites. Particularly, maternal economic pressure was not significantly related to maternal depression, mother-reported harsh parenting was not significantly related to child externalizing, and mother-reported dysfunctional dyadic coping was not significantly related to paternal disengaged parenting. Previous studies on the FSM have found a relation between economic pressure and depression among European Americans (Newland et al., 2013). Compared to mothers in other groups of our sample, European Americans reported the lowest levels of economic pressure (12.6% vs. 39% overall) and relatively low levels of harsh parenting. It is possible that low variability in these constructs among European Americans attenuated relations among the constructs.

4.1.2 Kenyans—Indirect effects 4 and 5 were not significant among Kenyans. For Kenyans, low household income was not related to maternal or paternal report of economic pressure. Because our low-income measure was standardized within sites, it is possible that low income compared to other participants in the Kenyan site is not significantly related to economic pressure due to overall low level of income within the Kenyan site. Many surveys in low-income countries also use household expenditure as a proxy for economic hardship and some economists argue that it is a better measure of living standards in low-income contexts, where many individuals may work as subsistence farmers and/or in the informal sector. It is possible that income may not fully represent economic hardship in the Kenyan context (Meyer & Sullivan, 2003).

4.1.3 US-Hispanic—Indirect effect 4 was not significant for US-Hispanic participants. Examining the individual paths in Table 4, we found that for US-Hispanic participants, adolescent-reported father disengaged parenting was not significantly related to adolescent externalizing. Although *familismo* is considered a central value in Hispanic families, emphasizing the importance of close family relationships (Guilamo-Ramos et al., 2007), gender roles are also often distinguished in Hispanic families, which is captured in cultural notions of *machismo* and *marianismo* (Parra-Cardona et al., 2006). In this context, it is possible that mothers' and fathers' engagement have different relations with adolescents' externalizing behaviors. This is consistent with prior findings with Mexican origin parents where harsh maternal parenting was significantly positively associated with youth externalizing, while there was no significant effect of harsh paternal parenting on youth externalizing. However, White et al. (2016) found that for fathers, the effect of harsh parenting on youth externalizing was only significant when neighborhood adversity was low. Future work is needed to understand whether neighborhood context moderates the relation between father disengaged parenting and adolescent externalizing.

4.2 Differences in pathways by parent

The first key difference by parent is that although maternal depression was related to mother-reported dysfunctional dyadic coping and mother-reported parenting, there were no significant mediated pathways from paternal depression to child internalizing and externalizing through father parenting. Few studies of FSM or specific components of the FSM have included depression in fathers. However, in a meta-analysis of 17 studies of paternal depression and adolescent psychopathology and 6 studies of paternal depression and father-adolescent conflict, paternal depression was significantly related to their adolescent's internalizing and externalizing psychopathology and father-adolescent conflict (Kane & Garber, 2004). However, several studies have found that depression in mothers is more strongly associated with adolescent internalizing and externalizing compared to depression in fathers (Connell & Goodman, 2002).

We did find that fathers' depression was significantly related to more engaged parenting among mothers. It is possible that mothers compensate for fathers' depression and dysfunctional dyadic coping through more engaged parenting. We also found that mother-report of dysfunctional dyadic coping was associated with higher levels of disengaged parenting in fathers, which was related to adolescent externalizing. This finding is consistent with crossover effects in family systems theory (Erel & Burman, 1995). Crossover effects happen when mothers' perception of dysfunction within the partnership is detrimental to fathers' relationships with their children.

Relatedly, it is possible that in our sample, fathers' parenting is affected by maternal depression and mothers' perceived dysfunctional dyadic coping more than fathers' own depression and their own perceived dysfunctional dyadic coping. This finding is consistent with the fathering-vulnerability hypothesis within the Actor-Partner Independence Model, a model that draws from family systems theory (Ponnet, 2014; Ponnet et al., 2016). The fathering-vulnerability hypothesis posits that fathers' parenting might be affected more significantly than mothers' might because women feel more of a responsibility to maintain family stability when facing economic stress (Ponnet, 2014; Ponnet et al., 2016). There is qualitative evidence that fathers feel the absence of their partners who have postpartum depression, which can affect their parenting (Beestin et al., 2014). However, more research is needed on dyadic dynamics between mothers and fathers in the relations among mental health, perception of partnership quality, and parenting outcomes.

4.3 Direct effects

Though direct effects are not hypothesized in the FSM, it is highly plausible that all of the relations in the model for each culture were not fully mediated through the model constructs. The largest number of direct effects were found for the adolescent externalizing outcomes. However, these effects were not consistent by predictors and across cultures. Therefore, it is difficult to hypothesize as to what is missing in the FSM that would contribute to these direct effects. More research is needed on this.

4.4 Strengths and limitations

Strengths of this study include the availability of longitudinal data from adolescents, mothers, and fathers in a set of diverse countries around the world. We showed sequential associations across the many variables in the FSM. We were able to examine multiple reporters of financial stress, depression, and parenting. We were also able to examine potential heterogeneity by culture. However, we acknowledge some limitations as well.

The dyadic coping measure was only completed if the participants considered themselves to be in a romantic partnership. Therefore, the results may not extend to individuals who do not consider themselves to be in a romantic partnership. We also were not able to ascertain whether the partner referenced in the measure of dyadic coping had a co-parenting role. More research is needed on the pathways between economic hardship and child internalizing and externalizing in single-parent families, especially given the added stress of the lone economic responsibility in the family and limited instrumental support (Stack & Meredith, 2018).

Although the samples were designed to be representative of the cities from which they were drawn, they are not nationally representative, so findings may not generalize to entire countries included in this study. Within-country differences related to SES or region (e.g., urban vs. rural) are important considerations in generalizability.

Additional limitations include that the model focused on developmental pathways during early to middle adolescence, and the findings may be different in developmentally earlier or later epochs. The rates of missingness were higher among the Hispanic participants, many of whom were recent immigrants who, in addition to being more geographically mobile, also provided fewer ways that our research team could make contact. We did not have adolescent reports of mother and father harsh parenting at adolescent age 14, nor did we have mother and father reports of positive parenting at adolescent age 14. Our measure of dyadic coping was at the same time point as depression. We did not measure economic hardship with the traditional low income-to-needs ratio because our income variable was measured in ten bands and not in continuous numbers. We therefore attempted to approximate economic hardship using low income and income loss. Income loss and economic pressure were only measured using one item each and may not fully represent the complexity of these constructs. Relatedly, the alpha statistics are low for some of the study measures, including paternal depression. However, Cronbach's alpha tends to be lower for scales that have fewer items. The depression scale only has four items.

5. Conclusions

Taken together, the findings suggest support for the FSM across cultures. We found associations among economic hardship, parental depression, parenting, and adolescent internalizing and externalizing. Though we found several interesting dynamics across mothers and fathers, additional research is needed to understand the mechanisms of how mother, father, and adolescent experiences interact in the FSM. Additional research is also needed to understand potential moderators of the pathways in the FSM, such as social support, support from extended family members, and community social cohesion. The

current results have applied implications. Economic adversity is associated with a host of adverse outcomes, including parental emotional distress, dysfunctional parental coping, harsh and disengaged parenting, and the development of adolescent externalizing and internalizing behaviors. The findings support polices aimed at preventing economic hardship (e.g., universal basic income and cash transfers) and mitigating the effects of hardship (e.g., parenting interventions aimed at families facing economic hardship). These supports are particularly important in the context of widespread economic hardship in many countries due to the economic impact of the COVID-19 pandemic.

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Highlights

- Multiple group serial mediation path models
- Longitudinal data from adolescents ages 12–15 from 1,082 families in 7 countries
- Partial support for Family Stress Model of Economic Hardship (FSM)
- Support for the FSM in most cultural groups across study countries

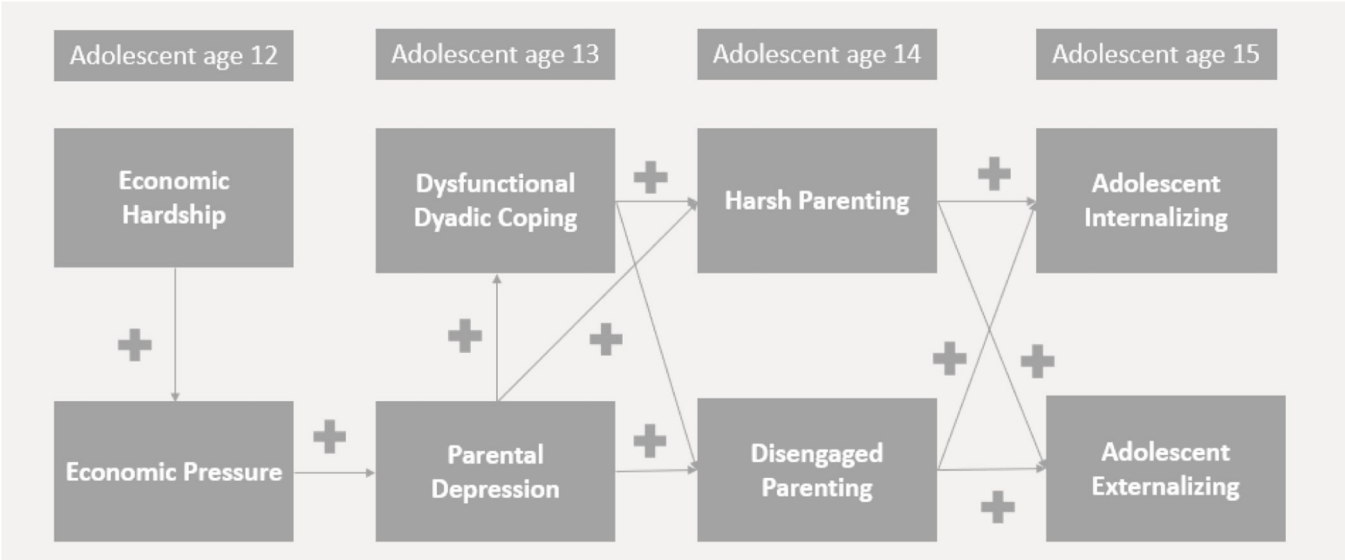

Figure 1.
Conceptual Framework

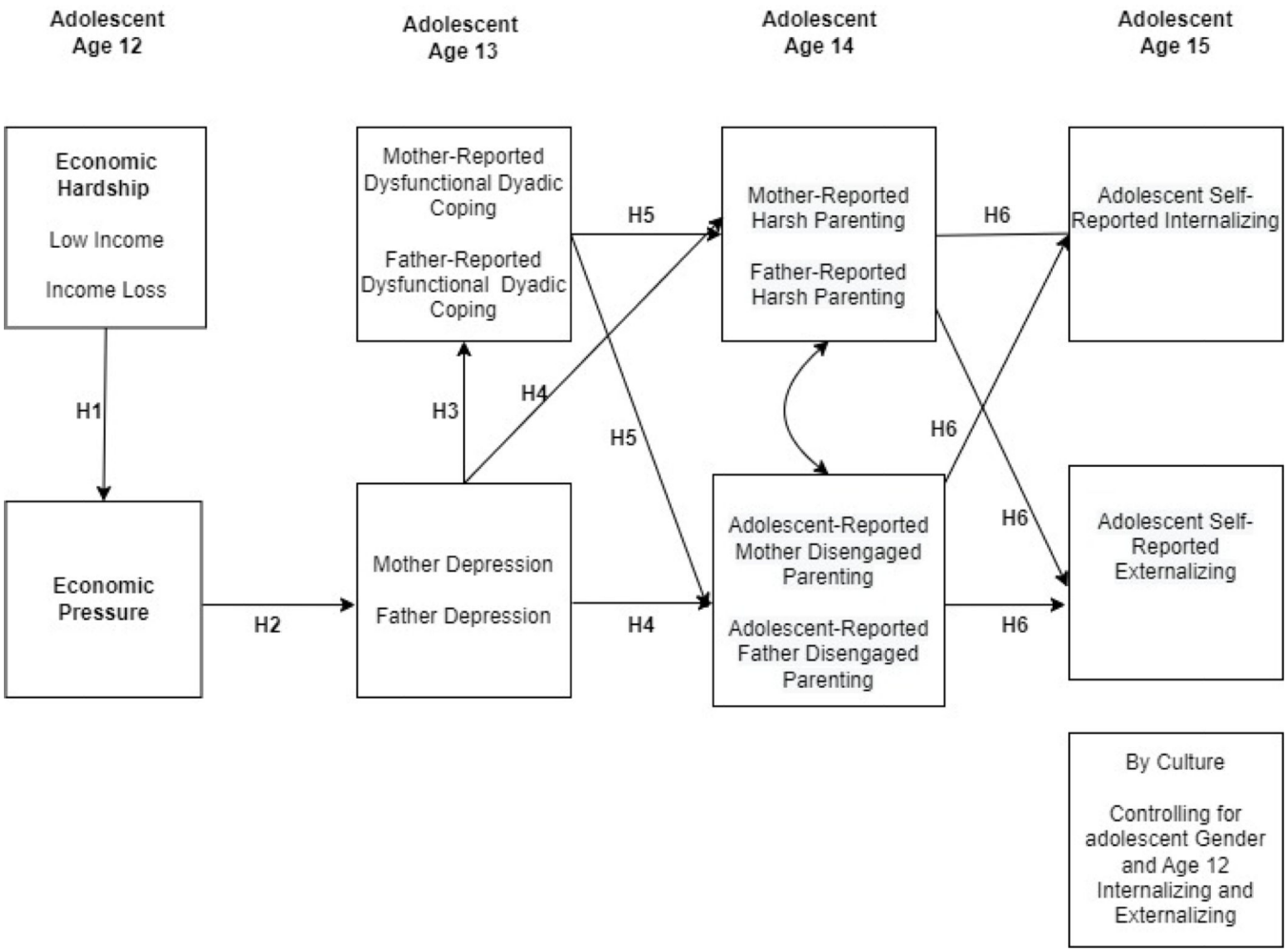

Figure 2.
Analytical Model

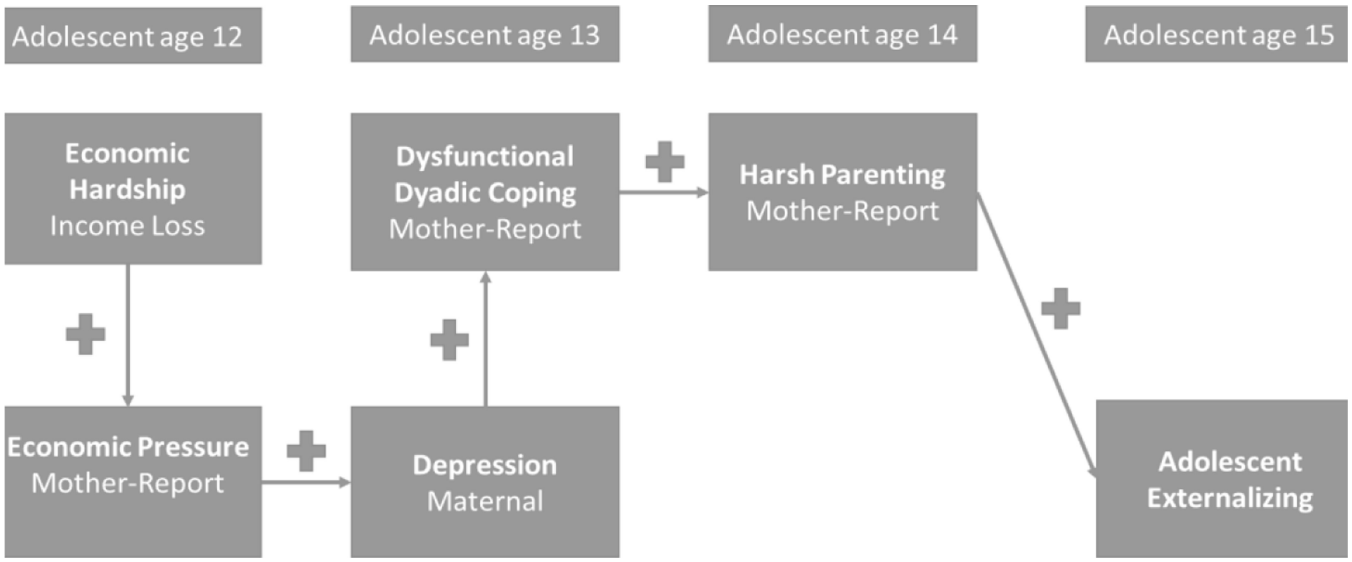

Figure 3.
Significant Indirect Effect 1.

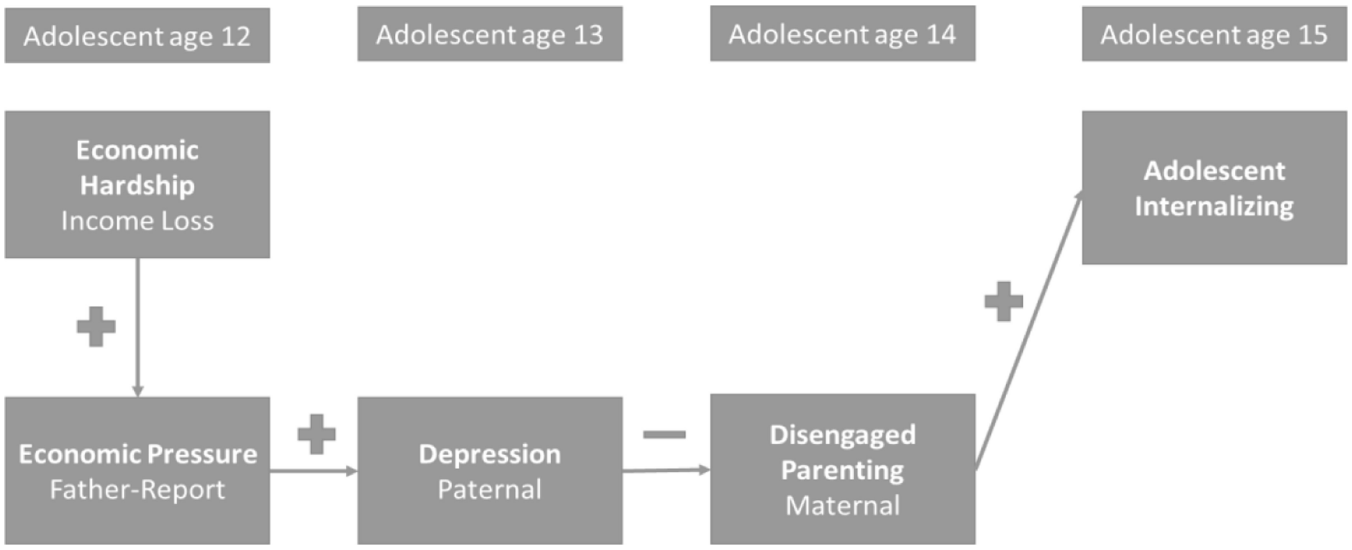

Figure 4.
Significant Indirect Effect 2

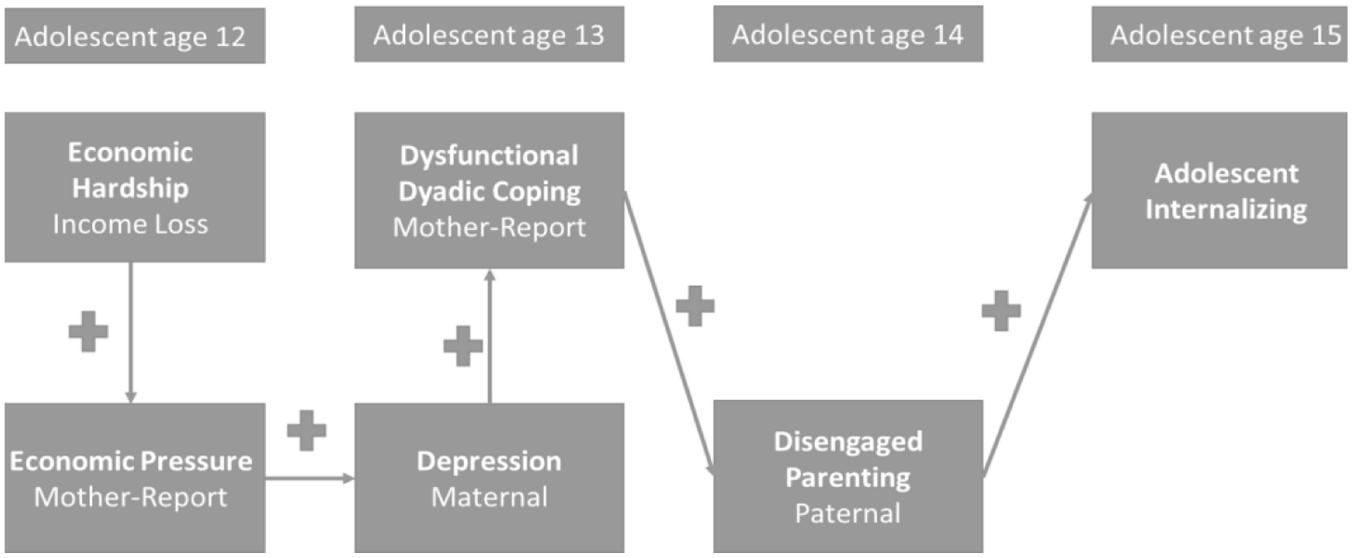

Figure 5:
Significant Indirect Effect 3

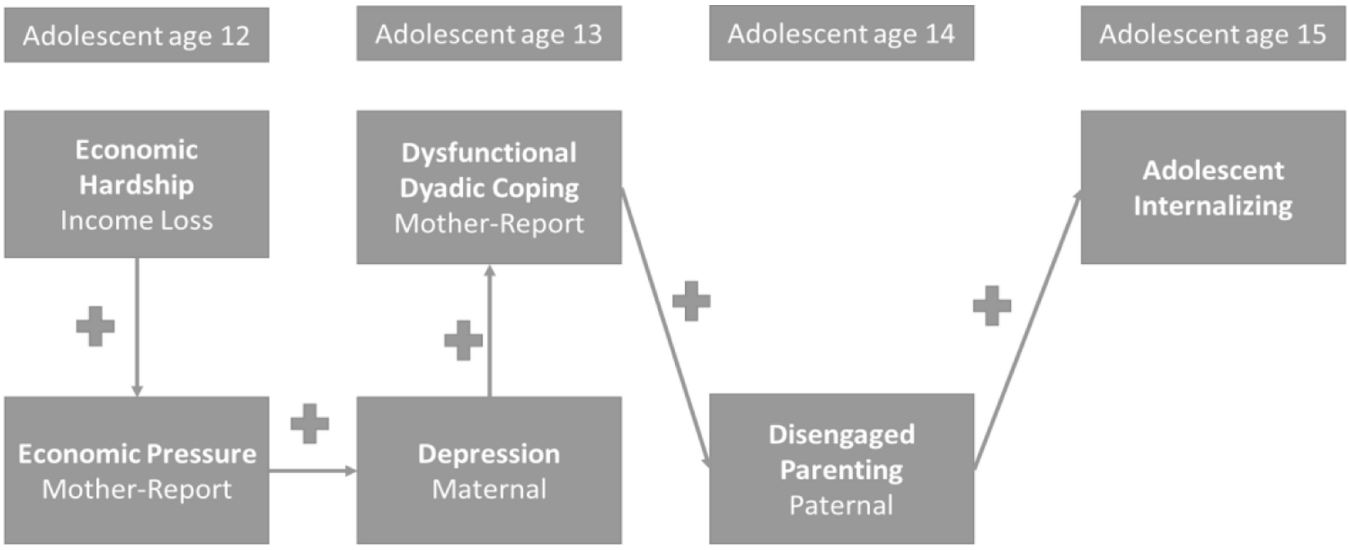

Figure 6.
Indirect Effect 4

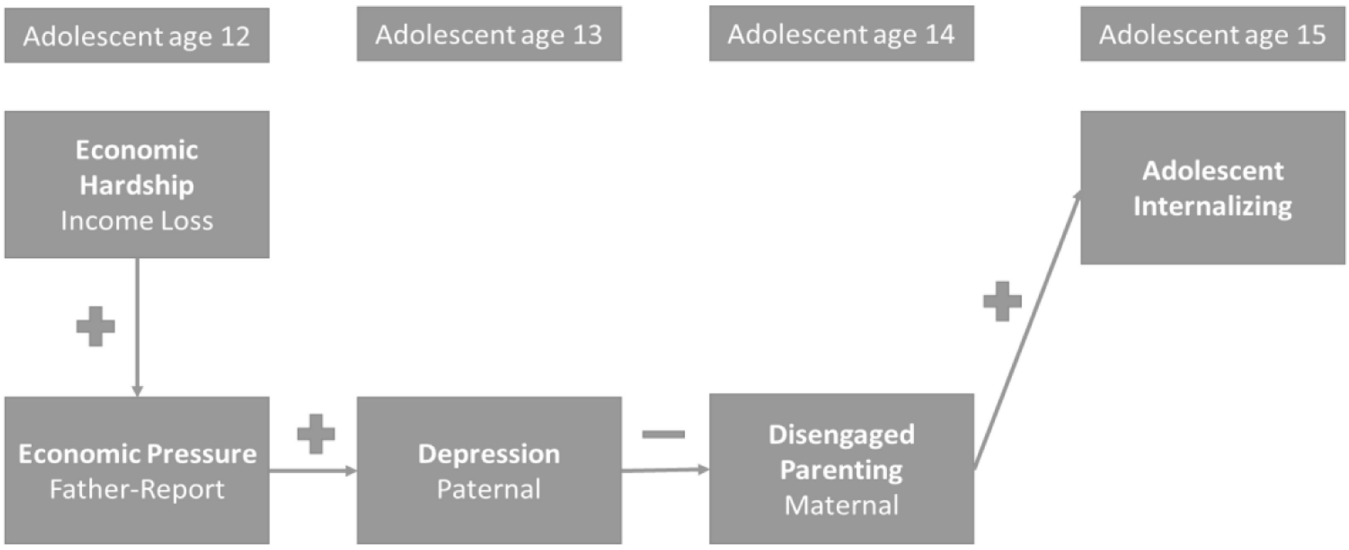

Figure 7:
Significant Indirect Effect 5

Table 1

Differences in Macro-Level Indicators by Study Country

	Human Development Index Rank[a]	% of pop < US$1.25 per day 2002–2012[a]	Hofstede individualism score	% enrollment in tertiary education[b]
Colombia	91	5.6	13	45
Italy	25	-	76	64
Jordan	100	0.1	30	42
Kenya	145	43.4	25	3
Philippines	114	19.0	32	31
Thailand	103	0.3	20	51
U.S.A.	3	-	91	-
Range	3–145	0–43	13–91	3–64

- = No data available

[a]Human Development Report (2013).

[b]World Bank (2012). Tertiary education includes colleges, universities, and technical training programs.

Table 2

Descriptive statistics by group

	% (n)					Mean (SD)									
	Female	**Age 12 Household Income**	**Age 12 Household Income Loss**	**Age 12 Economic Pressure (M)[a]**	**Age 12 Economic Pressure (F)[b]**	**Age 13 Depression (M)**	**Age 13 Depression (F)**	**Age 13 Dys. Dyad Coping[c] (M)**	**Age 13 Dys. Dyad Coping[c] (F)**	**Age 14 HP[d] (M)**	**Age 14 HP[d] (F)**	**Age 14 DP[e] (M)**	**Age 14 DP[e] (F)**	**Age 15 Int[f]**	**Age 15 Ext[g]**
Colombia	55.56% (60) N=108	3.44 (2.63) N=84	4.82%(4) N=83	44.71% (38) N=85	39.19% (29) N=74	.475(.474) N=81	.225(.325) N=70	2.41 (.841) N=66	2.36 (.561) N=63	1.22 (.45) N=78	1.06 (.23) N=70	.17 (.68) N=104	−.15 (.85) N=75	17.69 (11.78) N=78	13.37 (8.56) N=78
Italy-Naples	47.71% (52) N=100	3.81 (2.02) N=86	28.09% (25) N=89	45.65% (42) N=92	30.56% (22) N=72	.600 (.692) N=90	.387 (.403) N=71	2.29 (1.01) N=90	1.88 (.708) N=71	1.23 (.50) N=83	1.1 (.30) N=65	−.11 (.78) N=84	−.08 (.91) N=81	15.85 (9.90) N=85	11.49 (6.29) N=85
Italy-Rome	47.71% (52) N=109	4.98 (2.38) N=96	17.71% (17) N=96	34.74% (33) N=95	22.22% (16) N=72	.457 (.541) N=98	.366 (.421) N=73	2.30 (.691) N=82)	2.31 (.724) N=68	.1.18 (.37) N=100	1.16 (.42) N=77	−.34 (.71) N=101	−.21 (.76) N=93	15.14 (8.98) N=101	12.50 (7.06) N=101
Jordan	47.37% (54) N=114	1.81 (.94) N=100	22.22% (22) N=99	29.13% (30) N=103	28.71% (29) N=101	.493 (.534) N=100	.387 (.491 N=94	2.17 (.791) N=96	2.20 (.654) N=94	1.79 (.86) N=103	1.72 (.75) N=99	.17 (.68) N=104	.03 (.74) N=102	12.22 (8.71) N=104	13.56 (8.19) N=104
Kenya	60% (60) N=100	1.42 (.91) N=93	25.81% (24) N=93	74.16% (66) N=89	62.03% (49) N=79	.358 (.567) N=86	.306 (.536) N=76	1.94 (.829) N=77	1.79 (.743) N=76	1.56 (.87) N=78	1.51 (.85) N=61	.27 (.60) N=78	.27 (.73) N=71	13.92 (6.81) N=78	6.83 (4.81) N=78
Philippines	49.17% (59) N=120	4.67 (3.02) N=90	6.74 (6) N=89	51.14% (45) N=88	44.29$% (31) N=70	.455 (.407) N=73	.345 (.349) N=55	2.19 (.602) N=66	2.16 (.577) N=55	1.19 (.46) N=89	1.13 (.25) N=64	−.11 (.74) N=90	.02 (.73) N=79	18.29 (8.39) N=90	13.24 (6.85) N=90
Thailand	49.17% (59) N=120	3.99 (2.68) N=100	24.00% (24) N=100	30.85% (29) N=94	38.16% (29) N=76	.259 (.417) N=87	.303 (.389) N=66	2.58 (.690) N=83	2.62 (.414) N=65	1.07 (.20) N=82	1.08 (.33) N=63	−.15 (.70) N=85	.02 (.82) N=81	15.94 (9.17) N=85	13.51 (7.78) N=85
US-African American	51.96% (53) N=102	5.12 (2.61) N=86	14.12% (12) N=85	35.23% (31) N=88	30.00% (15) N=50	.292 (.510) N=84	.131 (.260) N=42	2.11 (.902) N=42	1.78 (.695) N=34	1.23 (.67) N=88	1.17 (.63) N=46	.14 (.72) N=88	.03 (.99) N=61	12.24 (10.05) N=88	9.34 (7.91) N=88
US-European American	41.82% (46) N=110	8.85 (1.85) N=93	11.70% (11) N=94	12.63% (12) N=95	10.45% (7) N=67	.208 (.476) N=89	.242 (.373) N=62	2.20 (.780) N=75	2.17 (.552) N=56	1.04 (.23) N=88	1.01 (.06) N=64	.04 (.68) N=88	.13 (.71) N=82	16.25 (11.21) N=88	12.09 (7.61) N=88
US-Hispanic	52.53% (52) N=99	4.36 (1.91) N=73	12.16% (9) N=83	40.28% (29) N=72	30.23% (13) N=43	.270 (.476) N=63	.235 (.353) N=34	2.07 (.773) N=53	2.10 (.754) N=31	1.17 (.45) N=63	1.07 (.21) N=37	.18 (.75) N=60	.02 (.73) N=54	11.64 (8.33) N=61	8.97 (6.73) N=61
Overall	50.55% (547) N=1082	4.16 (2.97) N=901	17.07% (154) N=902	39.40% (355) N=901	34.09 (240) N=704	.391 (.517) N=851	.307 (.415) N=643	2.24 (.812) N=729	2/15 (.686) N=613	1.28 (.60) N=852	1.23 (.54) N=646	.00 (.75) N=856	.00 (.80) N=779	14.95 (9.64) N=858	11.65 (7.57) N=858

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[a] Mother

[b] Father

[c] Dysfunctional Dyadic Coping

[d] Harsh Parenting

[e] Disengaged Parenting

[f] Internalizing

[g] Externalizing

Table 3

Variable correlations

	Age 12 Low Household Income	Age 12 Household Income Loss	Age 12 Economic Pressure (M)	Age 12 Economic Pressure (F)	Age 13 Depression (M)	Age 13 Depression (F)	Age 13 Dys. Dyad Coping (M)	Age 13 Dys. Dyad Coping (F)	Age 14 HP (M)	Age 14 HP (F)	Age 14 DP (M)	Age 14 DP (F)	Age 15 Int	Age 15 Ext
Age 12 Low Household Income	-													
Age 12 Household Income Loss	.284*	-												
Age 12 Economic Pressure (M)	.345*	.264*	-											
Age 12 Economic Pressure (F)	.261*	.174*	.549*	-										
Age 13 Depression (M)	.143*	.180*	.280*	.234*	-									
Age 13 Depression (F)	.082	.040	.127	.233*	.216*	-								
Age 13 Dys. Dyad Coping (M)	.060	.087	.095	.105	.349*	.178*	-							
Age 13 Dys. Dyad Coping (F)	.037	.050	.039	.079	.161*	.302*	.427*	-						
Age 14 HP (M)	.065	.076	.107	.076	.226*	.073	.064	.054	-					
Age 14 HP (F)	.014	.055	.054	.095	.089	.131	−.022	.072	.426*	-				
Age 14 DP (M)	.026	−.014	−.020	−.084	−.067	−.020	.102	.158*	−.004	005	-			
Age 14 DP (F)	.040	−.023	−.054	−.082	−.097	−.063	.260*	.197	−.034	.004	.514*	-		
Age 15 Int	−.022	.053	.067	.141*	.118	.052	.144*	.108	.024	−.051	−.238*	−.238*	-	
Age 15 Ext	−.031	.072	.062	.075	.084	.074	.127	.164*	.119*	.078	−.288	−.244*	.572*	-

Table 4

Unstandardized Results for the Final Model Estimate (95% CI)

Predictors of Age 15 Externalizing	
Age 12 Externalizing	**.385 (.302, .461)** Kenya: .157 (−.041, .432) **Rome: .605 (.479, .725)** **Thailand: .491 (.278, .676)**
Age 12 Internalizing	.017 (−.053, .076) **US European American: .177 (.096, .250)**
Age 14 Mother-Reported Harsh Parenting	**1.087 (.218, 2.068)** US European American: 10.970 (−9.093, 24.468)
Age 14 Father-Reported Harsh Parenting	−.188 (−1.088, .802) **US European American: 26.184 (22.991, 33.694)**
Age 14 Adolescent-Reported Mother Disengaged Parenting	**1.040 (.385, 1.739)**
Age 14 Adolescent-Reported Father Disengaged Parenting	**.706 (.064, 1.325)** US Hispanic: −1.118 (−2.402, .283)
Adolescent Gender (ref. male)	−.055 (−.813, .687) **US Hispanic: −2.590 (−4.679, − .838)**
Dysfunctional Dyadic Coping (M)	US European American: −1.226 (−2.093, .057)
Dysfunctional Dyadic Coping (F)	**Rome: 2.077 (.822, 3.236) US European American: − 2.774 (−4.707, −1.142)**
Depression (M)	**Rome: −1.948 (−3.820, −.120)**
Depression (F)	**US European American: 5.092 (2.730, 7.719)**
Age 12 Household Income Loss	**Colombia: 6.037 (3.430, 12.777)**
Predictors of Age 15 Internalizing	
Age 12 Internalizing	**.526 (.445, .613)** Kenya: .202 (−.006, .401) **Thailand: .428 (.210, .624)**
Age 12 Externalizing	.025 (−.075, .120) Thailand: −.006 (−.281, .259)
Age 14 Mother-Reported Harsh Parenting	.309 (−.709, 1.339)
Age 14 Father-Reported Harsh Parenting	−.826 (−2.041, .373) **Thailand: −4.287 (−10.317, − .086)**
Age 14 Adolescent-Reported Mother Disengaged Parenting	**1.325 (.488, 2.200)**
Age 14 Adolescent-Reported Father Disengaged Parenting	.684 (−.121, 1.429) **Jordan: 3.069 (.834, 5.519)**
Adolescent Gender (ref. male)	**2.517 (1.527, 3.545)**
Age 13 Depression (F)	**Colombia: −4.020 (−7.867, − .309)**
Age 12 Household Income Loss	Philippines: 5.618 (−.950, 12.185)
Predictors of Age 14 Mother-Reported Harsh Parenting	
Age 13 Dysfunctional Dyadic Coping (M)	**.058 (.025, .158)**
Age 13 Dysfunctional Dyadic Coping (F)	.018 (−.030, .086)
Age 13 Depression (M)	**.057 (.002, .156)** **Kenya: .520 (.111, 1.047)**
Age 13 Depression (F)	.021 (−.095, .113)
Adolescent Gender (ref. male)	−.002 (0.036, .045) **Jordan: −.541 (−.855, −.218)**

Predictors of Age 15 Externalizing	
Predictors of Age 14 Father-Reported Harsh Parenting	
Age 13 Dysfunctional Dyadic Coping (M)	−.008 (−.034, .009)
Age 13 Dysfunctional Dyadic Coping (F)	.031 (−.001, .076)
Age 13 Depression (M)	−.036 (−.083, .000) **Jordan: .255 (.023, .512)**
Age 13 Depression (F)	.023 (−.027, .068)
Adolescent Gender (ref. male)	−.020 (−.049, .005) **Jordan: −.699 (−.941, −.450)** **JUS African American: .789 (.363, 1.244)**
Age 12 Economic Pressure (F)	**Naples: .552 (.163, .948)**
Age 12 Low Household Income	**Rome: −.148 (−.240, −.055)**
Predictors of Age 14 Adolescent-Reported Mother Disengaged Parenting	
Age 13 Dysfunctional Dyadic Coping (M)	−.010 (−.106, .087) Kenya: −.101 (−.243, .029) **Thailand: .297 (.156, .463)**
Age 13 Dysfunctional Dyadic Coping (F)	.088 (−.023, .199) **Jordan: .351 (.168, .543)** US European American: .245 (−.124, .534)
Age 13 Depression (M)	.074 (−.041, .197) Thailand: −.280 (−.538, .021)
Age 13 Depression (F)	**-.165 (−.325, −.008)**
Adolescent Gender (ref. male)	−.011 (−.104, .093) **Jordan: .262 (.060, .483)**
Age 12 Economic Pressure (F)	**US European American: .721 (.165, 1.196)**
Predictors of Age 14 Adolescent-Reported Father Disengaged Parenting	
Age 13 Dysfunctional	**.263 (.170, .361)**
Dyadic Coping (M)	US European American: −.053 (−.206, .120)
Age 13 Dysfunctional Dyadic Coping (F)	**.174 (.063, .301)** Rome: −.220 (−.480, .027)
Age 13 Depression (M)	.011 (−.117, .147)
Age 13 Depression (F)	−.030 (−.188, .132)
Adolescent Gender (ref. male)	**.104 (−.006, .212)**
Age 12 Household Income Loss	**Thailand: −.315 (−.539, −.109)**
Predictors of Age 13 Dysfunctional Dyadic Coping (M)	
Age 13 Depression (M)	**.589 (.464, .715)**
Age 13 Depression (F)	**.282 (.141, .454)**
Adolescent Gender (ref. male)	**.127 (.026, .230)**
Age 12 Economic Pressure (F)	**Philippines: −.384 (−.724, −.037)**
Age 12 Household Income Loss	Philippines: −.488 (−1.069, .122)
Predictors of Age 13 Dysfunctional Dyadic Coping (F)	
Age 13 Depression (M)	**.152 (.048, .269)** **Jordan: .430 (.204, .645)**
Age 13 Depression (F)	**.456 (.332, .584)**

Predictors of Age 15 Externalizing	
Adolescent Gender (ref. male)	.066 (−.024, .154)
Age 12 Low Household Income	**US Hispanic: −.230 (−.467, − .075)**
Predictors of Age 13 Depression (M)	
Age 12 Economic Pressure (M)	**.245 (.161, .349)** US European American: −.147 (−.385, .065)
Age 12 Economic Pressure (F)	.059 (−.041, .165) **Jordan: .386 (.165, .600)** **US European American: .529 (.205, .760)**
Adolescent Gender (ref. male)	−.025 (−.089, .027)
Age 12 Low Household Income	
Predictors of Age 13 Depression (F)	
Age 12 Economic Pressure (M)	.023 (−.047, .099)
Age 12 Economic Pressure (F)	**.153 (.076, .237)** **US European American: .635 (.250, 1.103)**
Adolescent Gender (ref. male)	−.057 (−.117, .015) **Colombia: .151 (.015, .298)** **Kenya: −.347 (−.627, −.120)**
Age 12 Low Household Income	**Rome: −.147 (−.258 ,-.034)**
Predictors of Age 12 Economic Pressure (M)	
Age 12 Low Household Income	**.141 (.110, .174)** Kenya: .026 (−.097, .125)
Age 12 Household Income Loss	**.219 (.124, .312)** **Rome: .506 (.282, .680)**
Adolescent Gender (ref. male)	−.013 (−.068, .039)
Predictors of Age 12 Economic Pressure (F)	
Age 12 Low Household Income	**.128 (.092, .161)** Kenya: .014 (−.065, .176) **Philippines: .128 (.092, .161)**
Age 12 Household Income Loss	**.136 (.032, .237)**
Adolescent Gender (ref. male)	−.013 (−.074, .051)

Table 5

Significant indirect effects

Effect	Point Estimate Externalizing (95% Bootstrapped CI)	Point Estimate Internalizing (95% Bootstrapped CI)
Indirect Effect 1: Household Income Loss > Economic Pressure (M) > Depression (M) > Dysfunctional Dyadic Coping (M) > Harsh Parenting (M) > Adolescent Behavior	**.002 (.001, .011)** **Italy-Rome: .005 (.001, .023)** **US- European American: −.012 (−.090, − .001)**	N/A
Indirect Effect 2: Household Income Loss > Economic Pressure (F) > Depression (F) > Disengaged Parenting (M) > Adolescent Behavior	N/A	**−.005 (−.018, −.001)** **US-European American: −.019 (−.082, −.002)**
Indirect Effect 3: Household Income Loss > Economic Pressure (M) > Depression (M) > Dysfunctional Dyadic Coping (M) > Disengaged Parenting (F) > Adolescent Behavior	N/A	**.006 (.001, .019)** **Italy-Rome: .013 (.001, .040)** **Jordan: .026 (.007, .071)** US-European American: .001 (−.001, .009)
Low Household Income > Economic Pressure (M) > Depression (M) > Dysfunctional Dyadic Coping (M) > Disengaged Parenting (F) > Adolescent Behavior	**.004 (.001, .010)** **Colombia: .013 (.002, .035)** Kenya: .001 (−.002, .005) **Philippines: .007 (.002, .019)** US-European American: .000 (.000, .005) US-Hispanic: −.006 (−.018, .000)	N/A

Note: When a site is specified, it means that the model fit significantly better allowing the coefficient in that site to be different from the other sites.