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## Opportunities and Peer Support for Aggression and Delinquency During Adolescence in Nine Countries

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## Abstract

This study tested culture-general and culture-specific aspects of adolescent developmental processes by focusing on opportunities and peer support for aggressive and delinquent behavior, which could help account for cultural similarities and differences in problem behavior during adolescence. Adolescents from 12 cultural groups in nine countries (China, Colombia, Italy, Jordan, Kenya, the Philippines, Sweden, Thailand, and the United States) provided data at ages 12, 14, and 15. Variance in opportunities and peer support for aggression and delinquency, as well as aggressive and delinquent behavior, was greater within than between cultures. Across cultural groups, opportunities and peer support for aggression and delinquency increased from early to mid-adolescence. Consistently across diverse cultural groups, opportunities and peer support for aggression and delinquency predicted subsequent aggressive and delinquent behavior, even after controlling for prior aggressive and delinquent behavior. The findings illustrate ways that international collaborative research can contribute to developmental science by embedding the study of development within cultural contexts.

## Keywords

adolescence; aggression; culture; delinquency; international; peers

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A major transition in the study of child and adolescent development over the years has been a shift from studies conducted primarily in the United States, Canada, and Western Europe to studies that are more representative of and generalizable to the world's population. However, even as late as 2015, a review of publications in high-impact developmental journals showed that 95% of the publications were produced by researchers working in Western settings that represented less than 8% of the world's population (Nielsen, Haun, Kartner, & Legare, 2017). International, collaborative research is important to advance developmental science because children's experiences are shaped by the cultural contexts in

which they are situated; in consequence, much knowledge about the range of human experiences is constrained by focusing on only a narrow spectrum of cultural contexts (Bornstein, 2010; Lansford et al., 2019). Cultural psychology and anthropology, in particular, have long traditions of embedding the study of development in cultural contexts, a direction that has also grown in developmental science over the last decades.

To illustrate a new direction in understanding the nexus of culture and adolescent development, we draw on the Parenting Across Cultures Project (Lansford et al., 2018), a longitudinal study of mothers, fathers, and children in nine countries: China, Colombia, Italy, Jordan, Kenya, the Philippines, Sweden, Thailand, and the United States. These countries vary widely on a number of sociodemographic dimensions related to life expectancy, education, and income (Human Development Report, 2019). Additionally, these countries vary on psychological and sociological dimensions related to factors such as individualism versus collectivism (Hofstede, 2001) and looseness versus tightness (Gelfand et al., 2011). These social norms may be important in relation to adolescents' aggressive and delinquent behavior, as aggression and delinquency are regarded as more problematic in collectivist than individualist societies (Forbes, Zhang, Doroszewicz, & Haas, 2009) and are less tolerated in countries high on the tightness than looseness dimension (Gelfand et al., 2011). International comparisons generally show the highest crime rates in the Americas, followed by Africa, Europe, and Asia (United Nations Office on Drugs and Crime, 2019).

Culture is hard to operationalize and sometimes is treated as a black box or "social address" (Bronfenbrenner & Crouter, 1983), as researchers offer comparisons of similarities and differences between two or more countries or cultural groups on some variable, or in relations between variables, without attention to factors within the cultural groups that could account for the between-group similarities and differences. There are exceptions, however. Normativeness theory, for example, has been invoked to explain how parents and children interpret one another's behavior in the context of the behavior of others in their community, and why norms and acceptability of particular behaviors within the community are important for child development (e.g., Lansford et al., 2018). A new direction for the field of developmental science will be to try to identify other reasons that culture matters for understanding child and adolescent development. In the present study, we examine opportunities and peer support for aggression and delinquency as possible factors that help to account for cultural similarities and differences in aggressive and delinquent behavior during adolescence.

## **dummy**

### **Opportunities for Aggression and Delinquency**

In theory, aggressive behavior is possible in any setting and does not require any particular opportunity structure for its enactment. For example, if they desire to do so, adolescents can hit or verbally insult peers at school or in their neighborhood. However, these sorts of aggressive behaviors are more likely to occur in the absence of adult supervision, an observation that has spurred anti-bullying programs that focus on particular hot spots (such as restrooms, the cafeteria, and playgrounds at school) that are typically less well supervised by adults than classrooms (Gaffney, Ttofi, & Farrington, 2019). Delinquent acts also are

more likely to occur in unstructured settings where adolescents are not supervised by adults, and delinquency might depend even more on access to opportunity than does aggression (Mahoney, Stattin, & Lord, 2004). Recommendations for programs concerned with the possibility of deviant peer contagion (in which peers reinforce one another's problem behaviors) often focus on increasing adult supervision and reducing opportunities for adolescents to interact in unstructured, unsupervised settings (Dodge, Dishion, & Lansford, 2006).

Time use studies suggest that adolescents in different cultures vary in how much discretionary time they have and how much of their discretionary time is spent with peers (Lancy, 2015). For example, in South Korea, adolescents spend 44% of their time in school or studying and 23% of their time socializing or in leisure activities, compared to adolescents in the United States, who spend 19% of their time in school or studying and 49% of their time socializing or in leisure activities (Lee & Larson, 2000). Opportunities to engage in aggressive or delinquent behavior likely vary across cultures as a function of how much time, and in whose company, adolescents spend in different settings.

### **Peer Support for Aggression and Delinquency**

Even when adolescents have the opportunity to engage in aggressive or delinquent behavior, many will choose not to do so. Whether adolescents will engage in aggressive or delinquent behavior if given the opportunity depends on a number of factors, including whether doing so will serve adolescents' goals, which might include earning favor in their peer group. Peer support for aggression and delinquency is aligned with the construct of cultural normativeness but focused on the norms that are likely more pressing for adolescents than for children or adults, especially injunctive norms related to adolescents' perceptions that their peers regard particular behaviors as acceptable (Pedersen et al., 2017). In laboratory-based driving simulation studies, for example, adolescents are more likely to speed and drive recklessly in the presence of one or more peers than when they are alone, whereas adults' speeding and reckless driving are unaffected by the presence of peers (Chein, Albert, O'Brien, Uckert, & Steinberg, 2011). Outside the laboratory, exposure to friends' alcohol-related posts on social networking sites predicts subsequent initiation of alcohol use and heavy episodic drinking (Nesi, Rothenberg, Hussong, & Jackson, 2017), and adolescents who engage in delinquent behavior are more likely to do so in the presence of peers than alone (Crosnoe & McNeely, 2008).

One explanation for why adolescents are more susceptible than children or adults to peer influence invokes the dual systems theory (Steinberg, 2010). Adolescent brain development has been likened to a car in which the gas pedal works before a fully functioning brake system is in place (Steinberg, 2008). The parts of the brain that respond to rewards (e.g., regions of the striatum and medial and orbital prefrontal cortices) develop early in adolescence with the onset of puberty. However, the parts of the brain that are responsible for cognitive control and response inhibition (e.g., regions of the lateral prefrontal, lateral parietal, and anterior cingulate cortices) continue to develop into the 20s (Casey, Heller, Gee, & Cohen, 2019). Therefore, in situations where adolescents perceive peers as being supportive of a particular behavior, the perceived rewards in terms of peer acceptance and

fun may outweigh adolescents' abilities to prioritize the costs and risks and contravene peer support for the behavior.

A study of 10- to 30-year-olds in 11 countries (including the nine countries in the current study) found support for dual systems theory (Steinberg et al., 2018). In all 11 countries, reward seeking increased from preadolescence to late adolescence and then declined after age 19; self-regulation increased from preadolescence into young adulthood and did not reach a plateau until ages 23 to 26. These findings suggest that individuals in diverse cultures are primed to increase risky behaviors during adolescence, but the findings do not speak directly to the issue of potential cultural differences in opportunities or peer support for aggression or delinquency during adolescence, the foci of the present study. That is, even if adolescence is in general a time of heightened propensity toward risky behavior, whether, to what extent, and in what ways risky behavior manifests itself depends in part on the opportunities and norms that shape young people's behavior.

### The Present Study

The present study was guided by three main research questions. First, what proportion of variance in adolescents' opportunities and peer support for aggression and delinquency (and in adolescents' aggressive and delinquent behaviors) is accounted for by within-culture versus between-culture factors? Based on prior research with the current sample that found more within-country than between-country variance across a range of parenting and adjustment outcomes during childhood (Deater-Deckard et al., 2018), we hypothesized that more variance in opportunities and peer support for aggression and delinquency (and more variance in aggression and delinquency) would be evinced within as opposed to between cultural groups.

Second, descriptively, how do opportunities and peer support for aggression and delinquency change over the course of early to mid-adolescence in nine diverse countries? We hypothesized that perceived opportunities for aggression and delinquency would increase from early to mid-adolescence, as adolescents across cultural groups have been found to gain autonomy through adolescence, even in cultural groups that emphasize filial piety and the maintenance of parental authority in many aspects of adolescents' lives (Smetana & Rote, 2019). We also hypothesized that perceived peer support for aggression and delinquency would increase from early to mid-adolescence across cultures. This hypothesis is consistent with classic theories of adolescence-limited and late-onset antisocial behavior that have been found to describe a subset of individuals who engage in antisocial behavior during adolescence but not earlier in childhood (Moffitt, 1993; Patterson, Forgatch, Yoerger, & Stoolmiller, 1998).

Third, do opportunities and peer support for aggression and delinquency predict subsequent aggressive and delinquent behavior, after controlling for prior aggression and delinquency? Controlling for prior aggression and delinquency helps remove the selection rather than influence piece of the puzzle; that is, adolescents who themselves are more aggressive and delinquent are more likely to select friends who share those aggressive and delinquent tendencies (Sijtsema & Lindenberg, 2018). Even after selecting friends who are similar to themselves, however, peers influence one another's problem behaviors over time (Dishion,

Spracklen, & Patterson, 1996), so adolescents who spend time with aggressive or delinquent peers are more likely to persist or increase in their own aggressive or delinquent behavior. We therefore hypothesized that opportunities and peer support for aggression and delinquency would predict subsequent aggressive and delinquent behavior, controlling for prior aggressive and delinquent behavior. We tested whether opportunities and peer support for aggression and delinquency were related similarly to subsequent aggressive and delinquent behavior in diverse cultural groups and whether cultural group moderated the link between opportunities and peer support for aggression and aggressive behavior and between opportunities and peer support for delinquency and delinquent behavior.

## Methods

### Participants

Participants were drawn from the ongoing Parenting Across Cultures project, a longitudinal sample recruited at age 8, on average, from 12 groups in 9 countries: Shanghai, China ( $n = 123$ , 52% girls), Medellín, Colombia ( $n = 108$ , 56% girls), Naples, Italy ( $n = 102$ , 52% girls), Rome, Italy ( $n = 111$ , 50% girls), Zarqa, Jordan ( $n = 114$ , 47% girls), Kisumu, Kenya ( $n = 100$ , 60% girls), Manila, Philippines ( $n = 120$ , 49% girls), Trollhättan/Vänern, Sweden ( $n = 129$ , 48% girls), Chiang Mai, Thailand ( $n = 120$ , 49% girls), and Durham, North Carolina, United States ( $n = 110$  European Americans, 42% girls;  $n = 102$  African Americans, 52% girls;  $n = 99$  Latinx, 54% girls). Letters describing the study were sent home from school with children. Parents were asked to sign and return the letter if they were willing to be contacted (in some countries) and contacted by phone to follow up on the letter (in other countries). Children were sampled from schools serving high-, middle-, and low-income families in the approximate proportion to which these income groups were represented in the local population. These sampling procedures resulted in an economically diverse sample that ranged from low income to high income within each site.

Participants were followed annually for eight years. At the eighth year of data collection, 72% of families ( $n = 959$ ) who participated at year 1 continued to provide data, and those who did not provide data at wave 8 did not differ from those who did on parents' age, parents' education, or child gender. Data for the present analyses came from waves 5, 7, and 8 of the larger study, when participants were ages 12, 14, and 15, on average, because the measures to address the present research questions were administered at those waves.

### Procedure and Measures

Measures were administered in Mandarin Chinese (China), Spanish (Colombia and United States), Italian (Italy), Arabic (Jordan), Dholuo (Kenya), Filipino (the Philippines), English (the Philippines and United States), Swedish (Sweden), and Thai (Thailand) following forward- and back-translation and methodological validation to ensure the linguistic and conceptual equivalence of the instruments (Erkut, 2010). Participants were compensated financially, with small gifts, or with donations to students' schools according to guidelines established by institutional review boards (IRBs) at universities in each site that approved all study procedures.

**Opportunities and peer supports for aggression and delinquency.**—The Opportunities, Supports, and Sanctions measure was developed for the Parenting Across Cultures project to assess opportunities and peer support for risky behavior. We created two opportunities variables at each age, one *opportunities for aggressive behavior* and the other *opportunities for delinquent behavior*. For each item, participants rated their opportunities to engage in the behavior on a 3-point scale (0 = *no or few opportunities*, 1 = *some opportunities*, 2 = *many opportunities*). For *opportunities for aggressive behavior*, we used the participant's response to the item "getting into a physical fight." For *opportunities for delinquent behavior*, we created average scores at each age using five items "drinking beer or wine," "drinking hard liquor," "vandalizing property," "riding in a car with a drunk driver," and "using drugs" (Age 12  $\alpha = .70$ , Age 14  $\alpha = .80$ , Age 15  $\alpha = .82$ ; range = .57 in the Philippines to .88 in China). These items were selected because they mapped most closely onto the items from the delinquency subscale of the Youth Self Report Form of the Child Behavior Checklist (Achenbach & Rescorla, 2001).

The *peer support* subscale consisted of rating to what extent the adolescent's peers discouraged or supported the adolescent's engagement in each of the behaviors from the *opportunities* subscale (0 = *same-age peers discourage the behavior*, 1 = *same-age peers neither discourage nor support the behavior*, 2 = *same-age peers support the behavior*). As with opportunities, we created two peer support variables, one *peer support for aggressive behavior* and the other *peer support for delinquent behavior*. For *peer support for aggressive behavior*, we used the participant's response to the item "getting into a physical fight." For *peer support for delinquent behavior*, we created average scores for each age using five items "drinking beer or wine," "drinking hard liquor," "vandalizing property," "riding in a car with a drunk driver," and "using drugs" (Age 12  $\alpha = .81$ , Age 14  $\alpha = .78$ , Age 15  $\alpha = .77$ ; range = .66 in the Philippines to .88 in China). In Jordan, items about opportunities and peer support for substance use were not asked at any ages. These items were deemed too sensitive by the local IRB for cultural reasons (e.g., Islamic principles forbidding the use of intoxicants). Therefore, Jordan is included only in the analyses related to aggression, not delinquency.

**Aggressive and delinquent behavior.**—Adolescents completed the Youth Self Report Form of the Child Behavior Checklist (Achenbach & Rescorla, 2001). Adolescents were asked to rate how true each item was during the last six months (0 = *not true*, 1 = *somewhat or sometimes true*, 2 = *very or often true*). The *Aggressive Behavior* scale averaged across 19 items such as bullying and physical violence (Age 12  $\alpha = .83$ , Age 14  $\alpha = .84$ , Age 15  $\alpha = .82$ ; range = .72 in China to .87 in Thailand). The *Delinquent Behavior* scale averaged across 11 items such as vandalism and using alcohol or drugs (Age 12  $\alpha = .63$ , Age 14  $\alpha = .65$ , Age 15  $\alpha = .61$ ; range = .38 in Kenya to .68 in Colombia). The Achenbach measures are widely used in international research, with translations in over 100 languages and strong, well-documented psychometric properties (e.g., Achenbach & Rescorla, 2001). Measurement invariance and consistency of the factor structure have been demonstrated in several cultural groups within and between countries (e.g., Ivanova et al., 2007; Yarnell et al., 2013).

**Covariates.**—To adjust for characteristics that could affect adolescents' reports of opportunities and peer support for aggression and delinquency as well as aggressive and delinquent behavior, we controlled for the number of years of education completed by mothers and adolescent gender.

### Analysis Plan

Data were available at age 15 for the aggression and delinquency outcomes for 72% of the original sample. We handled missing data using Full Information Maximum Likelihood (Larsen, 2011). To estimate within- and between-cultural group variance, we structured the data with time point (waves 5, 7, and 8) at level one, adolescent at level two, and cultural group at level three. For each variable, we estimated a multilevel mixed-effects linear regression model with a random intercept for adolescent and culture using multilevel modeling in *Mplus8*. Using the estimated variances (residual/within-person, between person within culture, and between culture), we calculated (1) the  $ICC_{1,2}$  (level 1 within level 2), which measures the percent of variance between adolescents and (2)  $ICC_{2,3}$  (level 2 within level 3), which measures the percent of the between-adolescent variance accounted for by culture. The statistical significance of  $ICC_{1,2}$  was assessed using a chi-square test comparing the log likelihood of the “level one only” model to that of the two-level model (time points nested within person ignoring culture). The statistical significance of  $ICC_{2,3}$  was assessed using a chi-square test comparing the log likelihood of the two-level model (time points nested within person ignoring culture) to that of the complete three-level model (time points nested within person nested within culture; Deater-Deckard et al., 2018). Additionally, we tested whether the division of variance across the two-level model (time points nested within person ignoring culture) was different for males and females.

We then conducted fixed effects regression analyses in *Mplus8* using the MLR estimator to provide Satorra-Bentler robust standard errors to address any non-normality in the dependent variables. We ran two models for each outcome separately, because the model for delinquency did not include data from Jordan. The models included mother's education, adolescent gender, site (comparison group Sweden), and opportunity and peer support for aggression and delinquency predicting aggression and delinquency, respectively. Sweden was chosen for the comparison group because it had mean values of age 15 aggressive and delinquent behavior that were closest to the overall sample mean. Sensitivity analyses that chose Naples, Italy, as the comparison group instead (because Naples had mean values of age 14 opportunities and peer support for aggression and delinquency that were closest to the overall sample mean) showed no differences in the substantive results. For each of the outcomes, we then ran a model that, for the countries that were significant in the first model, added interactions between cultural group and opportunities and between cultural group and peer support for aggression and delinquency. Additionally, we conducted a multiple group analysis by gender to see if these results were significantly different for males and females. We tested for invariance of regression coefficients and of intercepts/thresholds through constraining each parameter one-by-one to be equal across males and females, and conducting likelihood ratio tests of the nested models. We controlled for aggression and delinquency at age 12 because adolescents with a propensity for problem behaviors may have made choices at age 14 that led them to environments with more opportunities for



aggression and delinquency, adolescents select friends who are similar to themselves in problem behaviors (Sijtsema & Lindenberg, 2018), and adolescents influence one another's problem behaviors after they are friends (Dishion, Spracklen, & Patterson, 1996).

## Results

Our first research question was what proportions of variance in adolescents' opportunities for aggression and delinquency (and in adolescents' aggressive and delinquent behavior) are accounted for by within-culture versus between-culture factors. The majority of the variance was accounted for within adolescents over time (Table 1). The  $ICC_{1,2}$ , the proportion of variance between adolescents of the same country, ranged from .27 for peer support for delinquency to .56 for aggression. Of the between-adolescent variance, the majority was accounted for by differences between individuals within cultures, rather than between cultures ( $ICC_{2,3}$  range .10 to .26). Adding the between-person effect (level 2) to the model never significantly worsened model fit compared to the within-person only model. Compared to the 2-level model, adding the effect of culture significantly worsened model fit ( $p < .05$ ) for opportunity for aggression and opportunity for delinquency, indicating that it was not advisable to model the between-culture effect of individuals nested within cultures for opportunity for risky behaviors. The fit of the level-2 models did not significantly worsen when constraining the between-person variance (not including culture) to be equal for males and females, with the exception of opportunity for aggression, where there was significantly more between-person variation for males [.124 (.01)] than for females [.070 (.01)].

Our second question concerned the nature of opportunities and peer support for aggression and delinquency over the course of early to mid-adolescence. The overall mean levels of opportunity for aggressive behavior ranged from .22 at age 12 to .32 at age 15 (few opportunities at either age but increasing to closer to "some" opportunities rather than "no or few" opportunities with increasing age). At age 14, site-specific means of opportunity for aggressive behavior ranged from .10 in Kenya to .65 in Sweden (see Table 2). The overall mean of opportunity for delinquent behavior ranged from .09 at age 12 to .36 at age 15. At age 14, the site-specific mean of opportunity for delinquent behavior ranged from .08 in Kenya to .43 in Rome, Italy. The overall mean levels of peer support for aggressive behavior were .43 at age 12 and .44 at age 15. At age 14, site-specific means of peer support for aggressive behavior ranged from .09 in China to .74 in Jordan (Table 3). Based on the bivariate Mann-Whitney U-test, we found significantly higher levels of overall peer support for aggressive behavior among males. The overall mean levels of peer support for delinquent behavior ranged from .23 at age 12 to .52 at age 15. At age 14, site-specific means of peer support for delinquent behavior ranged from .16 in China to .64 in the European American sample from the United States. Descriptive statistics for aggressive and delinquent behaviors are shown in Table 4.

Our third question was whether opportunities and peer support for aggression and delinquency predict subsequent aggressive and delinquent behavior, controlling for prior aggression and delinquency. We conducted fixed effects regression analyses predicting age 15 aggressive and delinquent behavior (see Table 5). Controlling for age 12 aggressive behavior, both opportunity for aggressive behavior and peer support for aggressive behavior

at age 14 significantly predicted aggressive behavior at age 15. Females had significantly higher levels of aggression at age 15 than males. Compared to Swedish youth, Kenyan, Filipino, African American, European American, and Latinx youth reported significantly lower levels of aggressive behavior at age 15. Of the 22 interactions that were tested, there were no significant interactions between cultural group and opportunity for aggressive behavior at age 14 or cultural group and peer support for aggressive behavior at age 14 in the prediction of aggressive behavior at age 15.

Controlling for age 12 delinquent behavior, both opportunity for delinquent behavior and peer support for delinquent behavior at age 14 significantly predicted delinquent behavior at age 15. Males had significantly higher levels of delinquent behavior at age 15 than females. Compared to Swedish youth, being Chinese was related to significantly lower levels of delinquent behavior at age 15, and being Italian from Rome, Filipino, and Thai was related to significantly higher levels of delinquent behavior at age 15. None of the 11 interactions between site and peer support for delinquent behavior on delinquent behavior, and only one interaction between site (Colombia) and opportunity for delinquent behavior was significant. Because only one of 44 interactions tested across the analyses predicting aggression and delinquency was significant, details are not reported in full but are available on request. For both outcomes, constraining the regression coefficients and intercepts of the opportunity and support variables across males and females did not significantly worsen model fit compared to models that were free to vary by gender.

## Discussion

One goal of this study was to illustrate a new direction for the field of developmental science in trying to unpack reasons that culture matters for understanding child and adolescent development by focusing on opportunities and peer support for aggressive and delinquent behavior, which could help account for cultural similarities and differences in behavior during adolescence. We addressed questions about the proportions of variance in opportunities and peer support for aggression and delinquency accounted for by within-versus between-country factors. We also examined whether opportunities and peer support for aggression and delinquency would increase from early to mid-adolescence in consistent ways across cultural groups and whether opportunities and peer support for aggression and delinquency would predict subsequent aggression and delinquency after taking into account prior aggression and delinquency. We addressed these questions in a sample of adolescents followed longitudinally from 12 to 15 years in 12 cultural groups in nine countries.

With respect to our first research question, our hypothesis was supported, as most of the variance in opportunities and peer support for risky behavior, as well as aggression and delinquency during adolescence, emerged within cultural groups rather than between them. For all variables except aggression, within cultural groups, the majority of variance was within adolescents in their own reports over time. This finding is consistent with previous work suggesting a similar preponderance of within- rather than between-culture variance in a range of parenting and adjustment outcomes earlier in childhood (Deater-Deckard et al., 2018). These findings suggest that individual (e.g., temperament) and family (e.g., harsh parenting, monitoring) factors may play a more prominent role than culture-level

opportunities and perceived peer supports in whether adolescents will engage in aggressive and delinquent behavior, broadly defined, and especially that developmental factors within adolescents are a significant part of the variance. A telling implication of this finding for future research and cross-cultural analyses is that interpretations of any cultural differences should carefully consider whether the groups being compared are comparable developmentally as well as within-culture factors such as socioeconomic status. For example, a finding of a study in one cultural group that is deemed different from a finding in a study with a different cultural group may reflect developmental differences if the ages of the two samples differ, as the largest proportion of variance in our study was accounted for by within-individual differences over time.

With respect to our second research question, our hypothesis that opportunities and peer support for aggression and delinquency would increase from early to mid-adolescence also was supported. Across cultural groups, opportunities and peer support for aggression and delinquency increased from age 12 to age 15. Although these findings concern age differences in opportunities and peer support for problem behavior, they are consistent with theories that predict an increase in antisocial behavior during adolescence (Moffitt, 1993; Patterson et al., 1998) and with empirical evidence that, across cultures, autonomy from parents increases across adolescence (Smetana & Rote, 2019). Our peer support variables align with the construct of injunctive norms, which characterize the extent to which adolescents perceive their peers as regarding particular behaviors as acceptable, in contrast to descriptive norms, which involve adolescents' perceptions of their peers' behaviors without reference to whether peers encourage others to engage in similar behaviors (Pedersen et al., 2017).

With respect to our third research question, our hypothesis that opportunities and peer support for aggression and delinquency would predict subsequent aggression and delinquency, even after controlling for prior aggression and delinquency, was also supported. That is, controlling for age 12 aggression and delinquency, age 14 opportunities and peer support for aggression and delinquency significantly predicted aggression and delinquency at age 15. Consistent with prior research (e.g., Rebellon, Manasse, Agnew, Van Gundy, & Cohn, 2016), males had higher mean levels of delinquency at age 15 than females. Surprisingly, females had higher mean levels of aggression at age 15 than males, perhaps because the aggression items indexed problem behaviors that girls may have been more likely to engage in than boys at age 15 given the likelihood of girls' more advanced pubertal status than boys' at this age (Negri & Susman, 2011). The paths between opportunities and supports for aggression and delinquency and aggressive and delinquent behaviors did not differ for girls and boys. The links between opportunities and peer support for aggression and delinquency and subsequent aggressive and delinquent behavior were not moderated by cultural group, suggesting that, although the groups differed in mean levels of opportunities, peer support, aggression, and delinquency, associations among those constructs are consistent across cultures.

One implication of these findings is that reducing opportunities for children and adolescents to spend time with peers in unsupervised settings has the potential to reduce aggressive and delinquent behavior. Interventions in education, juvenile justice, mental health, and other

domains present challenges to preventing deviant peer contagion that is more likely to occur in unsupervised settings (Dodge et al., 2006). Because perceived peer support for aggression and delinquency was related to more subsequent aggressive and delinquent behavior consistently for boys and girls and across cultures, interventions that aim to change injunctive norms related to adolescents' perceptions that their peers regard particular behaviors as acceptable also may help reduce adolescents' aggression and delinquency (Pedersen et al., 2017).

The meaning of having opportunities for aggression and delinquency should be considered from a cultural frame of reference. For example, in reporting that they have more opportunities for aggression and delinquency than adolescents in other countries, Swedish adolescents may be reflecting a pattern of childrearing in Sweden that emphasizes children's and adolescents' capacities to make their own decisions and behave independently of parents (Sorbring & Gurdal, 2011). Even if adolescents perceive that they have opportunities, they will not necessarily choose to engage in aggressive or delinquent behavior.

A notable strength of our study was being able to examine aggression and delinquency as separate constructs, as opportunities and peer support may be related to relatively narrow ranges of risky behaviors, consistent with the specificity principle in developmental science (Bornstein, 2017). For example, opportunities for unsupervised time with a romantic partner and the partner's support for sexual activity may be strong predictors of age at first intercourse, whereas opportunities for unsupervised time with peers and those peers' support for substance use may be strong predictors of substance use. Cultural groups may vary with respect to these opportunities and supports more narrowly specified than with respect to opportunities and supports for aggression and delinquency treated more broadly. Support for this idea is present in our own study (e.g., questions about adolescent sexual activity and substance use were deemed too culturally inappropriate to ask and were prohibited by the IRB in Jordan) and in previous research that has found that rates of substance use and unprotected sex vary widely across cultures (Moghaddam, Bahreini, Abbasi, Fazli, & Saeidi, 2016). Strengths of the present study also included the availability of longitudinal data from adolescents in 12 cultural groups in nine countries, many of which historically have been underrepresented in developmental science.

The study also has limitations. First, although the samples were designed to be representative of the cities from which they were drawn, they are not nationally representative, so findings may not generalize to entire countries included in this study or to other countries not included. Within-country differences related to socioeconomic status or region (e.g., urban vs. rural) are important considerations in generalizability. Second, the findings are based solely on youth reports and warrant replication using additional reporters and methods. Youth reports are the most valid way to assess their *perceptions* of opportunities and peer support for risky behavior, but youth perceptions may not reflect objective opportunities or their peers' actual support for risky behavior (Scalco, Meisel, & Colder, 2016), and associations among the variables may be inflated by shared source bias. Third, the internal consistency of the delinquency scale was lower than would be ideal in some countries, but these measures have been translated into over 100 languages and found in numerous cross-cultural comparisons to be valid measures of delinquency (Achenbach &

Rescorla, 2001). The implications for our findings were likely minimal because even alphas lower than those of the delinquency measure have been demonstrated not to pose serious threats to validity (Schmitt, 1996).

Taken together, the findings suggest three conclusions. First, more variance in opportunities and peer support for aggression and delinquency as well as aggressive and delinquent behavior is accounted for within than between cultures. Second, across cultural groups that vary widely on sociodemographic and psychosocial factors, opportunities and peer support for aggression and delinquency increase from early to mid-adolescence. Third, opportunities and peer support for aggression and delinquency predict subsequent aggressive and delinquent behavior, controlling for prior aggressive and delinquent behavior, consistently across diverse cultural groups. In the coming years, the field of developmental science will increasingly delve more deeply into understanding culture in child and adolescent development to test cultural-general and culture-specific aspects of developmental processes.

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**Table 1.**

## Estimated Variances and Intra-class Correlations

	Variances (SE)			ICC (1,2)	ICC (2,3)
	Within Adolescents Over Time	Between Adolescents Within Cultures	Between Cultures	(Scaled Chi Sq, 1 dof)	(Scaled Chi Sq, 1 dof)
Aggression	.03 (.00)	.04 (.00)	.01 (.00)	.56 (925.00)	.15 (11.52)
Opportunity for Aggression	.20 (.02)	.10 (.02)	.01 (.01)	.34 (290.62)	.10 (3.56)
Peer Support for Aggression	.30 (.02)	.11 (.02)	.02 (.01)	.26 (479.76)	.18 (7.27)
Delinquency	.02 (.00)	.02 (.00)	.00 (.00)	.46 (526.38)	.13 (7.20)
Opportunity for Delinquency	.10 (.02)	.03 (.01)	.01 (.01)	.25 (147.21)	.26 (3.62)
Peer Support for Delinquency	.15 (.02)	.05 (.01)	.01 (.01)	.27 (378.78)	.21 (5.15)

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**Table 2.**

Means (Standard Deviations) of Opportunity Variables at Age 14

Site	Opportunity for Aggressive Behavior			Opportunity for Delinquent Behavior		
	Total	Male	Female	Total	Male	Female
Overall	.36 (.58)	.46 (.61)	.26 (.53)	.26 (.40)	.25 (.38)	.25 (.40)
China	.11 (.39)	.25 (.58)	.04 (.19)	.13 (.31)	.20 (.50)	.09 (.11)
Colombia	.32 (.57)	.36 (.59)	.28 (.55)	.35 (.34)	.30 (.37)	.40 (.32)
Italy - Naples	.31 (.51)*	.50 (.60)	.16 (.37)	.25 (.31)	.31 (.37)	.20 (.26)
Italy - Rome	.53 (.70)	.53 (.58)	.54 (.81)	.43 (.52)*	.29 (.35)	.56 (.63)
Jordan	.35 (.52)*	.54 (.58)	.16 (.37)	N/A	N/A	N/A
Kenya	.10 (.31)	.13 (.35)	.08 (.30)	.08 (.19)	.07 (.20)	.08 (.18)
Philippines	.32 (.52)*	.42 (.54)	.22 (.47)	.16 (.22)	.18 (.24)	.14 (.19)
Sweden	.65 (.67)	.56 (.63)	.73 (.71)	.43 (.50)*	.33 (.46)	.53 (.52)
Thailand	.34 (.52)*	.54 (.60)	.17 (.38)	.22 (.29)*	.33 (.37)	.13 (.17)
US - African American	.44 (.62)	.54 (.67)	.34 (.57)	.11 (.27)	.07 (.17)	.15 (.34)
US - European American	.36 (.63)*	.54 (.73)	.11 (.32)	.42 (.51)	.43 (.50)	.39 (.53)
US - Latinx	.25 (.51)	.33 (.61)	.16 (.38)	.19 (.39)	.21 (.33)	.16 (.45)

\* Significantly different estimates for males vs. females from Mann-Whitney test  $p < .05$ .

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**Table 3.**

Means (Standard Deviations) of Peer Support Variables at Age 14

Site	Peer Support for Aggressive Behavior			Peer Support for Delinquent Behavior		
	Total	Male	Female	Total	Male	Female
Overall	.52 (.65)*	.61 (.67)	.43 (.62)	.42 (.45)	.42 (.46)	.43 (.46)
China	.09 (.37)	.00 (.00)	.14 (.46)	.16 (.33)	.11 (.16)	.19 (.40)
Colombia	.53 (.68)	.58 (.64)	.48 (.72)	.58 (.44)	.51 (.41)	.65 (.46)
Italy - Naples	.52 (.59)*	.71 (.57)	.37 (.57)	.48 (.41)	.46 (.39)	.50 (.42)
Italy - Rome	.55 (.67)	.58 (.66)	.52 (.68)	.52 (.41)	.46 (.36)	.59 (.45)
Jordan	.74 (.67)*	.88 (.70)	.58 (.61)	N/A	N/A	N/A
Kenya	.40 (.59)	.33 (.55)	.44 (.62)	.29 (.43)	.25 (.39)	.31 (.45)
Philippines	.51 (.62)	.58 (.62)	.44 (.62)	.27 (.31)	.28 (.32)	.27 (.30)
Sweden	.45 (.56)	.47 (.59)	.44 (.54)	.34 (.37)	.30 (.38)	.39 (.36)
Thailand	.42 (.61)*	.64 (.71)	.24 (.43)	.32 (.36)*	.46 (.42)	.20 (.24)
US - African American	.72 (.74)	.72 (.77)	.71 (.73)	.41 (.52)	.33 (.51)	.49 (.52)
US - European American	.40 (.60)*	.50 (.64)	.25 (.50)	.64 (.53)	.63 (.54)	.65 (.52)
US - Latinx	.66 (.75)*	.87 (.73)	.45 (.72)	.53 (.54)	.53 (.54)	.53 (.56)

\*Significantly different estimates for males vs. females from Mann-Whitney test  $p < .05$ .

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**Table 4.**

Means (Standard Deviations) of Aggressive and Delinquent Behavior at Age 15

Site	Aggressive Behavior			Delinquent Behavior		
	Overall	Male	Female	Overall	Male	Female
Overall	.45 (.30) *	.39 (.27)	.43 (.27)	.25 (.21) *	.26 (.21)	.23 (.20)
China	.28 (.16)	.46 (.15)	.29 (.17)	.08 (.12)	.06 (.10)	.09 (.14)
Colombia	.47 (.25) *	.39 (.25)	.54 (.24)	.36 (.27)	.33 (.21)	.39 (.31)
Italy - Naples	.43 (.24)	.43 (.22)	.44 (.25)	.23 (.21)	.27 (.23)	.19 (.18)
Italy - Rome	.47 (.25) *	.42 (.24)	.52 (.24)	.32 (.21)	.30 (.20)	.35 (.23)
Jordan	.57 (.34)	.48 (.30)	.51 (.31)	N/A	N/A	N/A
Kenya	.26 (.22)	.25 (.21)	.27 (.23)	.14 (.15)	.14 (.18)	.14 (.12)
Philippines	.54 (.26)	.53 (.26)	.55 (.26)	.27 (.17)	.27 (.15)	.27 (.20)
Sweden	.44 (.25) *	.34 (.20)	.50 (.26)	.22 (.16)	.18 (.11)	.25 (.18)
Thailand	.50 (.29)	.54 (.34)	.47 (.25)	.27 (.22) *	.35 (.25)	.19 (.15)
US - African American	.25 (.25)	.21 (.24)	.29 (.26)	.21 (.20)	.19 (.23)	.25 (.18)
US - European American	.36 (.24)	.38 (.26)	.33 (.26)	.27 (.20)	.30 (.22)	.23 (.17)
US - Latinx	.29 (.24)	.31 (.26)	.26 (.22)	.22 (.16) *	.27 (.18)	.15 (.10)

\*Significantly different estimates for males vs. females from Mann-Whitney test  $p < .05$ .

**Table 5.**

Unstandardized Fixed Effects Regression Predicting Aggression and Delinquency at Age 15

Predictor	$\beta$ (SE)	
	Aggression <i>N</i> = 1,335	Delinquency <i>N</i> = 1,221
Maternal Education	0.00 (0.00)	0.00 (0.00)
Child Gender	0.05 (0.01)**	-0.03 (0.01)*
Age 12 Aggression	0.38 (0.03)***	N/A
Age 12 Delinquency	N/A	0.30 (0.04)***
Age 14 Opportunity	0.07 (0.02)***	0.11 (0.02)***
Age 14 Peer Support	0.03 (0.01)*	0.07 (0.02)***
China	-0.07 (0.04)*	-0.09 (0.03)**
Colombia	0.07 (0.04)	0.12 (0.03)***
Italy - Naples	0.02 (0.04)	0.03 (0.03)
Italy - Rome	0.02 (0.03)	0.07 (0.03)**
Jordan	.01 (.04)	N/A
Kenya	-0.11 (0.04)**	-0.02 (0.03)
Philippines	0.09 (0.43)*	0.07 (0.03)*
Thailand	0.06 (0.04)	0.06 (0.03)*
US African American	-0.17 (0.04)***	0.01 (0.03)
US European American	-0.07 (0.03)*	0.02 (0.03)
US Latinx	-0.1 (0.04)**	0.01 (0.03)

\*  $p < .05$ .\*\*  $p < .01$ .\*\*\*  $p < .001$ .