



# HHS Public Access

Author manuscript

*Int J Behav Dev.* Author manuscript; available in PMC 2020 January 01.

Published in final edited form as:

*Int J Behav Dev.* 2019 January ; 43(1): 74–79. doi:10.1177/0165025418783272.

## Household Income Predicts Trajectories of Child Internalizing and Externalizing Behavior in High-, Middle-, and Low-Income Countries

**Jennifer E. Lansford,**

Duke University, Durham, NC, USA

**Patrick S. Malone,**

Duke University, Durham, NC, USA

**Sombat Tapanya,**

Chiang Mai University, Chiang Mai, Thailand

**Liliana Maria Uribe Tirado,**

Universidad San Buenaventura, Medellín, Colombia

**Arnaldo Zelli,**

University of Rome “Foro Italico,” Rome, Italy

**Liane Peña Alampay,**

Ateneo de Manila University, Quezon City, Philippines

**Suha M. Al-Hassan,**

Hashemite University, Zarqa, Jordan, and Emirates College for Advanced Education, Abu Dhabi, UAE

**Dario Bacchini,**

University of Naples “Federico II,” Naples Italy

**Marc H. Bornstein,**

*Eunice Kennedy Shriver* National Institute of Child Health and Human Development, Bethesda, MD, USA

**Lei Chang,**

University of Macau, China

**Kirby Deater-Deckard,**

University of Massachusetts, Amherst, MA, USA

**Laura Di Giunta,**

Università di Roma “La Sapienza,” Rome, Italy

**Kenneth A. Dodge,**

Duke University, Durham, NC, USA

---

Address correspondence to: Jennifer E. Lansford, Duke University, Center for Child and Family Policy, Box 90545, Durham, NC 27708, USA. lansford@duke.edu.

**Paul Oburu,**

Maseno University, Maseno, Kenya

**Concetta Pastorelli,**

Università di Roma "La Sapienza," Rome, Italy

**Ann T. Skinner,**

Duke University, Durham, NC, USA

**Emma Sorbring, and**

University West, Trollhättan, Sweden

**Laurence Steinberg**

Temple University, Philadelphia, PA, USA and King Abdulaziz University, Jeddah, Saudi Arabia

## Abstract

This study examined longitudinal links between household income and parents' education and children's trajectories of internalizing and externalizing behaviors from age 8 to 10 reported by mothers, fathers, and children. Longitudinal data from 1,190 families in 11 cultural groups in eight countries (Colombia, Italy, Jordan, Kenya, Philippines, Sweden, Thailand, and United States) were included. Multigroup structural equation models revealed that household income, but not maternal or paternal education, was related to trajectories of mother-, father-, and child-reported internalizing and externalizing problems in each of the 11 cultural groups. Our findings highlight that in low-, middle-, and high-income countries, socioeconomic risk is related to children's internalizing and externalizing problems, extending the international focus beyond children's physical health to their emotional and behavioral development.

## Keywords

child internalizing and externalizing behavior; income; international; parental education; socioeconomic status

---

Family socioeconomic status (SES) often is conceptualized as encompassing education, occupational status, and household income (Bornstein & Bradley, 2003). It includes both objective realities (e.g., not having enough income to pay for basic living expenses) and more subjective features that manifest as social capital (e.g., with more education parents can tap into social networks and resources that provide advantages to child development; Hoff, Laursen, & Bridges, 2012). In high-, middle-, and low-income countries, higher family SES has been related to better youth adjustment in a number of domains (for reviews see Conger, Conger, & Martin, 2010; Piotrowska, Stride, Croft, & Rowe, 2015; Wachs, Cueto, & Yao, 2016). For example, higher parental education (e.g., Dubow, Boxer, & Huesmann, 2009), higher income (e.g., Yeung, Linver, & Brooks-Gunn, 2002), and more subjective factors, such as perceptions of relative socioeconomic standing (e.g., Goodman, Maxwell, Malspeis, & Adler, 2015), all are related to children's behavioral adjustment.

Several studies have addressed the extent to which SES has a causal impact on child behavior, versus the extent to which SES is merely correlated with or a precursor to a

number of other parent and family characteristics that affect child behavior. Low-income children's school engagement and positive social behavior were found to increase more in families that were randomly assigned to an experimental group that experienced an increase in income as a result of being allowed to retain welfare benefits in conjunction with income from paid employment than in a control group that did not experience an increase in income (Morris & Gennetian, 2003). In addition, increases in parental employment and household income that took place when a casino opened in a poor community in the United States were associated with decreases in child behavior problems and better mental health into adulthood for American Indian children whose families received income supplements from the casino's opening. The casino's opening provided a natural experiment related to an income increase because families received an income increase by virtue of being an American Indian living on the reservation where the casino opened rather than any personal attributes that would otherwise confound links between SES and child outcomes (Costello, Erkanli, Copeland, & Angold, 2010). Furthermore, in a longitudinal study tracking family income and children's behavioral adjustment over time, children's externalizing behaviors were found to decrease when family income increased (Dearing, McCartney, & Taylor, 2006). Thus, it appears that higher SES itself is predictive of at least some of the variance in children's behavioral adjustment.

Although a large body of previous research has examined how different components of SES, individually and jointly, are related to children's internalizing and externalizing behaviors, the present study is innovative in examining these questions using a diverse international sample from eight countries. Links between SES and children's internalizing and externalizing behaviors may differ across countries because of differences in the broader macro-economic contexts in which families are situated. For example, in countries with more generous social safety nets, individual family income may be less predictive of developmental outcomes. To illustrate, 23.4% of Swedish children and 26.7% of American children live below these two countries' respective national poverty lines before taking into account taxes and transfers (UNICEF, 2000). After adjusting for taxes and transfers, however, only 2.6% of Swedish children live below the national poverty line, compared to 22.4% of American children (UNICEF, 2000). Therefore, individual household income may be less importantly related to children's internalizing and externalizing behaviors in Sweden than the United States to the extent that the social safety net in Sweden is able to compensate for low income.

In the present study, we included eight countries: Colombia, Italy, Jordan, Kenya, the Philippines, Sweden, Thailand, and the United States. On the Human Development Index, a composite indicator of a country's status with respect to health, education, and income, participating countries ranged from a rank of 5 (the United States) to 147 (Kenya) out of 187 countries with available data (Human Development Report, 2014). To provide a sense of what this range entails, the adult literacy rate in Kenya is 72%, compared to rates near 100% in Italy, Sweden, and the United States (UNICEF, 2014). In the Philippines, the adult literacy rate is high (about 95%), but so is the poverty rate, with 18% of the population falling below the international poverty line of less than US\$1.25 per day (UNICEF, 2014). Almost none of the population falls below this poverty line in Italy, Sweden, or the United States. This design allowed us to examine whether family SES is related to children's internalizing and

externalizing behaviors consistently regardless of the broader country-level SES context in which families are situated.

Buchmann (2002) reviewed links between SES and educational outcomes in several countries and reported that higher SES (usually operationalized in terms of parents' education, occupational status, income, or a combination of these factors) was consistently related to higher educational achievement in offspring. Likewise, a meta-analysis revealed consistent links between SES and antisocial behavior, but there were enough studies only in North America and Europe to make statistical comparisons between those two geographic regions; there were not enough studies in South America, Asia, Africa, or the Middle East to make statistical comparisons (Piotrowska et al., 2015). Generalizability in links between SES and child behavior problems will be supported to the extent that similar patterns of findings are found in countries that differ widely in national-level indicators of SES (Norenzayan & Heine, 2005).

## The Present Study

We address one focal research question: Are mothers' education, fathers' education, and household income related to changes over time in children's internalizing and externalizing behaviors in eight economically diverse countries? We hypothesized that across countries, higher levels of parental education and household income would be related to fewer child internalizing and externalizing problems over time. We focused on children's internalizing and externalizing behaviors as indicators of children's adjustment because these behaviors have been shown to be important and valid measures of children's mental health across the globe (e.g., Achenbach System of Empirically Based Assessment, 2016) and because these indicators extend beyond the measures of physical health that have been the outcomes in most previous international studies of SES and child development, increasing attention to children's emotional and behavioral adjustment.

## Method

### Participants

Participants included 1,190 children (age range at Year 1 = 7 to 10 years,  $M = 8.27$ ,  $SD = .66$ ; 51% girls), their mothers ( $n = 1,156$ ), and their fathers ( $n = 912$ ) from the Parenting Across Cultures Project. Families were drawn from Medellín, Colombia ( $n = 108$ ; 56% girls;  $Mage = 8.69$ ,  $SD = .59$ ), Naples, Italy ( $n = 100$ ; 52% girls;  $Mage = 8.79$ ,  $SD = .39$ ), Rome, Italy ( $n = 109$ ; 47% girls;  $Mage = 8.73$ ,  $SD = .83$ ), Zarqa, Jordan ( $n = 114$ ; 47% girls;  $Mage = 8.44$ ,  $SD = .31$ ), Kisumu, Kenya ( $n = 100$ ; 60% girls;  $Mage = 8.76$ ,  $SD = .81$ ), Manila, Philippines ( $n = 120$ ; 49% girls;  $Mage = 8.42$ ,  $SD = .35$ ), Trollhättan/Vänersborg, Sweden ( $n = 103$ ; 50% girls;  $Mage = 8.16$ ,  $SD = .34$ ), Chiang Mai, Thailand ( $n = 120$ ; 49% girls;  $Mage = 7.87$ ,  $SD = .57$ ), and Durham, North Carolina, United States ( $n = 112$  European Americans, 42% girls,  $Mage = 9.16$ ,  $SD = .51$ ;  $n = 104$  African Americans, 52% girls,  $Mage = 9.09$ ,  $SD = .60$ ;  $n = 100$  Latino Americans, 53% girls,  $Mage = 9.03$ ,  $SD = .67$ ). Participants were recruited through letters sent from schools. Children whose parents were willing for us to contact them to explain the study were asked to return a form to school with their contact information. We were then able to contact those families to try to

obtain their consent to participate, scheduling interviews to take place in participants' homes, schools, or other locations convenient for the participants. Institutional review boards at universities in each participating country reviewed and approved study procedures and measures. Parents provided written informed consent, and children provided assent.

Most parents (82%) were married, but parents who did not live with the child (e.g., if the parents were divorced) still were able to provide data. Nearly all were biological parents, with 3% being grandparents, stepparents, or other adult caregivers. Sampling focused on including families from the majority ethnic group in each country; the exceptions were in Kenya in which we sampled the Luo ethnic group (3<sup>rd</sup> largest, 13% of population), and in the United States, where we sampled European American, African American, and Latino American families. To ensure economic diversity, we included students from private and public schools and from high- to low-income families in each recruitment area. Child age and gender did not vary across countries. Initial interviews were conducted in 2008–2009. At the follow-up interviews one year after the initial interviews (2009–2010), 94% of the original sample continued to provide data; 91% of the original sample continued to provide data two years after the initial interviews (2010–2011). The mean age of the children was 9.34 years ( $SD = .75$ ) at Year 2 and 10.38 years ( $SD = .74$ ) at Year 3. Participants who provided Year 2 and 3 data did not differ from the original sample with respect to child gender, parents' marital status, or parents' education.

### Procedures and Measures

In Years 1 and 2, mothers completed a demographic questionnaire either orally or in writing (depending on the mothers' preference) that included items about the number of years of education completed by the mother and father (in both years) and household income in local currency (only in year 2). We standardized education measures and Year 2 household income within site to aid in comparison of structural coefficients, because income and education, even when converted to common units, often do not have comparable meaning between nations and cultural groups.

In Years 1, 2, and 3, parents and children, respectively, completed the Child Behavior Checklist (CBCL) and Youth Self-Report (YSR; Achenbach, 1991). Parents completed the measure either orally or in writing, depending on their preference; an interviewer asked children the questions orally and recorded their responses. Parents and children indicated whether each behavior was “*not true*” (coded as 0), “*somewhat or sometimes true*” (coded as 1), or “*very true or often true*” (coded as 2). The Achenbach measures have been translated into at least 100 languages and have been used with at least 100 cultural groups (Achenbach System of Empirically Based Assessment, 2016). The *Internalizing Behavior* scale was generated by summing the responses from 31 items (for parents) or 29 items (for children) including behaviors and emotions such as loneliness, self-consciousness, nervousness, sadness, feeling worthless, anxiety, withdrawn behavior, and physical problems without medical causes ( $\alpha$ s = .85, .86, and .87 for mothers, fathers, and children, respectively). The *Externalizing Behavior* scale was created by summing the responses from 33 items (for parents) or 30 items (for children) including behaviors such as lying, truancy, vandalism,

bullying, disobedience, tantrums, sudden mood change, and physical violence ( $\alpha$ s = .88, .86, and .85 for mothers, fathers, and children, respectively).

### Analysis Plan

All analyses were conducted as 11-cultural group path analyses in the SEM software *Mplus* v8.0. SES variables (maternal and paternal education, household income, and the square of household income) were modeled as predictors of six behavior variables: mother-, father-, and child-reported internalizing and externalizing behavior problems. Child age and gender were included as covariates. Income and education variables were standardized within cultural group to provide for the best available comparability across groups. The maximum likelihood estimator uses all cases for which exogenous variables are available, treating other data as missing at random (MAR). The MAR assumption is not testable, but, failing a theoretical model of missingness, yields less bias than other *ad hoc* forms of handling missing data while retaining maximum power. We imposed structural noninvariance for the hypothesized paths (SES variables to behavioral outcomes) and concluded that the fit of the invariant model was adequate to continue with the assumption of invariance. We applied the Benjamini-Hochberg (1995) adjustment to control the False Discovery Rate (FDR) to .05 at each stage.

Using parental education as measured at Year 1 and income measured at Year 2, we regressed the linear slope of change in behavior problems from Years 1 through 3 on education and income. We included a quadratic term for income (the square of standardized income as a predictor) in all models to allow for curvilinearity of the relations. Second, we separated prediction of internalizing and externalizing behavior problems. Finally, we tested the predictive utility of maternal education, paternal education, and the two income variables as isolated predictors to disentangle effects. We explored the possibility of adding interactions between income and education but encountered severe convergence difficulties in these models and were unable to obtain interpretable results regarding moderation. This analysis will not be discussed further.

## Results

### Missing Data

Of 1,190 families across the eleven cultural groups, 715 (60%) had complete data on all analysis variables. Retention at Year 3 for the CBCL was 90%. Missing data rates for father-report CBCL increased from 23% to 27% across Years 1 to 3, and the rate was 12% for father's education. All other analysis variables had aggregate missing data rates of 9% or less. By cultural group, Year 3 missing-data rates for mother-reported CBCL and child-reported YSR ranged from 2% (Jordan) to 21% (US Latino), with a median of 7%. Other than US Latino, only the Philippines and Thailand groups showed missing data rates greater than 10%.

We first estimated a latent trajectory model that included random intercepts and linear slopes for each of the six measures of behavior problems. These intercepts and slopes were regressed on maternal education, paternal education, income, and the square of the income



variable, as well as child age and gender (as covariates). The SES variables were also regressed on child age and gender as potential third-variable causes and to include the SES variables in Mplus' missing data algorithm. To account for method effects, we included *a priori* residual covariances between internalizing and externalizing behavior reports by a given reporter in a given year and between reporters for a given behavior type in a given year. The fully unconstrained model in which all parameter estimates were free to vary across cultural groups did not converge with a large number of iterations. This suggests the model was empirically under-identified, most likely because of the very large number of free parameters relative to the sample size. We then estimated a partially structurally invariant model by re-estimating the model with all hypothesis-relevant structural coefficients (i.e., from the SES components to every latent trajectory parameter) constrained to equality across the 11 cultural groups. Other coefficients (e.g., paths from covariates, residual variances and covariances) were allowed to vary to maximize fit. The fit of this model was generally acceptable by approximate fit measures, though not by  $\chi^2(1,470, N = 1,175) = 2,183.01, p < .001$ , estimated root mean squared error of approximation (RMSEA) = .067, 95% CI [.061, .073], Comparative Fit Index (CFI) = .95, Tucker-Lewis Index (TLI) = .89, standardized root mean square residual = .083. The test of aggregate effects on change in behavior problems—all SES variables on all six latent slope variables--was significant in the constrained model, Wald  $\chi^2(24) = 60.73, p < .001$ .

Constrained, unstandardized structural coefficients for the unique contributions of each SES variable (with the two income variables taken together) are shown in Table 1. None of the unique contributions was significant after FDR adjustments were applied to the six predictive relations from each SES variable (using 2-degree-of-freedom Wald tests for income). Unstandardized coefficients are used because standardized coefficients vary by cultural group due to differences in the unconstrained variances. Means and standard deviations of the linear slope parameters by cultural group are shown in Table 2 to aid an understanding of scale relative to the within-group standardized education and income measures. As shown, standard deviations vary considerably by group. Standard deviations were not estimable for several latent slopes, particularly on the mother-reported variables. These reflect Heywood cases, where the point estimate of the residual variance of the slope is negative. Of the thirteen such cases, none of the variance estimates is significantly negative,  $p < .05$ , after FDR correction. This suggests these cases result from estimation error, likely related to the modest within-group sample sizes, and are not a significant threat to interpretation.

We next probed the global effect, finding SES effects on the slopes of internalizing behavior problems, Wald  $\chi^2(12) = 37.90, p < .001$ , and on the externalizing slopes, Wald  $\chi^2(12) = 26.77, p = .008$ , both significant after FDR correction. This finding indicated that SES predicted change over time in both internalizing and externalizing behaviors. Probing within the effects on internalizing slopes, household income (linear and quadratic together) predicted slopes of internalizing behavior after FDR, Wald  $\chi^2(6) = 18.44, p = .005$ , but neither maternal nor paternal education did. Thus, higher levels of household income, but not parent education, were associated with greater decreases in child internalizing behavior. The specific prediction of a given reporter's latent slope of internalizing behaviors from income was not significant after FDR for any of the three reports, meaning that income was

not uniquely related to mothers', fathers', or children's reports of internalizing behavior but rather to the set of all three. Similarly, probing within the effects on slopes of externalizing behaviors, household income was a significant predictor after FDR, Wald  $\chi^2(6) = 18.44$ ,  $p = .005$ , but neither maternal nor paternal education was. Thus, as in the prediction of child internalizing behavior, higher levels of household income, but not parent education, were associated with greater decreases in child externalizing behavior. Income had a specific effect on change in mothers' reports of externalizing behavior after FDR, Wald  $\chi^2(2) = 7.11$ ,  $p = .028$ . The model-implied change over time in externalizing behavior problems is modest but positive in the middle and lower ranges of income, diminishing to essentially zero as income increases above the mean. This means that for families with household incomes at or below the mean, mother-reported externalizing behavior declined modestly over time, but for families with household incomes above the mean, mother-reported externalizing behavior remained fairly stable over time, and always lower than mother-reported externalizing for families with income at or below the mean.

## Discussion

Our focal research question asked whether mothers' education, fathers' education, and household income are similarly related to trajectories of children's internalizing and externalizing behaviors from age 8 to 10 in 11 cultural groups in eight diverse countries. We found that, taken together, household income, maternal education, and paternal education predict trajectories of mother-, father-, and child-reported internalizing and externalizing problems from age 8 to 10. Probing to understand links between specific aspects of SES and the behavior problem trajectories revealed that household income, but not maternal or paternal education, was related to trajectories of mother-, father-, and child-reported internalizing and externalizing problems. Further probing to reveal links between particular SES predictors and specific child outcomes revealed that higher household income is related to lower levels of mother-reported child externalizing behavior from age 8 to 10 as well as declining levels of mother-reported child externalizing behavior over time, particularly in the middle and lower ranges of income (although still remaining higher than externalizing behavior for the higher range of income). Models in which the paths between the SES variables and child internalizing and externalizing behavior variables were constrained across the 11 cultural groups had acceptable fit.

Notable strengths of our study included the availability of longitudinal data from mothers, fathers, and children in eight countries, most of which are under-represented in the developmental literature. This international, comparative analysis provided a strong way to test replication of findings across diverse contexts, addressing a call for more tests of replication in developmental and psychological science (Duncan, Engel, Claessens, & Dowsett, 2014). The consistency of our findings across 11 cultural groups in eight diverse countries suggests that family-level SES is important for child development regardless of macro-level poverty that varies by countries. Nevertheless, future studies of SES and child development would benefit from comparing between-family within-culture effects with between-culture effects of different aspects of SES on child outcomes.



The study also had limitations. First, although the samples were socioeconomically diverse within the cities from which they were drawn, they were not nationally representative; findings may not generalize to entire populations of the eight included countries or to other countries. Second, we did not categorize our sample as above or below any absolute or relative poverty thresholds as has been done in much previous research. Children who are below these poverty thresholds are at most risk for adjustment problems (Hetzner, Johnson, & Brooks-Gunn, 2010), but determining which cut-offs to use for such thresholds has its own limitations, such as needing to make somewhat arbitrary choices about where the threshold should be, restricting variance by not using full continuous scales, and artificially creating dichotomies immediately above and below the threshold. Third, parents provide not only socioeconomic environments to their children but also genetic proclivities. Parents' own mental health problems or maladaptive behaviors may confer genetic risks to children as well as being observed by them. Future research using genetically informative designs and controlling for parents' mental health and maladaptive behaviors will help elucidate socioeconomic processes that are independent of other parental characteristics.

An important direction for future research will be to investigate mechanisms through which SES is related to child externalizing and internalizing behaviors in different countries, especially given differences in social safety nets and other macroeconomic contexts that in theory might alter relations between family-level SES and children's internalizing and externalizing behaviors. Through anxiety contagion, mothers' anxiety about their financial situation (especially if they are vocal about their worries) might be picked up by children and generalized to children's anxiety about their own lives. In addition, parents' financial difficulties likely contribute to overall stress, which has been demonstrated in previous research to be related to harsher and less responsive parenting and, in turn, poorer child adjustment (Gershoff, Aber, Raver, & Lennon, 2007).

As countries around the world strive to meet Sustainable Development Goals set forth by the United Nations to eradicate poverty, the emphasis often falls on detrimental effects of poverty on physical health. Our findings highlight that in low-, middle-, and high-income countries, socioeconomic risk is related to children's internalizing and externalizing problems, extending the international focus beyond children's physical health to their emotional and behavioral development.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

## Acknowledgments

This research has been funded by the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development grant RO1-HD054805, Fogarty International Center grant RO3-TW008141, and the Jacobs Foundation. This research also was supported by the Intramural Research Program of the NIH/NICHD. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH or NICHD.

## References

- Achenbach, TM. Integrative guide for the 1991 CBCL 14-18, YSR, and TRF Profiles. Burlington, VT: University of Vermont, Department of Psychiatry; 1991.
- Achenbach System of Empirically Based Assessment. Multicultural research with the ASEBA. 2016. Available <http://www.aseba.org/aboutus/multiculturalresearch.html>
- Benjamini Y, Hochberg Y. 1995; Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society, Series B.* 57:289–300.
- Bornstein, MH, Bradley, RH, editors Socioeconomic status, parenting, and child development. Mahwah, NJ: Erlbaum; 2003.
- Buchmann, C. Measuring family background in international studies of education: Conceptual issues and methodological challenges. In: Porter, AC, Gamoran, A, editors *Methodological advances in cross-national surveys of educational achievement*. Washington, DC: National Academies Press; 2002.
- Conger RD, Conger KJ, Martin MJ. 2010; Socioeconomic status, family processes, and individual development. *Journal of Marriage and Family.* 72:685–704. DOI: 10.1111/j.1741-3737.2010.00725.x [PubMed: 20676350]
- Costello EJ, Erkanli A, Copeland W, Angold A. 2010; Association of family income supplements in adolescence with development of psychiatric and substance use disorders in adulthood among an American Indian population. *Journal of the American Medical Association.* 303:1954–1960. DOI: 10.1001/jama.2010.621 [PubMed: 20483972]
- Dearing E, McCartney K, Taylor BA. 2006; Within-child associations between family income and externalizing and internalizing problems. *Developmental Psychology.* 42:237–252. DOI: 10.1037/0012-1649.42.2.237 [PubMed: 16569163]
- Dubow EF, Boxer P, Huesmann LR. 2009; Long-term effects of parents' education on children's educational and occupational success: Mediation by family interactions, child aggression, and teenage aspirations. *Merrill-Palmer Quarterly.* 55:224–249. DOI: 10.1353/mpq.0.0030 [PubMed: 20390050]
- Duncan GJ, Engel M, Claessens A, Dowsett CJ. 2014; Replication and robustness in developmental research. *Developmental Psychology.* 50:2417–2425. DOI: 10.1037/a0037996 [PubMed: 25243330]
- Gershoff ET, Aber JL, Raver CC, Lennon MC. 2007; Income is not enough: Incorporating material hardship into models of income associations with parenting and child development. *Child Development.* 78:70–95. DOI: 10.1111/j.1467-8624.2007.00986.x [PubMed: 17328694]
- Goodman E, Maxwell S, Malspeis S, Adler N. 2015; Developmental trajectories of subjective social status. *Pediatrics.* 136:e633–e640. DOI: 10.1542/peds.2015-1300 [PubMed: 26324868]
- Hetzner, NP, Johnson, AD, Brooks-Gunn, J. Effects of poverty on social and emotional development. In: Järvelä, S, editor *Social and emotional aspects of learning*. Oxford, UK: Elsevier; 2010. 77–86.
- Hoff, E, Laursen, B, Bridges, K. Measurement and model building in studying the influence of socioeconomic status on child development. In: Mayes, LC, Lewis, M, editors *The Cambridge handbook of environment in human development*. New York, NY: Cambridge University Press; 2012. 590–606.
- Human Development Report. *Sustaining human progress: Reducing vulnerabilities and building resilience*. New York, NY: United Nations Development Program; 2014.
- Morris PA, Gennetian LA. 2003; Identifying the effects of income on children's development using experimental data. *Journal of Marriage and Family.* 65:716–729. DOI: 10.2307/3600034
- Norenzayan A, Heine SJ. 2005; Psychological universals: What are they and how can we know? *Psychological Bulletin.* 131:763–784. DOI: 10.1037/0033-2909.131.5.763 [PubMed: 16187859]
- Piotrowska PJ, Stride CB, Croft SE, Rowe R. 2015; Socioeconomic status and antisocial behavior among children and adolescents: A systematic review and meta-analysis. *Clinical Psychology Review.* 35:47–55. DOI: 10.1016/j.cpr.2014.11.003 [PubMed: 25483561]
- UNICEF. *Child poverty in rich nations*. Florence, Italy: UNICEF; 2000.
- UNICEF. *State of the world's children*. New York, NY: UNICEF; 2014.

- Wachs TD, Cueto S, Yao H. 2016; More than poverty: Pathways from economic inequality to reduced developmental potential. *International Journal of Behavioral Development*. 40:536–543. DOI: 10.1177/0165025416648231
- Yeung WJ, Linver MR, Brooks-Gunn J. 2002; How money matters for young children’s development: Parental investment and family processes. *Child Development*. 73:1861–1879. [PubMed: 12487499]

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 1

## Unstandardized Structural Coefficients for Each Predictor's Unique Contribution

Growth Parameter	Mother's Education			Father's Education			Household Income			Household Income Quadratic		
	B	95% CI	z	b	95% CI	z	b	95% CI	b	95% CI	Wald (2df)	
Mother-reported Internalizing Intercept	-0.16	[-0.59, 0.27]	-0.74	-0.12	[-0.53, 0.29]	-0.58	-0.98	[-1.42, -0.54]	-0.01	[-0.18, 0.15]	21.34*	
Mother-reported Internalizing Slope	0.25*	[0.04, 0.45]	2.30	-0.06	[-0.26, 0.14]	-0.57	0.18	[-0.03, 0.39]	0.05	[-0.04, 0.14]	5.80	
Mother-reported Externalizing Intercept	-0.34	[-0.83, 0.16]	-1.32	-0.13	[-0.58, 0.32]	-0.56	-0.88	[-1.38, -0.37]	-0.04	[-0.21, 0.14]	14.51*	
Mother-reported Externalizing Slope	0.17	[-0.04, 0.37]	1.57	-0.08	[-0.27, 0.12]	-0.77	0.17	[-0.04, 0.37]	0.07	[-0.01, 0.16]	7.11*	
Father-reported Internalizing Intercept	-0.05	[-0.49, 0.38]	-0.24	-0.29	[-0.69, 0.10]	-1.45	-0.46	[-0.97, 0.04]	0.11	[-0.09, 0.30]	3.37	
Father-reported Internalizing Slope	0.18	[-0.06, 0.42]	1.49	-0.06	[-0.27, 0.15]	-0.59	0.23	[-0.03, 0.49]	-0.08	[-0.20, 0.03]	3.63	
Father-reported Externalizing Intercept	0.08	[-0.39, 0.56]	0.35	-0.18	[-0.59, 0.24]	-0.84	-0.66	[-1.19, -0.13]	0.09	[-0.12, 0.30]	6.04*	
Father-reported Externalizing Slope	-0.16	[-0.40, 0.08]	-1.29	-0.01	[-0.22, 0.19]	-0.11	0.33	[0.08, 0.59]	-0.01	[-0.11, 0.10]	7.53*	
Child-reported Internalizing Intercept	0.03	[-0.50, 0.55]	0.10	-0.75*	[-1.24, -0.26]	-3.01	-0.08	[-0.63, 0.47]	0.19	[0.02, 0.37]	4.97	
Child-reported Internalizing Slope	0.02	[-0.28, 0.32]	0.11	0.20	[-0.09, 0.48]	1.36	-0.05	[-0.36, 0.25]	-0.12	[-0.23, -0.02]	7.05*	
Child-reported Externalizing Intercept	-0.26	[-0.70, 0.17]	-1.19	-0.26	[-0.65, 0.13]	-1.29	0.07	[-0.38, 0.52]	0.09	[-0.05, 0.22]	2.20	
Child-reported Externalizing Slope	0.13	[-0.12, 0.38]	1.05	0.04	[-0.19, 0.28]	0.37	-0.26	[-0.50, -0.02]	0.04	[-0.05, 0.12]	4.59	

Note.  $N = 1,190$ .

\* Unadjusted  $p < .05$ .

Table 2

## Descriptive Statistics for Latent Slope Parameters

Group	Mother-reported Internalizing	Mother-reported Externalizing	Father-reported Internalizing	Father-reported Externalizing	Child-reported Internalizing	Child-reported Externalizing
Medellin, Colombia	-0.52 (2.17)	-0.64 (*)	-1.37 (1.95)	-1.37 (*)	-4.30 (*)	-1.60 (2.17)
Naples, Italy	0.09 (1.45)	-0.41 (*)	0.08 (*)	0.02 (*)	-2.02 (3.35)	-0.75 (1.14)
Rome, Italy	0.24 (1.70)	-0.22 (2.10)	0.61 (1.79)	-0.12 (2.51)	-1.18 (1.41)	0.18 (1.30)
Zarqa, Jordan	-0.90 (*)	-1.39 (2.85)	-0.50 (2.66)	-0.89 (3.24)	-0.99 (2.37)	0.08 (2.14)
Kisumu, Kenya	-0.55 (*)	-1.03 (*)	-0.86 (2.35)	-0.85 (1.05)	-0.43 (2.00)	1.26 (2.14)
Manila, Philippines	-0.40 (*)	-0.37 (2.10)	-0.82 (1.26)	-0.56 (2.98)	-0.09 (*)	0.77 (2.83)
Trollhattan, Sweden	-0.45 (*)	-1.23 (1.90)	-0.42 (0.63)	-1.14 (1.41)	-1.86 (1.70)	-0.55 (2.10)
Chiang Mai, Thailand	-0.77 (2.26)	-1.42 (2.19)	-0.87 (1.97)	-1.50 (2.37)	0.53 (2.61)	0.65 (3.44)
U.S. African American	-0.84 (2.76)	-0.73 (*)	-0.28 (3.32)	-1.10 (2.14)	-1.96 (2.66)	-0.24 (1.97)
U.S. European American	-0.20 (2.86)	-0.49 (2.26)	-0.23 (1.97)	-0.47 (1.90)	-1.43 (3.78)	-0.08 (2.19)
U.S. Latino American	-0.80 (3.26)	-1.25 (2.61)	-0.30 (2.00)	-0.72 (*)	-2.41 (4.21)	-0.63 (3.07)

Note.  $N = 1,190$ .

\* Standard deviation inestimable; see text.