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Longitudinal Trajectories of Four Domains of Parenting in Relation to Adolescent Age and Puberty in Nine Countries

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Abstract

Children, mothers, and fathers in 12 ethnic and regional groups in nine countries (N = 1,338 families) were interviewed annually for eight years (M_{age} child = 8-16 years) to model four domains of parenting as a function of child age, puberty, or both. Latent growth curve models revealed that for boys and girls, parents decrease their warmth, behavioral control, rules/limit-setting, and knowledge solicitation in conjunction with children's age and pubertal status as children develop from age 8 to 16 across a range of diverse contexts, with steeper declines after age 11 or 12 in three of the four parenting domains. National, ethnic, and regional differences and similarities in the trajectories as a function of age and puberty are discussed.

Longitudinal Trajectories of Four Domains of Parenting in Relation to Adolescent Age and Puberty in Nine Countries

Adolescence has been said to begin in biology and end in culture (Conger & Petersen, 1984). That is, the onset of puberty generally marks the beginning of adolescence across cultures. The ending of adolescence is more variable across cultures, which differ in the timing and types of adult roles and responsibilities that young people take on that mark the transition to adulthood. Puberty is important not just biologically but cognitively,

emotionally, and socially. The present study examines trajectories of four domains of parenting (i.e., parental warmth, behavioral control, rules/limit-setting, and knowledge solicitation) from childhood through adolescence as a function of age and puberty across nine countries (China, Colombia, Italy, Jordan, Kenya, the Philippines, Sweden, Thailand, and the United States) that differ in important ways with respect to expectations about adolescence that could affect trajectories of parenting over time.

Puberty and Parenting

Previous research, primarily conducted in the United States, Canada, and Western Europe, has focused on three developmental themes related to puberty and parenting, each of which has implications for understanding how parenting may change as a function of children's age, pubertal status, or both. The first theme is whether there is a relation between pubertal status (how physically mature a teenager is, regardless of age) and parent-adolescent relationships. For example, an extensive literature documents an increase in frequency and intensity of conflict and decrease in closeness as adolescents move through puberty, regardless of whether they mature early or late (e.g., Branje, Laursen, & Collins, 2013). The second theme in previous research has been whether there is a relation between pubertal timing (how early or late puberty is with respect to chronological age) and parent-adolescent relationships. For example, early maturers receive less support from parents than later maturers who are the same age but less physically developed (e.g., Smetana & Rote, 2019). The third theme has been whether the direction of effect is from parenting to puberty or from puberty to parenting, with evidence for reciprocal relations (Steinberg, 1988). Important domains of parenting that may change over time in relation to age and puberty include warmth, behavioral control, rules/limit-setting, and knowledge solicitation.

Four Domains of Parenting

We examined two domains of parenting (warmth and behavioral control) that feature prominently in classic parenting theories and two domains of parenting (rules/limit-setting and knowledge solicitation) that are important elements of current conceptualizations of parental monitoring. Warmth and behavioral control constitute the dimensions for typologies of authoritative, authoritarian, permissive, and neglectful parenting (e.g., Maccoby & Martin, 1983). Rules/limit-setting and knowledge solicitation are parent-driven elements of the reconceptualization of monitoring that attempts to disentangle parents' from adolescents' contributions to the monitoring process (Kerr & Stattin, 2000; Stattin & Kerr, 2000). Although setting rules and limits could be one component of behavioral control, behavioral control is a broader category than rules/limit-setting, which focuses on a more specific parenting behavior.

Parental warmth encompasses love and affection that are important to children and adolescents in all cultural contexts (Rohner & Lansford, 2017). Several studies have found a decrease in parental warmth through adolescence that stabilizes and might increase late in adolescence with different ethnic groups in the United States (see Smetana, Robinson, & Rote, 2015). Although parental warmth is important for adolescents' well-being (Lippold, Davis, McHale, Buxton, & Almeida, 2016), parents may find it more difficult to demonstrate

warmth in the face of parent-child conflict, which often becomes more frequent and intense during adolescence (Branje, 2018).

Behavioral control involves parents' permissiveness versus restrictiveness with respect to attempts to regulate children's behavior and ensure that children comply with parents' directives. Parents' behavioral control may decrease over the course of their children's development as children become more capable of making decisions and regulating their own actions. For example, in a Canadian sample, parents' control of boys and girls remained stable from ages 12 to 14 but then decreased linearly from age 14 to 19 (Keijsers & Poulin, 2013). A linear decrease in behavioral control during adolescence also has been reported in other cultural groups (e.g., in Dutch adolescents from age 13 to 16, Keijsers, Frijns, Branje, & Meeus, 2009). However, parents' behavioral control may also increase during adolescence if parents try to increase their regulation of adolescents' behavior in response to a perception of an increase in risks during this developmental period. For example, in the same nine countries used in the present study, children's externalizing problems at ages 8, 9, and 10 predicted an increase in parents' behavioral control at ages 9, 10, and 12, respectively (Lansford et al., 2018b).

Monitoring is a domain of parenting that in Western industrialized nations becomes more salient developmentally during adolescence when parents are in less direct contact with children, who spend more time in settings away from home and with peers. In many cultural contexts, however, children begin spending time away from direct adult supervision at a much younger age and instead spend time in the presence of other children and in the care of older siblings (Lancy, 2008). Stattin and Kerr (2000; Kerr & Stattin, 2000) emphasized the importance of deconstructing monitoring to reflect parents' contributions (in the form of setting rules or limits on adolescents' behaviors, such as imposing curfews, and in soliciting knowledge, such as by asking questions about adolescents' activities and whereabouts) from adolescents' contributions (i.e., their willingness to disclose information to their parents). Parents' rules/limit-setting and knowledge solicitation have been found to decrease with adolescent age (Laird, Marrero, Melching, & Kuhn, 2013). It is unclear from previous research the extent to which change over time in parental warmth, control, rules/limit-setting, and knowledge solicitation vary as a function of age, puberty, or both in diverse international contexts.

Puberty and Culture

Although physical changes associated with puberty occur universally, cultural reactions to puberty may not. For example, changes in adolescents' emotions and behaviors may be more a response to cultural reactions to visible changes in their bodies than to hormonal changes associated with puberty per se (Bello et al., 2017). Furthermore, in a comparison of whether early puberty predicted girls' later problem behavior, a peer-socialization and contextual-amplification explanation was invoked to explain how girls in Sweden, a country that facilitated heterosexual relationships, were more likely to exhibit problem behavior following early puberty than were girls in Slovakia, a country that did not facilitate heterosexual relationships (Skoog, Stattin, Ruiselova, & Ozdemir, 2013). Puberty may afford either more or less freedom from parents, depending on cultural reactions to

changes, which may also differ by gender. For example, virginity prior to marriage is more emphasized for girls than boys in many cultural contexts, so parenting behaviors may be directed particularly toward preventing daughters from having sexual relationships during adolescence (Lam, Shi, Ho, Stewart, & Fan, 2002). These different cultural norms may result in restrictions on girls' but not boys' freedom following puberty.

Consider cultural norms about sexual behavior as an example of how parents in different cultures may react differently to pubertal onset. Data from nationally representative samples in 24 countries revealed national differences with respect to norms about the acceptability of sexual intimacy outside marriage and the age at which sexual behavior becomes socially acceptable (Widmer, Treas, & Newcomb, 1998). For example, in the Philippines, 60% of respondents said that sex before marriage is always wrong, compared to 4% of respondents in Sweden, 19% in Italy, and 29% in the United States (Widmer et al., 1998). However, in all countries a higher proportion of respondents believed that sex before the age of 16 was always wrong (77% in the Philippines, 32% in Sweden, 58% in Italy, and 71% in the United States). Cultural differences in norms about sexual behavior during adolescence may have implications for parenting before and after puberty, with parents becoming more controlling and setting more rules following puberty in cultures that are less accepting of adolescents' sexual behavior.

Cultural norms about the extent to which adolescents versus parents should make decisions about various aspects of adolescents' lives and about how parents should engage with adolescents may also be reflected in different cultural reactions to puberty. For example, an increase in autonomy in early adolescence is more expected in the United States than in China (Qin, Pomerantz, & Wang, 2009). Even when expectations regarding autonomy increase for adolescents in diverse countries, expectations that adolescents will obey their parents even if they disagree with them are stronger in some countries (e.g., the Philippines) than others (e.g., Chile or the United States; Darling, Cumsille, & Peña-Alampay, 2005). Cultural differences in expectations regarding parents' influences on their offspring even persist into adulthood (e.g., Alampay, 2014).

We selected the nine 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 8 to 147 of 189 countries with available data (Human Development Report, 2019). The nine 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 China, Colombia, and Thailand, countries that are among the least individualist countries in the world. 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 Sweden was in the top five for

looseness (Uz, 2015). Both individualism-collectivism and looseness-tightness might be related to trajectories of parenting behaviors over time, for example if parents in cultural groups that emphasize collectivism and are higher in the tightness continuum are less likely to reduce their behavioral control or rules/limit-setting as children move through adolescence. Ultimately, this diversity in the countries selected to participate provided us with an opportunity to examine trajectories of parents' warmth, behavioral control, rules/limit-setting, and knowledge solicitation in relation to age and pubertal status in these nine countries that differ widely in country-level indicators of economic and sociodemographic dimensions.

The Present Study

The present study was guided by two research questions. First, how do parental warmth, behavioral control, rules/limit-setting, and knowledge solicitation change over time as a function of children's age, pubertal status, or both? Second, are changes over time in parental warmth, behavioral control, rules/limit-setting, and knowledge solicitation consistent for boys and girls and across national, ethnic, and regional groups that vary along a number of dimensions with respect to norms for adolescents' behavior that might be related to parenting? In addressing these two questions, we test three hypotheses. The parenting-consistency hypothesis asserts that, although parenting may show linear changes over the years, neither age nor puberty serves as a turning point in parenting trajectories. This hypothesis is consistent with previous research that has shown linear decreases over time in parents' use of behavioral control that could be but are not necessarily tied to age or pubertal status (Keijsers et al., 2009). Alternately, the age-driven hypothesis asserts that age, rather than puberty, is related to trajectories of parenting and may serve as a turning point, which may occur if changes in parenting are driven more by environmental factors, such as school transitions, rather than biological factors tied to puberty. This hypothesis is consistent with previous research that has shown decreases in parents' rules/limit-setting and knowledge solicitation with adolescent age (Laird et al., 2013). Finally, the puberty-driven hypothesis asserts that puberty is related to trajectories of parenting and may serve as a turning point, with warmth, control, rules/limit-setting, and knowledge solicitation showing different trajectories before and after the onset of puberty. This hypothesis would be consistent with previous research demonstrating that the amount of support parents provide to adolescents is more strongly related to pubertal status than age (Smetana & Rote, 2019). These hypotheses will be tested for consistency between boys and girls and across 12 ethnic and regional groups in nine countries. It is possible that age, puberty, both, or neither is related to trajectories of parenting similarly for boys and girls and across national, ethnic, and regional groups, but it is also possible that age or puberty may be related to parenting in different ways for boys and girls in different groups. This study has a combination of exploratory features and confirmatory features; it was not a pre-registered report with single directional hypotheses, but we are testing alternative hypotheses suggested by previous research.

Method

Participants

Participants included 1,338 children (M = 8.59 years, SD = .68, range = 7 to 11 years; 50% girls), their mothers (N = 1,283, M = 37.04 years, SD = 6.51, range = 19 to 70 years), and their fathers (N = 1,170, M = 40.19 years, SD = 6.75, range = 22 to 76 years) in the Parenting Across Cultures project. Annual data collection occurred in eight waves between 2008-2018. Families were recruited from Shanghai, China (n = 123), Medellín, Colombia (n = 108), Naples, Italy (n = 102), Rome, Italy (n = 111), Zarqa, Jordan (n = 114), Kisumu, Kenya (n = 100), Manila, Philippines (n = 120), Trollhättan/Vänersborg, Sweden (n = 129), Chiang Mai, Thailand (n = 120), and Durham, North Carolina, United States (n = 102 African Americans, n = 99 Latinx, n = 110 European Americans). 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 Latinx 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. Overall, participants represented 12 distinct ethnic and regional groups across nine countries. Most parents were married (80%) and biological parents (96%); nonresidential/non-biological parents also provided data. Mothers ($M_{\text{EducationYears}}$ = 12.77, SD = 4.22) and fathers ($M_{\text{EducationYears}}$ = 12.90, SD = 4.26) each had approximately a high school education.

Participants were followed for 8 consecutive years, and the sample used in the present study ranged in age from 8-16 across all waves. At the 8th year of data collection, 72% of families who participated at year 1 (n = 959) continued to provide data (see online Supplementary Materials for comparisons of continuing participants with those who attrited). Following recommendations for handling missing data in latent growth curve modeling frameworks, full-information maximum likelihood estimation procedures were used to account for missing data and adjust parameter estimates based on data missingness (Curran, Obeidat, & Losardo, 2010).

Procedure

Participants were recruited through letters sent from schools. Response rates varied primarily because of differences in schools' recruiting roles. For example, after United States schools agreed to participate, our team was allowed to leave letters explaining the study at the school to send home with students. If families were willing to participate, they returned the letter to the school, and our team then contacted parents directly to interview them at a place they chose, yielding a 24% response rate. By contrast, in China once the schools agreed to participate, the parents agreed to participate as well, and interviews were conducted at the schools, leading to participation rates near 100%. Unfortunately, we cannot estimate response rates for all sites because there is no record of the number of students

who were potentially invited to participate versus who actually agreed to participate because of the way recruitment was handled. Once families were invited to participate, they were enrolled in the study as they agreed to participate until we had reached the target sample size (based on what the budget could support). 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 (Erkut, 2010). Meetings were held to resolve any item-by-item ambiguities in linguistic or semantic content (Erkut, 2010). Translators were fluent in English and the target language. In addition to translating the measures, translators noted items that did not translate well, were inappropriate for the participants, were culturally insensitive, or elicited multiple meanings and suggested improvements (Peña, 2007). Country coordinators and the translators reviewed the discrepant items and made appropriate modifications. Ultimately, measures were administered in Mandarin Chinese (China), Spanish (Colombia and the United States), Italian (Italy), Arabic (Jordan), Dholuo (Kenya), Filipino (the Philippines), Swedish (Sweden), Thai (Thailand), and American English (the United States and the Philippines).

Two-hour interviews were conducted each year after parent consent and child assent in participant-chosen locations. At first assessment for parents, and until age 10 for children, interviews were conducted orally. Subsequently, participants chose to complete written or oral measures. Children 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 children's schools. Procedures were approved by local Institutional Review Boards (IRBs) at universities in each participating country.

Measures

All measures have been cross-culturally validated and used with participants in the countries included in the present study using this and other samples (e.g., Lansford et al., 2018a; Lansford et al., 2018b). Online Supplementary Table 1 lists demographic characteristics of participants in all sites. Table 1 lists descriptive statistics for age-specific parenting and puberty measures.

Puberty.—Adolescents aged 10 to 16 completed the Pubertal Development Scale (Petersen, Crockett, Richards, & Boxer, 1988), a widely used and well-validated self-report measure of physical development that has been shown to be correlated with measures of pubertal development derived from physical examination (Icenogle et al., 2017). Five items asked about perceived pubertal changes in skin, height, body hair, and either breast growth and menstruation (for girls) or facial hair growth and voice (for boys). Items were scored on a 0 = *has not yet started* to 3 = *definitely completed* scale, with the exception of the menstruation item, which was scored 0 = *no* or 3 = *yes*. In line with prior multicultural studies using this measure (Icenogle et al., 2017), item scores were averaged to create a

continuous measure for physical maturation ranging from 0 = *puberty has not started* to 3 = *puberty seems complete.* Previous research has demonstrated this measure to be reliable, valid, and invariant in its measurement of puberty across cultures in the present sample (Icenogle et al., 2017). Specifically, utilizing the alignment method (Asparouhov & Muthén, 2014) we found that the puberty measure demonstrated invariance across most groups and time points. The exceptions were Kenya (at ages 10, 12-13), Sweden (ages 13-15), China (age 13), and Jordan (age 15). Therefore, our puberty measure showed impressive levels of invariance across groups, and levels of non-invariance (5.83%) fell well below the 25% threshold indicating approximate measurement invariance across groups (Asparouhov & Muthén, 2014). Notably, the IRB in Sweden did not allow puberty to be assessed before age 12, so age 10 and 11 measures of puberty in Sweden are missing by design.

Parental warmth and behavioral control.—Across ages 8-15, mothers and fathers completed the Parental Acceptance-Rejection/Control Questionnaire-Short Form, a measure with excellent established reliability, convergent and discriminant validity, and measurement invariance across cultures that has been used in over 60 cultures worldwide and has been used successfully with families in all nine participating countries by our own and other research teams (Lansford et al., 2018b; Rohner, 2005). Children also provided separate ratings about their mothers and fathers at all ages. Eight items captured parental warmth (e.g., “parents say nice things to child,” “parents make child feel what he/she does is important,” “parents take real interest in child’s affairs”), and 5 items captured behavioral control (e.g., “parents insist child do exactly as told”). Items were rated on a modified 4-point scale (0 = *almost never* to 3 = *every day*). We calculated time-specific family means based on all available reports (i.e., average of all child and parent reports) of parental warmth and behavioral control. This decision allows us to accurately capture family-wide perceptions of parent warmth and control that balance all viewpoints and protect against single-source bias. This decision is also empirically justified by confirmatory factor analyses that indicate mother, father, and child reports of both warmth and behavioral control load significantly onto latent warmth and behavioral control factors (all loadings > .48), and aligns with prior work (Rothenberg et al., 2019). Additionally, we investigated the extent to which these measures were invariant in the current sample. Using the Alignment Method (Asparouhov & Muthén, 2014) we found that both parent warmth and behavioral control demonstrated measurement invariance across all cultures at all time points with two exceptions: Kenya and China. Specifically, parent warmth at ages 10 and 14 in Kenya and parent behavioral control at ages 8-10 and 14 in Kenya, and at age 8 in China demonstrated non-invariance. Overall, levels of non-invariance for both warmth (2.78%) and behavioral control (6.94%) fell below the 25% threshold indicating acceptable measurement invariance across groups (Muthén & Asparouhov, 2014). Higher scores indicated more parental warmth/behavioral control.

Parent rules/limit-setting and knowledge solicitation.—From age 10 onwards, parent rules/limit-setting and knowledge solicitation were assessed by subscales of the 10-item parental monitoring scale derived from the work of Conger, Ge, Elder, Lorenz, and Simons (1994) and Steinberg, Dornbusch, and Brown (1992). This measure has demonstrated adequate psychometric properties, including adequate validity and reliability

in past studies examining the present sample (Lansford et al., 2018a). To measure parent rules/limit-setting, mothers, fathers, and children answered 5 questions that captured the frequency with which parents impose limits on their child's activities on a 0 = *never* to 3 = *always* scale. To measure parent knowledge solicitation, mothers, fathers, and children answered 5 questions that examined the extent to which parents tried to find about their child's activities, companions, and whereabouts on a 0 = *do not try*, 1 = *try a little*, 2 = *try a lot* scale. Both parent rules/limit-setting and parent knowledge solicitation were assessed by asking about the same 5 child activities (e.g., with whom the child spends time, how the child spends his/her free time, how the child spends his/her money, where the child goes right after school, and the type of homework the child receives).

As with parent warmth and behavioral control, we calculated time-specific family means based on all available reports (i.e., average of all child and parent reports) to capture parent rules/limit-setting and parent knowledge solicitation across the entire family context, and to protect against single-source bias. This decision was supported by significant correlations among parent and child reports of parent rules/limit-setting and knowledge at every time point in our sample, by high degrees of internal consistency over time across our entire sample (rules/limit-setting $\alpha = .89$, knowledge solicitation $\alpha = .83$), and by confirmatory factor analyses that indicate mother, father, and child reports of both rules/limit-setting and knowledge solicitation load significantly together onto latent factors (all loadings > .47). Additionally, we investigated the extent to which these measures were invariant in the current sample. Using the Alignment Method (Asparouhov & Muthén, 2014) we found rules/limit-setting demonstrated measurement invariance across all cultures at all time points with the exceptions of China (at ages 10-14) and Thailand (at ages 11 and 15). Results similarly indicated that knowledge solicitation only demonstrated non-invariance in China (all ages), Kenya (ages 10 and 15), Rome, Italy (age 11 and 14), Naples, Italy (age 11), and Thailand and Sweden (age 11). Overall, levels of non-invariance for both rules/limit-setting (4.17%) and knowledge solicitation (10.42%) fell below the 25% threshold indicating acceptable measurement invariance across groups (Muthén & Asparouhov, 2014). Higher scores indicated more parental rules/limit-setting and knowledge solicitation.

Child gender.—Child gender (0 = girl, 1 = boy) was included as a predictor of parenting behavior trajectories.

Analytic Plan

We estimated an iterative series of latent growth curve models to test study hypotheses. Aligning with best practices, these unconditional models estimated parenting behaviors based on adolescent age (i.e., 8-16) rather than wave (i.e., wave 1-8; Bollen & Curran, 2006; Curran et al., 2010). First, we fit a series of unconditional growth curve models to evaluate two of our three hypotheses: the parenting-consistency hypothesis (i.e., that, although parenting may linearly change over time, no particular age will serve as a turning point in parenting trajectories) and the age-driven hypothesis (i.e., that a particular age will serve as a turning point in parenting trajectories). Specifically, using the entire sample, we first examined unconditional latent growth curve models that estimated linear trajectories of parenting behaviors (i.e., warmth, behavioral control, rules/limit-setting, and knowledge

solicitation). These models operationalized the parenting consistency hypothesis because they modeled linear change in parenting behaviors over time, but did not include any turning point in these trajectories.

Then, we examined unconditional latent growth curve models that estimated piecewise linear trajectories of change in parenting behaviors. In this series of piecewise linear models, we examined different ages as potential turning points in parenting trajectories, by estimating two different linear slopes; one that examined change in parenting behaviors before a particular child age (e.g., an increasing linear slope from age 8-11) and one that examined change in parenting behaviors after a particular child age (e.g., a decreasing linear slope from ages 11-16). Therefore, these piecewise linear models operationalized the age-driven hypothesis because they identify whether a particular age (e.g., age 11) served as a "turning point" in trajectories of parenting behavior. Because we had no *a priori* hypotheses about which age might serve as a turning point in trajectories, we estimated piecewise linear models with each age in our sample serving as the "turning-point" age. Then, we compared model fit using Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) indices, because these piecewise models were not nested (Bollen & Curran, 2006). The turning-point model with the lowest AIC/BIC scores was retained as the best-fitting piecewise model.

Once final linear and piecewise models were estimated for each parenting domain, the parenting-consistency and age-driven hypotheses were empirically compared by evaluating the model fit of the linear and piecewise linear models using a chi-square difference test for nested models (Bollen & Curran, 2006; Curran et al., 2010). If the piecewise linear model represented significantly better fit to the data according to the chi-square test, then the age-driven hypothesis was supported and the model was retained. If it did not do so, then the parenting consistency hypothesis was supported and the linear model was retained.

After the final unconditional latent growth curve model was determined (i.e., piecewise linear or linear), the next step was to evaluate the puberty-driven hypothesis (i.e., that pubertal status predicts changes in parenting even after accounting for age-based changes in parenting trajectories). To do so, we estimated conditional latent growth curve models that classified pubertal status as a time-varying covariate (because puberty scores were different at different ages) and then predicted age-specific parenting behaviors from age-specific pubertal status (Bollen & Curran, 2006). These models allowed us to evaluate the puberty-driven hypothesis by examining whether higher pubertal development scores at a particular age were associated with changes in parenting at that age, even after accounting for families' overall trajectories of parenting behavior. Put another way, this model allowed us to evaluate whether the puberty-driven hypothesis was supported by evaluating the effects of pubertal status even after controlling for the effects of the *parenting consistency* and *age-driven hypotheses*. If effects of puberty on parenting were found at a particular age, then the puberty-driven hypothesis was supported at that age. If age-specific effects of puberty were not found, then the puberty-driven hypothesis was not supported at that age.

Next, we built on these conditional growth curve models to evaluate our hypothesis that pubertal timing (i.e., pubertal development at earlier ages versus pubertal development

at later ages) might impact the effects of puberty on parenting behaviors. We did so by comparing conditional growth curve models where the time-varying effects of pubertal status were constrained to be equal over time (indicating that the effects of pubertal status on parenting were equal at each time-point) to models where time-varying effects were freed to vary over time (indicating that the effects of pubertal status on parenting differed at different time points) using chi-square difference tests (Curran et al., 2010). If model fit was better when effects were freed to vary over time, then the hypothesis that pubertal timing might impact the associations between puberty and parenting behaviors was supported.

Once we determined our final optimal model for each parenting behavior, which included optimal parenting trajectories (i.e., linear "parenting consistency" or piecewise-linear "age-driven" trajectories), conditional effects (i.e., time-varying "pubertal status" effects investigating the pubertal-status hypothesis), and the time-specific nature of these conditional effects (i.e., investigating whether pubertal status effects differed based on pubertal timing), we examined our final hypothesis: whether age-driven and puberty-driven effects differ across national, ethnic, and regional groups. Specifically, we introduced national, ethnic, and regional group as a predictor of intercepts and slopes in our model. If national, ethnic, and regional group was a significant predictor of intercepts and slopes, then group-specific models of parenting trajectories were estimated, and group differences in these models were noted. Similarly, to examine whether time-specific pubertal status associations with parenting differed by national, ethnic, and regional group, we added group as a categorical main effect predictor (coded from 0 = China to 11 = Jordan to include all 12 groups) of time-specific parenting, and created pubertal status-by-group interaction terms. If an interaction term was found to be significant, then time-specific effects of pubertal status on parenting differed by national, ethnic, and regional group, and group-specific models were estimated to identify these differences. In all models, child gender was initially included as a covariate, but trimmed from analyses in the interest of model parsimony if it was not found to be a significant predictor of trajectory intercepts, slopes, or time-specific instances of parenting. Evaluation of model fit was based on recommended fit index cut-off values that indicate excellent model fit (CFI/TLI > 0.95, RMSEA < 0.05, SRMR < .08; Kline, 2011).

Results

Comparing the Age-Driven and Parenting Consistency Hypotheses

As described above, we compared the age-driven and parenting consistency hypotheses by determining whether a linear or piecewise unconditional growth curve model best described the trajectories of each of the four parenting domains we investigated. We describe our findings below for each parenting behavior, and further describe whether these findings varied across national, ethnic, and regional groups.

Support for the Age-Driven Hypothesis: Warmth, Rules/Limit-Setting, and Knowledge Solicitation

Our unconditional growth curve analyses revealed that trajectories of parent warmth, rules/limit-setting, and knowledge solicitation each supported the age-driven hypothesis (i.e.,

that a particular age serves as a turning point in parenting trajectories over adolescence). Specifically, trajectories of all three parenting domains were best defined by piecewise linear growth curve models with turning-points at age 11 (for warmth) or age 12 (for rules/limit-setting and knowledge solicitation). In each of these models, the parenting behavior increased each year before the turning point, and then decreased each year after the turning point (Table 2 "Whole Sample" column). Descriptions of behavior-specific trajectories are below.

Parent warmth.—Regarding parent warmth, a piecewise linear model with an age 11 turning-point fit the data significantly better than the linear model (χ^2 [4] = 195.89, $p <$ .01) and fit the data well (RMSEA = 0.04, CFI/TLI = 0.97/0.97, SRMR = 0.06). For an average family in our sample, this model estimated that parents scored an average of 2.57 on the warmth scale at age 8 (i.e., they expressed warmth between "once a week" and "every day"; Table 2). Additionally, for an average family, warmth increased slightly at a rate of .01 points each year from ages 8-11, and then decreased slightly at a rate of .02 points each year from ages 11-15. The variances of the age 8 intercept, age 8-11 slope, and age 11-15 slope were all significant, indicating that individual families varied in starting point and rates of change from this average trajectory. Child gender was not a significant predictor of this trajectory.

National/ethnic/regional variations in warmth trajectories: National/ethnic/regional grouping predicted differences in age 8 intercept ($B = .03$, $p < .01$) and age 11–15 slope ($B = -.01$, $p < .01$). Therefore, group-specific trajectories were explored, and group variations from our whole-sample trajectory emerged. Specifically, parent warmth significantly increased over ages 8–11 in only two groups (China and U.S. European American; Table 2), but significantly decreased over ages 11-15 in 10 of 12 groups (all but the U.S. African American and U.S. Latinx samples). In the U.S. African American and Latinx samples, neither age 8-11 nor age 11-15 slopes were significant, and warmth remained consistently high across ages 8-15 (Table 2).

Parent rules/limit-setting.—Regarding parent rules/limit-setting, a piecewise linear model with an age-12 turning-point fit the data significantly better than the linear model (χ^2 [3] = 208.69, $p <$ .01) and fit the data well (RMSEA = 0.03, CFI/TLI = 0.98/0.99, SRMR = 0.03). Gender was a significant predictor of intercept, but not slopes so it was retained as a predictor of the intercept only. Consequently, for the average family in our sample, this model estimated that parents scored an average of 1.76 on the rules/limit-setting scale at age 10 if their child was a girl and 1.83 if their child was a boy (i.e., in both cases they set rules and limits close to "usually"; Table 2). Additionally, for an average family, rules/limit-setting increased at a rate of .09 points each year from ages 10-12, and then decreased at a rate of −.13 points each year from ages 12-16. The variances of the age-10 intercept, age 10-12 slope, and age 12-16 slope were all significant, indicating that individual families varied in starting point and rates of change from this average trajectory.

National/ethnic/regional variations in rules/limit-setting trajectories.: National/ethnic/regional grouping predicted differences in age 10 intercept ($B = .06$, $p < .01$) and age

10-12 slope ($B = -.01$, $p < .01$). Therefore, group-specific trajectories were explored, and variations from our whole-sample trajectory emerged. Specifically, parent rules/limit-setting significantly increased over ages 10-12 in only five groups (Colombia, Italy-Naples, Italy-Rome, Philippines, U.S. Latinx; Table 2), but significantly decreased over ages 12-16 in 10 of 12 groups (all but China and Kenya). In the Kenyan and Chinese samples, neither age 10-12 nor age 12-16 slopes were significant. Instead, Chinese parents consistently set a low number of rules/limits, and Kenyan parents consistently set a high number of rules/limits across ages 10-16 (Table 2).

Parent knowledge solicitation.—Regarding parent knowledge solicitation, a piecewise linear model with an age 12 turning-point fit the data significantly better than the linear model (χ^2 [4] = 67.28, $p < .01$) and fit the data well (RMSEA = 0.02, CFI/TLI = 0.99/0.99, SRMR = 0.03). This model estimated that in the average family in our sample, parents scored an average of 1.60 on the knowledge solicitation scale when their child was age 10 (i.e., parents tried somewhere between “a little” and “a lot” to know about their children’s activities; Table 2). Additionally, for an average family, parent attempts at knowledge solicitation increased at a rate of .03 points each year from ages 10-12, and then decreased at a rate of .04 points each year from ages 12-16. The variances of the age 10 intercept and age 12-16 slope (but not age 10-12 slope) were significant, indicating that individual families varied in starting point and rate of change over ages 12-16 (but not over ages 10-12) from this average trajectory. Child gender was not a significant predictor of this trajectory and was consequently trimmed.

National/ethnic/regional variations in knowledge solicitation trajectories.: National/ethnic/regional grouping predicted differences in age 10 intercept ($B = .05$, $p < .01$) and both age 10-12 ($B = -.01$, $p < .01$) and age 12-16 ($B = -.01$, $p < .01$) slopes. Therefore, group-specific trajectories were explored, and variations from our whole-sample trajectory emerged. However, for six groups, group-specific trajectory models for knowledge solicitation could not be estimated, possibly because of empirical under-identification of the model in many specific groups due to a combination of the protracted scale range (scores on this scale were 0-2, instead of 0-3) and relatively little individual variability in scale scores between ages 10-12. Although enough variability across the sample as a whole existed to estimate this model, when specific national/ethnic/regional groups were examined, variability may have become too restricted. In groups where group-specific trajectories could be estimated, parent knowledge solicitation efforts significantly increased over ages 10-12 in only two groups (Kenya and the Philippines; Table 2), but significantly decreased over ages 12-16 in all six groups where trajectories could be estimated (Table 2).

Support for the Parenting Consistency Hypothesis: Parent Behavioral Control —In contrast to other parenting behaviors, our unconditional growth curve analyses of parent behavioral control revealed support for the parenting consistency hypothesis (i.e., that parenting changes linearly over time, but no specific age serves as a turning point in parenting trajectories). Specifically, a linear model fit the behavioral control data best, and no piecewise model significantly improved model fit. The linear model fit the data well (RMSEA = 0.02, CFI/TLI = 0.99/0.99, SRMR = 0.04). For an average family in our sample,

this model estimated that parents scored an average of 1.98 on the behavioral control scale at age 8 (i.e., they attempted to control their child's behaviors about "once a week"; Table 2). Additionally, for an average family, behavioral control decreased at a rate of .03 points each year from ages 8-15. The variances of the age 8 intercept and age 8-15 slope were significant, indicating that individual families varied in starting point and rates of change from this average trajectory. Child gender was not a significant predictor of this trajectory and was therefore trimmed.

National/ethnic/regional variations in behavioral control trajectories.: National/ethnic/regional grouping predicted differences in age 8 intercept ($B = .02$, $p < .01$) and age 8-15 slope ($B = -.003$, $p < .01$). Therefore, group-specific trajectories were explored. However, in contrast to the other three parenting domains, group differences in behavioral control were less pronounced. Parents in all groups reportedly provided behavioral control approximately "once a week" (i.e., intercept scores ranged from 1.56 to 2.34). Furthermore, in all groups except Kenya, behavioral control significantly decreased across ages 8-15 (Table 2). In Kenya, behavioral control increased at a rate of .02 points each year.

Support for the Puberty-Driven Hypothesis Across All Parenting Behaviors—

Having determined the optimal age-driven effects models (i.e., either linear or piecewise linear models), we next evaluated the puberty-driven hypothesis (that pubertal status predicts changes in parenting even after accounting for age-driven effects in parenting trajectories). We found support for the puberty-driven hypothesis across all four parenting behaviors. All models fit the data well according to omnibus measures of model fit. Unless otherwise noted, child gender was a non-significant covariate and therefore trimmed to ensure parsimony. Results are reported in Table 3 and depicted further in Supplemental Figures 1 and 2.

Parent warmth.—The puberty-driven hypothesis was supported in the parent warmth model. Specifically, even after controlling for age-driven effects (i.e., the overall trajectory of parent warmth), at ages 12-15, greater progression through puberty at a particular age was associated with less parent warmth at that age than was otherwise typical (Table 3). For instance, at age 12, every 1 point increase in pubertal progression (e.g., being in "early puberty" as opposed to "puberty having not yet started") was associated with a .05 point decrease in age 12 parent warmth, even after accounting for age-driven trajectory effects. These puberty-driven effects were also so powerful that they attenuated the previously significant age-driven effect (the decreasing parent warmth slope from ages 11-15) to non-significance (Table 3).

Pubertal timing effects.: The model in which puberty-driven effects were freed to vary over time fit significantly better than the model in which such effects were constrained to be equal (χ^2 [5] = 12.85, $p = .02$). Therefore, the "pubertal timing" hypothesis (i.e., that pubertal progression might be more predictive of parenting behaviors at some ages than others) was supported. Puberty-driven effects (i.e., greater pubertal progression being associated with less parent warmth) grew stronger as children aged (and especially after age 12).

National/ethnic/regional variations in puberty-driven effects.: Only the age 15 pubertal status-by-national/ethnic/regional group interaction term was significant ($B = .02$, $SE = .01$, $p < .01$; contact 2nd author for results of all non-significant interaction terms). Therefore, differences in puberty-driven effects at age 15 were explored across groups. Results revealed that greater progression through puberty at age 15 was associated with less parent warmth than was typical at age 15 in four groups: Italy-Rome ($B = -.07$, $SE = .03$, $p = .02$), Kenya ($B = -.12$, $SE = .05$, $p = .01$), the Philippines ($B = -.11$, $SE = .05$, $p = .04$), and the U.S. European American sample ($B = -.06$, $SE = .02$, $p < .01$).

Parent behavioral control.—The puberty-driven hypothesis was also supported in the parent behavioral control model. Specifically, even after controlling for age-driven effects, at ages 11, 12, and 15 greater progression through puberty at a particular age was associated with less parent behavioral control at that age than was otherwise typical (Table 3). For instance, at age 15, every 1 point increase in pubertal progression was associated with a .05 point decrease in age 15 parent behavioral control, even after accounting for age-driven effects (Table 3).

Pubertal timing effects.: The model in which puberty-driven effects were freed to vary over time did not fit significantly better than the model in which such effects were constrained to be equal (χ^2 [5] = 5.98, $p = .31$). Therefore, the "pubertal timing" hypothesis was not supported in relation to parent behavioral control. Puberty-driven effects on behavioral control did not systematically grow stronger or weaker as children aged.

National/ethnic/regional variations in puberty-driven effects.: Pubertal status-by-national/ethnic/regional group interaction terms were not significant at any time point. Therefore, there is not support for group variations in puberty-driven effects on parent behavioral control in our sample.

Parent rules/limit-setting.—The puberty-driven hypothesis was further supported in the parent rules/limit-setting model. Specifically, even after controlling for age-driven effects (i.e., the overall trajectory of parent rules/limit-setting), at ages 14-16, greater progression through puberty at a specific age was associated with less parent rules/limit-setting at that age than was otherwise typical (Table 3). For instance, at age 16, every 1 point increase in pubertal progression was associated with a .14 point decrease in age 16 parent rules/limit-setting, even after accounting for age-driven trajectory effects (Table 3).

Pubertal timing effects.: The model in which puberty-driven effects were freed to vary over time fit significantly better than the model in which such effects were constrained to be equal (χ^2 [6] = 44.38, $p < .02$). Therefore, the "pubertal timing" hypothesis was supported. Puberty-driven effects (i.e., greater pubertal progression being associated with less parent rules/limit-setting) grew stronger as children aged (and especially after age 14).

National/ethnic/regional variations in puberty-driven effects.: Only the age 13 pubertal status-by-national/ethic/regional group interaction term was significant. Therefore, differences in puberty-driven effects at age 13 were explored across groups. Results revealed that greater progression through puberty at age 13 was associated with greater parent rules/

limit-setting than was typical at age 13 in two groups: the U.S. African American (B = .11, SE = .04, p < .01) and U.S. Latinx (B = .13, SE = .05, p < .01) samples. In contrast, greater progression through puberty at age 13 was associated with less parent rules/limit-setting than was typical at age 13 in one group: Colombia (B = −.11, SE = .05, p = .03).

Parent knowledge solicitation.—Finally, the puberty-driven hypothesis was also supported in the parent knowledge solicitation model. Specifically, even after controlling for age-driven effects (i.e., the overall trajectory of parent knowledge solicitation), at ages 15-16 greater progression through puberty at a specific age was associated with less parent knowledge solicitation at that age than was otherwise typical (Table 3). For instance, at age 15, every 1 point increase in pubertal progression was associated with a .06 point decrease in age 15 parent knowledge solicitation, even after accounting for age-driven trajectory effects (Table 3). These puberty-driven effects were so powerful that they attenuated the previously significant age-driven effect (the decreasing parent knowledge solicitation slope from ages 12-16) to non-significance (Table 3).

Pubertal timing effects.: The model in which puberty-driven effects were freed to vary over time fit significantly better than the model in which such effects were constrained to be equal (χ^2 [6] = 18.31, p < .01). Therefore, our “pubertal timing” hypothesis was supported. Puberty-driven effects (i.e., greater pubertal progression being associated with less parent knowledge solicitation) grew stronger as children aged (and especially after age 15).

National/ethnic/regional variations in puberty-driven effects.: Only the age 16 pubertal status-by-national/ethnic/regional group interaction term was significant. Therefore, differences in puberty-driven effects at age 16 were explored across groups. Results revealed that greater progression through puberty at age 16 was associated with less parent knowledge solicitation than was typical at age 16 in three groups: the Italy-Rome (B = −.05, SE = .02, p = .02), Kenya (B = −.19, SE = .08, p = .01), and Jordan (B = −.04, SE = .02, p = .03) samples.

Sensitivity analyses.

Although gender was seldom a significant predictor of parenting, we nevertheless explored whether gender moderated the association between progression through puberty and parenting behaviors at all ages. When pubertal status-by-gender interaction terms were added to the model, none were found to be significant. In this sample, gender does not appear to moderate pubertal status-parenting relations. Additionally, sensitivity analyses that directly controlled for the effects of attrition on parenting trajectories and time-specific parenting behaviors revealed no substantive differences in study results. Therefore, effects of gender and attrition on the data presented here are minimal.

Discussion

We sought to understand how four important domains of parenting may change over time from childhood through adolescence as a function of age, puberty, neither, or both. Parental warmth (Rohner & Lansford, 2017), behavioral control (Keijsers et al., 2009), rules/limit-setting (Laird, Zeringue, & Lambert, 2018), and knowledge solicitation (Delforterie et al.,

2016) all feature prominently in major theories of parenting and have been the focus of prior empirical efforts to understand how parenting is related to child and adolescent development (e.g., Stattin & Kerr, 2000). In contrast, we focused on understanding how child and adolescent development related to age and puberty is related to changes in parenting.

Taken together, our results provide varying levels of support for our study hypotheses. With respect to age effects, trajectories of parental warmth, rules/limit-setting, and knowledge solicitation were better characterized by the age-driven hypothesis, whereas the behavioral control trajectory was better characterized by the parenting-consistency hypothesis. With respect to puberty effects, evidence from models of all four parenting behaviors supported the puberty-driven hypothesis. Generally, greater progression through puberty at a specific age was associated with less of a parenting behavior than was typical at that age. All models of parenting behavior except for behavioral control also supported the pubertal-timing hypothesis. Specifically, with respect to warmth, rules/limit-setting, and knowledge solicitation puberty-driven effects were larger when children were older, even after accounting for underlying age-driven effects.

National/ethnic/regional variations in both age- and puberty-driven effects were observed, but to varying degrees. With respect to age effects, the “parenting-consistency” linear behavioral control trajectory appeared largely consistent across national/ethnic/regional groups. In contrast, the “age-driven” piece-wise linear trajectories of warmth, rules/limit-setting, and knowledge solicitation showed more variation. For each of these parenting trajectories, groups often varied more widely in starting points and rates of linear change early in adolescence. However, by mid- and late-adolescence these parenting trajectories appeared to decrease over time in most groups, suggesting that across groups that differ in dimensions of collectivism (Hofstede, 2001) and tightness of social control (Gelfand et al., 2011) that might be related to parenting, parents decrease their use of behavioral control, rules/limit-setting, and knowledge solicitation in ways that grant adolescents more autonomy (Smetana, 2011). Compared to age effects, puberty-driven effects showed much less variation across national/ethnic/regional groups, with most significant associations not varying by group. Most group differences, such as those found at age 15 for warmth (in Italy-Rome, Kenya, Philippines, and U.S. European American) and age 16 for knowledge solicitation (in Italy-Rome, Kenya, and Jordan) followed the wider invariant pattern of greater pubertal progression being associated with less of each parenting behavior. This general pattern suggests that age and puberty may spur parents to grant more autonomy in recognition of adolescents’ changing capacities but that such autonomy may be granted at somewhat different ages in different groups.

Previous research has documented ways in which absent, inconsistent, and harsh parenting contributes to early pubertal timing (Webster, Graber, Gesselman, Crosier, & Schember, 2014). The present study demonstrates the child-driven side of bidirectional transactions between parents and children that occurs throughout development by documenting specific ways in which child age, pubertal status, and pubertal timing alter parenting trajectories from childhood through adolescence. Although parental behavioral control decreased linearly over time from childhood through adolescence, consistent with previous research (e.g., Keijsers & Poulin, 2013), age 11 or 12 served as a turning point in trajectories of

parental warmth, rules/limit-setting, and knowledge solicitation for boys and girls and in diverse cultural contexts, with steep declines in all three domains of parenting after age 11 or 12. In all of the national/ethnic/regional groups studied, major school transitions (e.g., from elementary school to middle school or junior high) occur around age 11 or 12, and it is possible that changes accompanying such transitions, including adolescents' greater push to engage in activities outside of their parents' direct supervision or increases in internalizing and externalizing behaviors that often occur at this time (Mendle, 2014), have implications for parenting. For example, simply by virtue of spending less time with adolescents than with younger children, parents may have fewer opportunities to set rules or solicit information from them, and conflict that might arise as adolescents seek more independence may make it more difficult for parents to respond in consistently warm ways and lead parents to set fewer rules or try to solicit less information as a way to reduce potential conflict with children (Branje, 2018). It is also possible that parents' greater reductions in warmth, rules/limit-setting, and knowledge solicitation beginning around age 11 or 12 represent an adaptation to the recognition that, even in national/ethnic/regional groups in which parents retain a degree of influence over their children into adulthood and filial piety is emphasized (Alampay, 2014), parents foster more independence and scaffold autonomy during adolescence by reducing rules and soliciting less information from their children.

We found support for our puberty-driven hypothesis across national/ethic/regional groups, independent of age, but also that puberty served as a stronger turning point in parenting for older than younger adolescents. Regardless of timing, puberty is often accompanied by social and behavioral changes that can make parenting adolescents more difficult than parenting children. For example, both internalizing and externalizing problems increase with the onset of puberty (Mendle, 2014), which can present challenges as parents try to respond to changes in adolescents' psychological and behavioral adjustment. These challenges may contribute to a decrease in parental warmth with the onset of puberty, and parents may decrease in their attempts to control adolescents' behavior, set rules, and solicit information as they attend to both physical and social changes accompanying puberty that signal an increase in adolescents' autonomy. Puberty serves as a developmental milestone not only physically but also because of cognitive and behavioral implications associated with puberty (Bello et al., 2017), which may contribute to the importance of puberty as a turning point in parent-adolescent relationships. In addition, we found that with respect to warmth, rules/limit-setting, and knowledge solicitation, puberty-driven effects were larger when children were older, even after accounting for underlying age-driven effects. One possibility is that at older ages children already have passed some developmental milestones (e.g., transition to a new middle or high school, spending more time outside the home) that signal parents to provide greater autonomy to their children. At older ages, greater child progression through pubertal development might serve as a physically salient marker that might encourage parents to provide more autonomy.

Limitations, Directions for Future Research, and Implications for Practice

By virtue of including participants from 12 groups in nine countries, the sample represents a more diverse set of national/ethnic/regional groups than is the case in most research on

parenting and child development to date. Nevertheless, we caution that the samples were not nationally representative so findings may not generalize to entire populations from the countries included and should not be used to generalize beyond the specific groups included. For example, in many countries not included in the present study, child marriage is still prevalent despite national laws prohibiting it and international efforts to end child marriage (e.g., Girls Not Brides, 2019). In such contexts, age and puberty may trigger different trajectories of parenting than in the diverse groups examined in the present study in which child marriage is not prevalent. Similarly, study samples within each culture were relatively small, and therefore the current analyses may not have been adequately powered to detect some age- and puberty-driven effects. Notably, the study did have adequate power to detect numerous age-driven and puberty-driven effects across cultures. However, future work using nationally-representative, large samples would be beneficial. In addition, we invoke age-driven and puberty-driven terminology to distinguish the hypotheses in our study, yet we acknowledge that parenting reciprocally affects puberty (Webster et al., 2014), and assessing bidirectional relations in different cultural contexts remains a direction for future research.

We created robust measures of each parenting construct by drawing on reports from mothers, fathers, and children to create cross-informant composites. An advantage of this approach is that the analyses are less subject to single-source biases, and, practically speaking, the number of analyses would have been untenable had we presented findings separately for mothers', fathers', and children's reports. A disadvantage of this approach, however, is that it did not allow testing of differences in trajectories of mothers' and fathers' parenting behaviors over time or how mothers' and fathers' parenting behaviors may change differently for daughters versus sons. Those gender of parent by gender of child comparisons remain an important direction for future research.

Another important direction for future research will be using open-ended questions in qualitative research to delve deeper into local beliefs about parenting at different ages and in relation to children's pubertal status. For example, warmth is demonstrated in different ways in different cultural contexts, with direct verbal and physical expressions such as paying compliments and hugging more common in some cultural groups and non-direct expressions, such as taking care of children's physical needs and supporting children's education more common in other groups (Cheah, Li, Zhou, Yamamoto, & Leung, 2015). Future research will benefit from considering expressions of warmth (and other domains of parenting) that may not be comparable across cultural groups but that may be important within particular cultural groups.

The findings have several "real-world" implications. In particular, although parenting programs targeted for parents of children from birth to age 8 are more prevalent than are parenting programs targeted for parents of adolescents (UNICEF, 2014), parenting programs can still be helpful in improving parent-adolescent relationships and, in turn, adolescents' well-being (Chu, Bullen, Farruggia, Dittman, & Sanders, 2015). Our findings suggest that an important element of such parenting programs would be working with parents in diverse cultural contexts, including those that emphasize collectivism and tight control over social behaviors, to grant adolescents increasing autonomy in ways that are consistent with cultural

norms. Parents in all 12 national/ethnic/regional groups examined in the present study decreased their use of behavioral control, rules/limit-setting, and knowledge solicitation as a function of age and pubertal status, suggesting normative declines in these domains of parenting across a wide range of contexts. When differences in effects of parenting behavior on child and adolescent outcomes are found, parenting behaviors that are consistent with cultural norms generally are more positively related to child outcomes (Lansford et al., 2018a). Thus, parenting programs with parents of adolescents can emphasize normative declines in some domains of parenting during adolescence to help parents and adolescents navigate sometimes contentious issues related to parental authority and adolescent autonomy (Branje, 2018).

Conclusions

We posed three hypotheses: the parenting-consistency hypothesis, the age-driven hypothesis, and the puberty-driven hypothesis. The parenting-consistency hypothesis was supported with respect to behavioral control, in that we found a linear decrease in parents' behavioral control of children from age 8 to age 15, which was not deflected by a turning point at any age along that trajectory. By contrast, the age-driven hypothesis was supported with respect to warmth, rules/limit-setting, and knowledge solicitation, with a turning point showing greater decreases after than before age 11 or 12 in all three domains of parenting. The puberty-driven hypothesis was supported for all four domains of parenting. Even after accounting for age, being more advanced in pubertal status at a given age was related to less of each domain of parenting than was typical at that age for every parenting domain except for behavioral control. Thus, the answer to our first research question regarding whether parental warmth, behavioral control, rules/limit-setting, and knowledge solicitation change over time as a function of children's age, pubertal status, or both would be that parenting changes over time as a function of both age and pubertal status. The answer to our second research question regarding whether changes over time in parental warmth, behavioral control, rules/limit-setting, and knowledge solicitation are consistent for boys and girls and across national/ethnic/regional groups that vary along a number of dimensions with respect to norms for adolescents' behavior that might be related to parenting would be that changes in parenting in the 12 groups in nine countries included in our analyses were more similar than different for boys and girls and across different groups. When national/ethnic/regional differences were found, they were characterized primarily by differences in the starting point of each parenting behavior and linear change early in adolescence rather than by differences in linear change in mid to late adolescence or by puberty-driven changes.

Taken together, these findings suggest that for boys and girls, parents decrease their warmth, behavioral control, rules/limit-setting, and knowledge solicitation in conjunction with children's age and pubertal status as children develop from age 8 to 16 across a range of diverse contexts. Parents' behavioral control decreased in consistent ways from childhood through adolescence across national/ethnic/regional groups. Trajectories of warmth, rules/limit-setting, and knowledge solicitation showed more variation across national/ethnic/regional groups with different starting points and rates of change in early adolescence but sharp declines after age 11 or 12 across groups. Puberty was more strongly related to decreases in parental warmth, rules/limit-setting, and knowledge solicitation at older

ages, suggesting that puberty may function as a physical marker that encourages parents to provide greater autonomy. These findings provide evidence for changes in parenting related to age and puberty even in cultural contexts that have been characterized as emphasizing collectivism and tight control over social behavior, suggesting cross-cultural consistencies in parenting that result in providing increasing autonomy to adolescents.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Descriptive Statistics for Substantive Measures by Group

Age	Whole Sample		China		Colombia		Italy/ Naples		Italy/Rome		Jordan		Kenya		Philippines		Thailand		Sweden		U.S. African American		U.S. Latinx		U.S. European American	
	M	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***
Parental Warmth (0–3 Scale)																										
8	**2.52**	0.37	**2.20**	0.29	**2.77**	0.25	**2.57**	0.31	**2.63**	0.26	**2.53**	0.32	**2.30**	0.39	**2.67**	0.28	**2.33**	0.39	**2.69**	0.29	**2.83**	0.22	**2.74**	0.28	**2.78**	0.18
9	**2.60**	0.35	**2.24**	0.34	**2.77**	0.26	**2.67**	0.23	**2.58**	0.33	**2.56**	0.31	**2.23**	0.43	**2.63**	0.31	**2.42**	0.41	**2.74**	0.22	**2.75**	0.30	**2.72**	0.26	**2.81**	0.20
10	**2.59**	0.36	**2.25**	0.33	**2.76**	0.27	**2.66**	0.28	**2.56**	0.29	**2.51**	0.36	**2.16**	0.41	**2.59**	0.31	**2.39**	0.38	**2.80**	0.18	**2.79**	0.21	**2.75**	0.27	**2.81**	0.19
11	**2.58**	0.37	**2.23**	0.37	**2.69**	0.28	**2.64**	0.29	**2.58**	0.26	**2.52**	0.34	**2.13**	0.47	**2.63**	0.29	**2.39**	0.36	**2.85**	0.17	**2.75**	0.24	**2.74**	0.25	**2.86**	0.16
12	**2.55**	0.37	**2.29**	0.37	**2.71**	0.19	**2.68**	0.15	**2.56**	0.27	**2.38**	0.38	**2.32**	0.43	**2.60**	0.26	**2.23**	0.46	**2.68**	0.28	**2.79**	0.21	**2.68**	0.33	**2.89**	0.14
13	**2.56**	0.40	**2.33**	0.43	**2.74**	0.31	**2.65**	0.29	**2.48**	0.40	**2.41**	0.46	**2.57**	0.40	**2.55**	0.35	**2.32**	0.46	**2.75**	0.26	**2.79**	0.24	**2.68**	0.37	**2.86**	0.12
14	**2.56**	0.42	**2.20**	0.47	**2.63**	0.42	**2.61**	0.31	**2.53**	0.32	**2.35**	0.56	**2.64**	0.37	**2.33**	0.55	**2.34**	0.42	**2.62**	0.37	**2.74**	0.26	**2.71**	0.28	**2.79**	0.20
15	**2.48**	0.49	**2.09**	0.50	**2.51**	0.52	**2.60**	0.41	**2.34**	0.49	**2.33**	0.50	**2.66**	0.37	**2.30**	0.59	**2.28**	0.52	**2.55**	0.33	**2.72**	0.36	**2.66**	0.44	**2.69**	0.31
Parental Behavioral Control (0–3 Scale)																										
8	**1.90**	0.42	**1.51**	0.36	**2.33**	0.30	**2.13**	0.39	**2.08**	0.42	**1.82**	0.31	**2.25**	0.33	**2.00**	0.31	**1.76**	0.29	**1.71**	0.43	**2.31**	0.32	**2.27**	0.27	**2.07**	0.20
9	**1.97**	0.41	**1.60**	0.30	**2.30**	0.31	**2.14**	0.37	**2.07**	0.38	**1.78**	0.35	**2.19**	0.31	**1.98**	0.32	**1.72**	0.31	**1.67**	0.41	**2.18**	0.42	**2.20**	0.29	**1.86**	0.35
10	**1.93**	0.42	**1.57**	0.27	**2.28**	0.34	**2.15**	0.37	**2.12**	0.32	**1.75**	0.33	**1.97**	0.36	**1.90**	0.31	**1.69**	0.31	**1.55**	0.42	**2.16**	0.38	**2.17**	0.34	**1.88**	0.38
11	**1.91**	0.41	**1.49**	0.26	**2.26**	0.29	**2.17**	0.33	**2.11**	0.36	**1.76**	0.37	**1.85**	0.40	**1.93**	0.28	**1.69**	0.27	**1.56**	0.46	**2.16**	0.35	**2.05**	0.38	**1.82**	0.41
12	**1.82**	0.43	**1.53**	0.27	**2.12**	0.39	**2.14**	0.14	**2.05**	0.36	**1.68**	0.29	**2.09**	0.44	**1.87**	0.31	**1.72**	0.40	**1.45**	0.43	**2.05**	0.38	**2.04**	0.42	**1.81**	0.41
13	**1.82**	0.47	**1.49**	0.35	**2.16**	0.34	**2.08**	0.38	**1.97**	0.38	**1.75**	0.34	**2.18**	0.42	**1.83**	0.36	**1.60**	0.36	**1.39**	0.52	**2.10**	0.36	**2.08**	0.33	**1.66**	0.36
14	**1.82**	0.49	**1.44**	0.44	**2.16**	0.33	**2.10**	0.37	**2.01**	0.38	**1.66**	0.38	**2.28**	0.38	**1.70**	0.39	**1.56**	0.34	**1.34**	0.52	**2.00**	0.37	**1.99**	0.37	**1.62**	0.40
15	**1.80**	0.52	**1.49**	0.39	**1.98**	0.52	**2.02**	0.47	**1.89**	0.45	**1.66**	0.40	**2.26**	0.38	**1.66**	0.42	**1.44**	0.46	**1.38**	0.57	**2.03**	0.43	**1.94**	0.41	**1.57**	0.45
Parental Rules & Limit-Setting (0–3 Scale)																										
10	**1.72**	0.60	**1.07**	0.43	**1.99**	0.44	**1.71**	0.56	**1.86**	0.36	**2.10**	0.43	**2.15**	0.33	**2.00**	0.44	**1.80**	0.45	**1.33**	0.48	**2.37**	0.39	**1.93**	0.63	**1.95**	0.37
11	**1.85**	0.63	**0.99**	0.43	**2.01**	0.63	**1.91**	0.52	**1.97**	0.47	**2.14**	0.52	**2.08**	0.49	**2.14**	0.57	**1.65**	0.51	**1.67**	0.70	**2.17**	0.47	**2.04**	0.50	**1.78**	0.43
12	**1.96**	0.69	**1.03**	0.43	**2.34**	0.55	**2.16**	0.71	**1.99**	0.58	**2.08**	0.61	**2.18**	0.54	**2.10**	0.59	**1.63**	0.43	**1.30**	0.57	**2.34**	0.49	**2.06**	0.75	**1.85**	0.52
13	**1.91**	0.66	**0.97**	0.61	**1.91**	0.66	**1.97**	0.60	**1.87**	0.64	**1.97**	0.49	**2.30**	0.46	**2.16**	0.48	**1.61**	0.47	**1.21**	0.48	**2.43**	0.48	**2.28**	0.58	**1.80**	0.58
14	**1.71**	0.66	**0.79**	0.54	**1.87**	0.66	**1.72**	0.58	**1.62**	0.54	**1.88**	0.57	**2.23**	0.42	**1.90**	0.47	**1.50**	0.47	**1.05**	0.54	**2.21**	0.46	**2.06**	0.58	**1.70**	0.56
15	**1.63**	0.71	**0.88**	0.47	**1.65**	0.60	**1.56**	0.69	**1.44**	0.61	**1.75**	0.56	**2.29**	0.45	**1.82**	0.53	**1.44**	0.53	**0.80**	0.40	**2.23**	0.59	**2.12**	0.74	**1.54**	0.64
16	**1.51**	0.66	**0.85**	0.46	**1.38**	0.60	**1.30**	0.58	**1.16**	0.52	**1.61**	0.45	**2.20**	0.54	**1.61**	0.59	**1.28**	0.48	**0.84**	0.29	**2.05**	0.67	**1.88**	0.67	**1.37**	0.56

Age	Whole Sample		China		Colombia		Italy/ Naples		Italy/Rome		Jordan		Kenya		Philippines		Thailand		Sweden		U.S. African American		U.S. Latinx		U.S. European American	
	M	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***	**M**	***SD***
Parental Knowledge Solicitation (0–2 Scale)																												
10	**1.58**	0.35	**1.08**	0.40	**1.78**	0.17	**1.76**	0.18	**1.67**	0.15	**1.71**	0.24	**1.51**	0.25	**1.58**	0.22	**1.64**	0.28	**1.70**	0.24	**1.84**	0.14	**1.61**	0.30	**1.70**	0.16
11	**1.62**	0.38	**1.03**	0.44	**1.71**	0.24	**1.72**	0.19	**1.69**	0.19	**1.68**	0.29	**1.50**	0.39	**1.67**	0.33	**1.59**	0.27	**1.93**	0.15	**1.76**	0.24	**1.62**	0.35	**1.75**	0.18
12	**1.64**	0.33	**1.17**	0.36	**1.82**	0.28	**1.58**	0.21	**1.60**	0.22	**1.63**	0.35	**1.67**	0.33	**1.67**	0.27	**1.54**	0.28	**1.70**	0.30	**1.84**	0.19	**1.67**	0.45	**1.80**	0.16
13	**1.65**	0.36	**0.95**	0.53	**1.56**	0.43	**1.64**	0.27	**1.59**	0.33	**1.59**	0.31	**1.73**	0.28	**1.66**	0.23	**1.60**	0.31	**1.69**	0.28	**1.87**	0.19	**1.69**	0.51	**1.81**	0.20
14	**1.61**	0.37	**0.94**	0.48	**1.54**	0.35	**1.73**	0.28	**1.67**	0.26	**1.52**	0.34	**1.75**	0.20	**1.61**	0.25	**1.45**	0.41	**1.60**	0.35	**1.80**	0.22	**1.60**	0.41	**1.78**	0.22
15	**1.54**	0.39	**0.95**	0.39	**1.36**	0.49	**1.68**	0.26	**1.49**	0.35	**1.46**	0.34	**1.81**	0.21	**1.53**	0.27	**1.48**	0.46	**1.48**	0.29	**1.83**	0.25	**1.58**	0.41	**1.75**	0.23
16	**1.50**	0.37	**0.94**	0.31	**1.29**	0.41	**1.60**	0.28	**1.42**	0.31	**1.36**	0.34	**1.77**	0.20	**1.52**	0.29	**1.37**	0.39	**1.63**	0.19	**1.78**	0.26	**1.57**	0.36	**1.69**	0.25
Pubertal Status (0–3 Scale)																												
10	**0.70**	0.48	**0.42**	0.41	**0.70**	0.34	**1.00**	0.50	**0.81**	0.34	**0.62**	0.33	**0.84**	0.62	**0.89**	0.60	**0.65**	0.43	**N/A**	N/A	**0.99**	0.53	**0.67**	0.36	**0.78**	0.55
11	**0.90**	0.57	**0.64**	0.70	**0.92**	0.45	**0.92**	0.56	**1.03**	0.62	**0.66**	0.34	**0.92**	0.59	**0.86**	0.51	**0.92**	0.51	**N/A**	N/A	**1.27**	0.70	**1.11**	0.57	**0.86**	0.45
12	**1.04**	0.63	**0.81**	0.68	**1.33**	0.87	**0.60**	0.20	**1.07**	0.56	**1.19**	0.53	**0.59**	0.49	**1.24**	0.51	**0.99**	0.56	**0.69**	0.56	**1.60**	0.57	**1.43**	0.61	**1.09**	0.52
13	**1.31**	0.64	**1.34**	0.65	**1.45**	0.60	**1.53**	0.70	**1.41**	0.68	**1.27**	0.54	**0.89**	0.57	**1.47**	0.53	**1.32**	0.56	**1.01**	0.67	**1.73**	0.71	**1.64**	0.59	**1.51**	0.39
14	**1.69**	0.61	**1.72**	0.76	**1.72**	0.61	**1.81**	0.47	**1.63**	0.55	**1.50**	0.50	**1.03**	0.65	**1.81**	0.40	**1.74**	0.55	**1.67**	0.69	**2.01**	0.46	**1.92**	0.57	**1.72**	0.60
15	**1.92**	0.52	**1.89**	0.54	**1.97**	0.48	**1.96**	0.42	**1.97**	0.55	**1.84**	0.52	**1.49**	0.60	**1.87**	0.48	**1.74**	0.47	**2.03**	0.53	**2.07**	0.54	**2.10**	0.48	**2.11**	0.42
16	**2.11**	0.45	**2.17**	0.48	**2.20**	0.40	**2.12**	0.42	**2.19**	0.43	**1.96**	0.42	**1.73**	0.61	**1.96**	0.32	**2.03**	0.45	**2.38**	0.46	**2.24**	0.44	**2.26**	0.39	**2.30**	0.40

Note. Overall and sample-specific means bolded so that they can be more easily read.

Table 2

Unconditional Parenting Trajectories by Group

	Whole Sample *B* (*SE*)	China *B* (*SE*)	Colombia *B* (*SE*)	Italy/ Naples *B* (*SE*)	Italy/ Rome *B* (*SE*)	Jordan *B* (*SE*)	Kenya *B* (*SE*)	Philippines *B* (*SE*)	Thailand *B* (*SE*)	Sweden *B* (*SE*)	U.S. African American *B* (*SE*)	U.S. Latinx *B* (*SE*)	U.S. European American *B* (*SE*)
Parent Warmth (0-3 Scale)													
Age 8 Intercept	**2.57 (.11)***	**2.21 (.03)***	**2.75 (.03)***	**2.64 (.03)***	**2.61 (.03)***	**2.55 (.03)***	**2.23 (0.05)***	**2.64 (.03)***	**2.35 (.04)***	**2.69 (.03)***	**2.80 (.04)***	**2.72 (.04)***	**2.76 (.03)***
Age 8-11 Linear Slope	**0.01 (.00)***	**0.03 (.01)***	0.01 (.01)	0.01 (.01)	−0.01 (.01)	−0.01 (.01)	−0.02 (.02)	0.00 (.01)	0.02 (.01)ϕ	0.05 (.01)	−0.01 (.01)	0.01 (.02)	**0.04 (.01)***
Age 11-15 Linear Slope	**−0.02 (.00)***	**−0.03 (.02)***	**−0.05 (.01)***	**−0.02 (.01)***	**−0.04 (.01)***	**−0.05 (.01)***	**0.14 (.02)***	**−0.06 (.01)***	**−0.04 (.01)***	**−0.07 (.01)***	−0.01 (.01)	−0.02 (.01)	**−0.03 (.01)***
Parent Behavioral Control (0-3 Scale)													
Age 8 Intercept	**1.98 (.01)***	**1.56 (.02)***	**2.34 (.03)***	**2.18 (.03)***	**2.14 (.04)***	**1.81 (.03)***	**2.08 (.04)***	**2.01 (.03)***	**1.75 (.03)***	**1.72 (.04)***	**2.23 (.04)***	**2.24 (.03)***	**1.96 (.04)***
Age 8 −15 Linear Slope	**−0.03 (.00)***	**−0.01 (.01)***	**−0.04 (.01)***	**−0.02 (.01)***	**−0.03 (.01)***	**−0.02 (.01)***	**0.02 (.01)***	**−0.05 (.01)***	**−0.04 (.01)***	**−0.06 (.01)***	**−0.03 (.01)***	**−0.04 (.01)***	**−0.05 (.01)***
Parent Rules/Limit-Setting (0-3 Scale)													
Age 10 Intercept	**1.76 (.03)***	**1.01 (.05)***	**1.97 (.06)***	**1.58 (.10)***	**1.88 (.07)***	**1.99 (.07)***	**2.11 (.06)***	**1.99 (.07)***	**1.74 (.08)***	**1.31 (.06)***	**2.20 (.09)***	**1.88 (0.11)***	**1.64 (.09)***
Effect of Gender on Age 10 Intercept	**0.07 (.03)***	0.05 (.07)	0.04 (.08)	0.10 (.09)	−0.05 (.07)	**0.22 (.07)***	0.03 (.06)	0.10 (.08)	0.04 (.07)	**0.15 (.07)***	0.05 (.07)	0.05 (.10)	**0.20 (.08)***
Age 10-12 Linear Slope	**0.09 (.01)***	−0.02 (.03)	**0.12 (.04)***	**0.28 (.06)***	**0.10 (.04)***	0.00 (.04)	0.06 (.04)	**0.07 (.03)***	−.04 (.04)	0.01 (.03)	0.07 (.04)	**0.16 (.07)***	0.07 (.05)
Age 12-16 Linear Slope	**−0.13 (.01)***	−0.04 (.02)	**−0.20 (.02)***	**−0.22 (.02)***	**−0.22 (.02)***	**−0.13 (.02)***	0.01 (.02)	**−0.13 (.02)***	**−0.10 (.02)***	**−0.18 (.02)***	**−0.06 (.02)***	**−0.07 (.03)***	**−0.12 (.02)***
Parent Knowledge Solicitation (0-2 Scale)													
Age 10 Intercept	**1.60 (.01)***	**1.05 (.04)***	N/A	N/A	**1.68 (.03)***	**1.70 (.03)***	**1.43 (.06)***	**1.60 (.03)***	N/A	**1.83 (.03)***	N/A	N/A	N/A
Age 10-12 Linear Slope	**0.03 (.01)***	0.03 (.03)	N/A	N/A	−0.02 (.02)	−.02 (.02)	**0.14 (.03)***	**0.04 (.02)***	N/A	−0.01 (.03)	N/A	N/A	N/A

	Whole Sample *B* (*SE*)	**China *B* (*SE*)**	**Colombia *B* (*SE*)**	**Italy/ Naples *B* (*SE*)**	**Italy/ Rome *B* (*SE*)**	**Jordan *B* (*SE*)**	**Kenya *B* (*SE*)**	**Philippines *B* (*SE*)**	**Thailand *B* (*SE*)**	**Sweden *B* (*SE*)**	**U.S. African American *B* (*SE*)**	**U.S. Latinx *B* (*SE*)**	**U.S. European American *B* (*SE*)**
Age 12-16 Linear Slope	**−0.04 (.00)** *	**−0.05 (.02)** *	N/A	N/A	**−0.04 (.01)** *	**−0.07 (.01)** *	**0.02 (.01)** *	**−0.05 (.01)** *	N/A	**−0.11 (.02)** *	N/A	N/A	N/A

*Note. $p \leq .05$. Significant parameters are also bolded for easier identification. Group-specific parent knowledge solicitation models were unable to be estimated for some groups due to empirical under-identification and model estimation difficulties. These cultures are denoted with a "N/A."

Table 3

Conditional Parenting Trajectories in the Sample as a Whole

	Parent Warmth *B* (*SE*)	**Parent Behavioral Control *B* (*SE*)**	**Parent Rules/Limit-Setting *B* (*SE*)**	**Parent Knowledge Solicitation *B* (*SE*)**
Intercept	**2.56 (0.12)** *	**1.98 (.01)** *	**1.89 (.11)** *	**1.57 (.06)** *
	Effects of Age on Parenting Behaviors (i.e. Slopes of Parenting Behaviors)			
Linear Slope 1	**0.02 (0.01)** *	**−0.02 (.01)** *	0.06 (.07)	0.04 (.04)
Linear Slope 2	0.02 (0.02)	N/A	**−0.07 (.04)** *	0.00 (.02)
	Effects of Pubertal Status on Parenting Behaviors at Specific Ages (i.e., Time Varying Effects of Pubertal Status)			
Age 10 Pubertal Status	−0.02 (.02)	−0.03 (.02)	−0.14 (.15)	0.04 (.09)
Age 11 Pubertal Status	−0.04 (.02)	**−0.05 (.02)** *	−0.09 (.07)	0.04 (.04)
Age 12 Pubertal Status	**−0.05 (.02)** *	**−0.09 (.03)** *	−0.07 (.08)	−0.01 (.04)
Age 13 Pubertal Status	**−0.06 (.02)** *	−0.05 (.03)	−0.05 (.04)	−0.02 (.02)
Age 14 Pubertal Status	**−0.08 (.02)** *	−0.04 (.02)	**−0.09 (.03)** *	−0.03 (.02)
Age 15 Pubertal Status	**−0.11 (.03)** *	**−0.05 (.02)** *	**−0.10 (.04)** *	**−0.06 (.02)** *
Age 16 Pubertal Status	N/A	N/A	**−0.14 (.05)** *	**−0.07 (.03)** *
	Model Fit Statistics			
Chi-Square	**χ^2 (51) = 89.55, p < .01** *	χ^2 (61) = 72.17, p = .16	**χ^2 (40) = 58.99, p = .03** *	χ^2 (40) = 40.49 p = .44
RMSEA	0.02	0.01	0.02	0.00
CFI/TLI	0.98/0.97	0.99/0.99	0.99/0.99	1.00/1.00
SRMR	0.05	0.03	0.03	0.03

*Note. $p \leq .05$. Significant parameters are also bolded for easier identification. Intercept indicates parents' score on parenting measure at age 8 (for warmth and behavioral control) or 10 (for rules/limit-setting and knowledge solicitation). RMSEA = Root Mean Square Error of Approximation. CFI/TLI = Comparative Fit Index/Tucker-Lewis Index. SRMR = Standardized Root Mean Square Residual. **For Parent Warmth**, Linear Slope 1 indicates slope from ages 8-11 and Linear Slope 2 indicates slope from ages 11-15. **For Parent Behavioral Control**, Linear Slope 1 indicates slope from ages 8-15 and Linear Slope 2 does not exist because the best fitting-model included only a single linear slope. **For Parent Rules/Limit-Setting** and **Parent Knowledge Solicitation**, Linear Slope 1 indicates slope from ages 10-12 and Linear Slope 2 indicates slope from ages 12-16.