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Lansford, J. E., Skinner, A. T., Sorbring, E., Di Giunta, L., Deater-Deckard, K., Dodge, K. A., Malone, P. S., Oburu, P., Pastorelli, C., Tapanya, S., Tirado, L. M., Zelli, A., Al-Hassan, S. M., Alampay, L. P., Bacchini, D., Bombi, A. S., Bornstein, M. H., & Chang, L. (2012). Boys' and Girls' Relational and Physical Aggression in Nine Countries. *Aggressive behavior*, 38(4), 298–308. <https://doi.org/10.1002/ab.21433>

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Published in final edited form as:

Aggress Behav. 2012 ; 38(4): 298–308. doi:10.1002/ab.21433.

Boys' and Girls' Relational and Physical Aggression in Nine Countries

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Abstract

Distinguishing between relational and physical aggression has become a key feature of many developmental studies in North America and Western Europe, but very little information is available on relational aggression in more diverse cultural contexts. This study examined the factor structure of, gender differences in, and associations between relational and physical aggression in China, Colombia, Italy, Jordan, Kenya, the Philippines, Sweden, Thailand, and the United States. Children ages 7 to 10 years ($N = 1410$) reported on their relationally and physically aggressive behavior. Relational and physical aggression shared a common factor structure across countries. Unsurprisingly, boys reported being more physically aggressive than girls across all nine countries; surprisingly, there were no significant gender differences in relational aggression. In all nine countries, relational and physical aggression were significantly correlated (average $r = .49$). The countries differed significantly in the mean levels of both relational and physical aggression that children reported using and with respect to whether children reported using more physical than relational aggression or more relational than physical aggression. Despite mean level differences in relational and physical aggression across countries, the findings provided support for cross-country similarities in associations between relational and physical aggression, as well as links between gender and aggression.

Keywords

cross-cultural; gender; international; physical aggression; relational aggression

Aggression during childhood is a major concern not only because of the detrimental effects of aggression on its victims but also because of the long-term negative developmental outcomes associated with being a perpetrator of aggression during childhood (e.g., Broidy et al., 2003; Kokko & Pulkkinen, 2000; Nagin & Tremblay, 1999; Serbin, Cooperman, Peters, Lehoux, Stack, & Schwartzman, 1998). Contemporary research in child development often distinguishes between relational and physical aggression (Card, Stucky, Sawalani, & Little, 2008; Crick & Grotpeter, 1995; Underwood, 2003). Both forms of aggression are characterized by the intent to cause harm to another person, but the former is through harming another's social relationships (e.g., spreading rumors, excluding another child from a peer group; also sometimes referred to as indirect or social aggression, but see Coyne, Archer, & Eslea, 2006, for a discussion of nuances in these terms), whereas the latter is through physical means (e.g., hitting, pushing). Because previous research on aggression has been conducted primarily using North American and Western European samples, it is unclear to what extent different forms of aggression are present in countries that are underrepresented in the developmental literature, whether there are gender differences in different forms of aggression across countries, and whether associations between relational and physical aggression are similar or different across countries. The present study addresses these issues using data on children's self-reported relational and physical aggression in nine countries.

Gender Differences in Relational and Physical Aggression

Gender differences in physical aggression have been well-established, with boys exhibiting physically aggressive behavior more often than girls (for reviews see, e.g., Archer, 2004; Bettencourt & Miller, 1996; Eagly & Steffen, 1986). Although there have been exceptions

(Cook, 1992; Fry, 1992), the finding of gender differences in physical aggression has been replicated in many countries and is robust in meta-analyses (Archer, 2004). Researchers have drawn on theories regarding biological factors as well as gender-based socialization to explain these replicated gender differences in physical aggression (e.g., Bettencourt & Miller, 1996; Eagly & Steffen, 1986).

Early aggression studies focused primarily on direct forms of aggression, such as physical violence and verbal insults. Then in the late 1980s Lagerspetz and her colleagues (Björkqvist, Lagerspetz, & Kaukiainen, 1992; Lagerspetz, Björkqvist, & Peltonin, 1988) introduced the concept of indirect aggression in which the target of aggression is not present. Many of the indirect aggressive behaviors Lagerspetz and her colleagues assessed dealt with relationship issues (e.g., “tells untruth behind the back,” or “says to others ‘Let’s not be with him or her.’”; however, the focus was on the indirect nature of the aggression not the ‘relationship’ nature. Building on this research, Crick and Grotpeter (1995) coined the term “relational aggression” to designate direct or indirect aggressive behaviors that harm social relationships, e. g., behaviors such as spreading rumors and excluding peers. Since then, research on relational aggression has proliferated, and an extensive body of research now describes developmental precursors and consequences associated with relational as well as physical aggression.

One main early impetus in the study of relational aggression was to understand a form of aggression that was hypothesized to be more common among girls than boys. However, empirically, studies of gender differences in relational aggression have yielded mixed results. Some research shows that girls are significantly more relationally aggressive than boys (Björkqvist, et al, 1992; Crick, Casas, & Mosher, 1997; Lagerspetz et al., 1988; Ostrov & Crick, 2007). In contrast, some studies have found no significant gender differences in the use of relational aggression (Delveaux & Daniels, 2000), and other research has found that boys have higher rates of relational aggression than girls (Salmivalli & Kaukiainen, 2004). A meta-analysis of 107 studies with data on gender differences in direct and indirect aggression characterized the small gender differences found as trivial (Card et al., 2008).

Several factors may help explain these mixed results. First, children’s age at the time of assessment may account for different patterns of findings regarding gender differences and similarities in relational aggression (Underwood, Beron, & Rosen, 2009). For example, in examining trajectories of different forms of aggression, Côté, Vaillancourt, Barker, Nagin, and Tremblay (2007) found that from age 2 to age 8 girls are more likely than boys to decrease their use of physical aggression and increase their use of nonphysical and relational aggression. Gender differences in relational aggression have been reported more consistently for samples assessed during middle childhood and adolescence than during preschool (Crick et al., 1999). Second, taking a dimensional approach to understanding aggression, Salmivalli and Kaukiainen (2004) found in a sample of over five hundred 10-, 12-, and 14-year-olds that, although boys were both directly and indirectly more aggressive than girls, cluster analysis revealed a group of highly aggressive adolescents whose use of aggression was predominantly indirect. The members of this cluster were all girls. Taken together, these findings suggest that during middle childhood and adolescence, the most extreme relational aggression may be demonstrated by girls rather than boys. However, only one study has taken a dimensional approach using a sample outside North America. Tomada and Schneider (1997) did not find a disproportionate number of girls in the extremely relationally aggressive group of Italian third and fourth graders in their sample, leaving open the extent to which gender differences in relational aggression will replicate across diverse cultural groups.

To date, most of this research has been conducted using American and Canadian samples, but several exceptions that have extended research on relational aggression to other cultural contexts are worth noting. Several of these studies report no gender differences in relational aggression. Österman et al. (1994) found in a sample of 8-year-olds from Finland, Poland, and the United States that, according to peer and self nominations, boys were more physically aggressive than girls, but there were not significant differences in indirect aggression. Hart, Nelson, Robinson, Olsen, and McNeilly-Choque (1998) found no gender differences in teacher-reported relational aggression in a Russian preschool sample, and Sakai and Yamasaki (2004) found no gender differences in relational aggression in a Japanese sample.

Other international studies suggest that girls are more relationally aggressive than boys. Österman et al. (1998) found in a sample of 8- to 15-year-olds in Finland, Israel, Italy, and Poland that, according to same-sex peer reports, girls were proportionally more likely to use indirect than verbal or physical aggression, whereas boys were proportionally less likely to use indirect than verbal or physical aggression. French, Jansen, and Pidada (2002) coded open-ended descriptions of disliked peers provided by 11- and 14-year-old Indonesian and American youths. In both countries, relational aggression was spontaneously mentioned more frequently by girls than by boys, whereas physical aggression was spontaneously mentioned more frequently by boys than by girls. Teachers of preschool children in Australia rated girls as being more relationally aggressive than boys and boys as being more physically aggressive than girls (Russell, Hart, Robinson, & Olsen, 2003).

Yet other studies suggest that boys are more relationally aggressive than girls. Tomada and Schneider (1997) examined aggression in a sample of Italian third and fourth graders and reported that boys were more overtly and relationally aggressive than girls according to peer and teacher reports. Kawabata, Crick, and Hamaguchi (2010a) found that Japanese fourth and fifth grade boys were both more physically and relationally aggressive than girls. These previous studies of relational aggression in contexts outside of North America have presented a mixed picture and call for a single research study using a larger sample of countries with a uniform methodology as well as statistical comparison of results across countries (which was not possible in the studies using samples in a single country) to advance understanding of country differences and similarities in relational aggression. The present study addresses these noted gaps in the research literature.

Associations between Relational and Physical Aggression

There are at least two ways to conceptualize links between relational and physical aggression. The first is in terms of mean levels of each form of aggression (e.g., whether children exhibit more, the same, or less relational than physical aggression). Children in Japan, for example, have been reported to engage in more relational than physical aggression (Morita, Soeda, Soeda, & Taki, 1999). The second is in terms of associations between the use of each form of aggression. For example, one could find a positive correlation between relational and physical aggression that would indicate that children might have overarching behaviors that hurt others in a variety of ways. Alternatively, one could find a negative correlation or no correlation between relational and physical aggression that would indicate that children are likely to specialize in one form of aggression to the exclusion of the other form or exhibit specific forms essentially at random. In a sample of Japanese and American fourth graders, Kawabata, Crick, and Hamaguchi (2010b) found that self-reported relational and physical aggression were correlated .54 in Japan and .60 in the United States suggesting that, at least in these two countries, children who use one form of aggression are also likely to use the other form. It is unclear from research to date whether mean levels of relational and physical aggression as well as

associations between relational and physical aggression are similar or different in children from a wide range of countries.

The Present Study

In an analysis of the sample characteristics in the most influential journals in six sub-disciplines of psychology from 2003–2007, 96% of research participants were from Western industrialized countries, and 68% were from the United States alone (Arnett, 2008). This finding means that 96% of research participants in psychological studies were from countries with only 12% of the world's population (Henrich, Heine, & Norenzayan, 2010). This pattern also is evident in research specifically addressing questions related to aggression. In Archer's (2004) meta-analysis of gender differences in aggression, 73% of studies included participants only from the United States, an additional 17% of studies included participants from Canada or the United Kingdom, and only 10% of studies included participants from other countries (and only 2% of these studies included participants from developing countries). Similarly, in Card et al.'s (2008) meta-analysis, 70% of the studies were conducted in the United States, 15% in Canada or the United Kingdom, and 15% in all other countries (primarily Australia, Finland, and Germany).

To advance understanding of relational aggression in diverse countries around the world, we analyzed data from the Parenting Across Cultures project, an international collaboration among nine countries: China, Colombia, Italy, Jordan, Kenya, the Philippines, Sweden, Thailand, and the United States. This sample of countries is diverse on several socio-demographic dimensions, including predominant ethnicity, religion, economic indicators, and indices of child well-being. For example, on the Human Development Index, a composite indicator of a country's status with respect to health, education, and income, participating countries ranked from 4 to 128 out of 169 countries with available data (Human Development Report, 2010). To provide a sense of what this range entails, the infant mortality rate in Kenya, for example, is 40 times higher than the infant mortality rate in Sweden (UNICEF, 2009). In the Philippines, 23% of the population falls below the international poverty line of less than US\$1.25 per day, whereas the percentage of the population that falls below this poverty line in Italy, Sweden, or the United States is less than 1% (UNICEF, 2009). The participating countries varied widely not only on socio-demographic indicators, but also 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 individualistic countries in the world. The countries also varied on a looseness-tightness continuum in which loose countries are characterized by weak social norms and high tolerance for deviant behavior, whereas tight countries are characterized by strong social norms and little tolerance for deviant behavior (Gelfand et al., 2011). The purpose of recruiting families from these diverse countries was to create an international sample that would vary with respect to a number of socio-demographic and psychological characteristics. Ultimately, this diversity provided us with an opportunity to examine our research questions in a sample that is more generalizable to a wider range of the world's population than is typical in most research to date.

In this paper, we addressed three primary research questions. First, to what extent do relational and physical aggression share a common factor structure in countries that are underrepresented in the literature to date? One of our major goals was to provide a description of relational and physical aggression in countries that have been neglected in previous research. Second, are there consistent gender differences in children's relational and physical aggression across countries? Guided by the extant literature, we hypothesized that boys would be more physically aggressive than girls across countries but that gender

differences would not be consistently demonstrated for relational aggression. Third, are associations between relational and physical aggression similar across countries? We hypothesized that in each country higher levels of relational aggression would be associated with higher levels of physical aggression but that countries may vary in whether children report using more relational than physical aggression or more physical than relational aggression.

Method

Participants

Children (age range = 7 to 10 years, $M = 8.29$, $SD = .66$; 51% girls) from 1410 families in nine countries responded to questions about their relational and physical aggression as part of the larger Parenting Across Cultures Project. Participants were recruited through schools serving socioeconomically diverse populations in Jinan and Shanghai, China ($n = 239$, 53% girls); Medellín, Colombia ($n = 108$, 56% girls); Naples and Rome, Italy ($n = 202$, 51% girls); Zarqa, Jordan ($n = 114$, 47% girls); Kisumu, Kenya ($n = 100$, 61% girls); Manila, Philippines ($n = 120$, 49% girls); Trollhättan, Sweden, ($n = 102$, 47% girls); Chiang Mai, Thailand ($n = 119$, 49% girls); and Durham, North Carolina, United States ($n = 306$, 50% girls). In the United States, the sample was 35% European American, 33% African American, and 32% Hispanic. In Kenya, the sample was from the Luo ethnic group, which is the third largest ethnic group in Kenya (13% of the population), after the Kikuyu (22%) and Luhya (14%) ethnic groups. Although there are ethnic minorities and immigrant families to varying degrees, the samples in the other participating countries identified with the majority cultural group of the country. Child age and gender did not differ significantly across countries.

Letters describing the study were sent home with children, and parents were asked to return a signed form if they were willing to be contacted about the study (in some countries) and contacted by phone to follow up on the letter (in other countries). Rates of agreement to participate, as indicated by returning the signed form or agreeing over the telephone ranged across sites from 24% to almost 100%. Families were then enrolled in the study until the target sample size was reached in each country. To make each country's sample as representative as possible of the city from which it was drawn, families of students from private and public schools were sampled in the approximate proportion to which they were represented in the population of the city. Furthermore, 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.

Procedure and Measures

To measure self-reported relational and physical aggression, we used the Behavior Frequency Scale, which includes items adapted from Farrell, Danish, and Howard (1992), Crick and Bigbee (1998), and Orpinas and Frankowski (2001). Children were asked how often in the last 30 days they engaged in a series of aggressive acts. Three items were tested as indicators of relational aggression: excluding another child from a group, trying to keep others from liking someone by saying mean things about that person, and saying things about another child to make people laugh. Three items were tested as indicators of physical aggression: throwing something at someone to hurt them, shoving or pushing, and hitting or slapping other children. Responses ranged from *never* to *20 or more times* in the last 30 days but were dichotomized into "no" (coded as 0) or "yes" (coded as 1) responses because few children reported engaging in these behaviors more than once in the last 30 days.

A procedure of forward- and back-translation was used to ensure the linguistic and conceptual equivalence of measures across languages (Maxwell, 1996). Translators were fluent in English and the target language and were asked to: (1) note places in the research instruments that did not translate well, were inappropriate for the different groups, or were culturally insensitive; (2) identify words that elicited several meanings in particular contexts; (3) suggest improvements of instruments if they identified problems; and (4) indicate reasons for altering the translated versions if discrepancies were identified and alterations were deemed necessary. Site coordinators and translators reviewed identified discrepancies and unclear items and modified items appropriately. At a cross-site meeting, all investigators discussed and resolved ambiguities or difficulties with the measures on an item-by-item basis. These substantial efforts were implemented to ensure that the measures would be valid in all sites by focusing on linguistic equivalence as well as the cultural meanings that would be imparted by the measures (Erkut, 2010; Peña, 2007). Measures were administered in the following languages: Mandarin Chinese (China), Spanish (Colombia and the United States), Italian (Italy), Arabic (Jordan), Dholuo (Kenya), Filipino (the Philippines), Swedish (Sweden), Thai (Thailand), and English (the United States and the Philippines).

Institutional review boards in each country approved the study protocol. After obtaining parental informed consent and child assent, interviews were completed in the participant's home or location of their choosing (e.g., school, café, library). Interviewers read each question to children and recorded their answers. Rating scales were provided in the form of visual aids to help children remember response options as they answered questions. Interviews lasted approximately 45 min. Depending on the site, parents were given modest financial compensation for their participation, families were entered into drawings for prizes, or modest financial contributions were made to participating children's schools; children were given a small age-appropriate gift to thank them for their participation.

Results

Measurement Invariance

In cross-national comparisons, it is important to establish measurement invariance to ensure that the measures assess what they are intended to assess in each country. If invariance cannot be established, then group comparisons are not meaningful because the measure is not operating similarly in the different countries (Chen, 2008; Widaman & Reise, 1997). In this study, it was necessary to establish that the six indicators of aggression loaded as expected onto the separate relational and physical aggression factors, with the same three indicators of each in each country. Thus, our first research question was whether the same factor structure of relational and physical aggression would apply across the nine participating countries.

We examined configural invariance using confirmatory factor analysis to test the pattern of factor loadings using a multiple group approach with country as the grouping variable. The model fit the data adequately, $\chi^2(72) = 148.93$, $p < .001$, CFI = .94, RMSEA = .028 [CI: .021, .034]. All six items loaded significantly on their respective factors in all nine countries. That is, across all countries, throwing something at someone to hurt them, shoving or pushing, and hitting or slapping other children were significant indicators of physical aggression; excluding another child from a group, trying to keep others from liking someone by saying mean things about that person, and saying things about another child to make people laugh were all significant indicators of relational aggression. On the basis of these findings, we concluded that the measures met the criteria for establishing configural invariance described by Vandenberg and Lance (2000), indicating a similar factor structure underlying the constructs of relational and physical aggression across countries (Robert, Lee, & Chan, 2006).

Gender Differences in Relational and Physical Aggression

Our second research question concerned whether there were differences in mean levels of relational and physical aggression for boys and girls across countries. Multivariate analyses of variance revealed a significant main effect of gender, Pillai's $F(2, 1391) = 12.63, p < .001$, and a significant main effect of country, Pillai's $F(16, 2784) = 20.71, p < .001$. The Gender X Country interaction was not significant, $F(16, 2784) = 1.27$. Follow-up univariate tests revealed significant main effects of country for relational aggression, $F(8, 1392) = 11.93$, and for physical aggression, $F(8, 1392) = 41.84$, and a main effect of gender, $F(1, 1392) = 24.94$, for physical aggression, all $p < .001$. There was no significant main effect of gender on relational aggression, $F(1, 1392) = 2.88$.¹

Descriptive statistics are presented separately by country and gender in Table 1. As shown, boys reported being more physically aggressive than girls but no gender differences emerged for relational aggression. Across countries, the average effect size (Cohen's d) for gender differences was .08 for relational aggression and .22 for physical aggression. In describing effect sizes, we follow Cohen's (1988, p. 223) terminology regarding coefficients: estimate of population correlation for a small effect size, $r = 0.10$, medium effect size: $r = 0.30$, large effect size: $r = 0.50$.

Because we were more interested in where countries fell on a continuum of aggressive behavior rather than individual comparisons between any two specific countries, we used a deviation contrast method of comparing an individual country's mean level of each type of aggression to the grand mean of each type of aggression across all nine countries. Using this method of analysis, children in Jordan and Kenya reported levels of relational aggression significantly higher than the grand mean across countries, whereas children in China, Colombia, Sweden, and the United States reported levels of relational aggression significantly lower than the grand mean. Children in Italy, the Philippines, and Thailand did not differ from the grand mean of relational aggression across countries. Children in Jordan and Kenya reported levels of physical aggression higher than the grand mean, whereas children in China, Colombia, Italy, Sweden, Thailand, and the United States reported levels of physical aggression significantly lower than the grand mean. Children in the Philippines did not significantly differ from the grand mean of physical aggression across countries.

Following the procedures used by Crick and Grotpeter (1995) in their sample from the United States and Tomada and Schneider (1997) in their sample from Italy, we created groups of children who were more than one standard deviation above the mean in relational aggression and, separately, physical aggression within their respective countries. Table 2 displays the percentages of boys and girls within each country who scored one standard deviation above the country means for relational and physical aggression. As shown, in all nine countries, the percentage of boys in the highly physically aggressive group was larger than the percentage of girls in the highly physically aggressive group, $\chi^2(1) = 23.90, p < .001$. The pattern was more mixed for relational aggression. In six of the countries, the percentage of boys in the highly relationally aggressive group was larger than the percentage of girls in the highly relationally aggressive group, whereas in three countries, the percentage of girls in the highly relationally aggressive group was larger than the percentage

¹In China, Italy, and the United States, it was possible to test for within-country geographic or ethnic differences in relational and physical aggression. We conducted a MANOVA separately for each country. There were no significant differences in relational or physical aggression between Jinan and Shanghai, China, nor was the City X Gender interaction significant. There was a significant difference in both relational, $F(1, 198) = 5.17, p < .05$, and physical, $F(1, 198) = 5.09, p < .05$, aggression between Naples and Rome, Italy, with more frequent relational and physical aggression in Naples than Rome. The City X Gender interaction was not significant. There was a significant ethnic group difference in relational aggression in the United States, $F(2, 300) = 3.97, p < .05$, with African American children reporting significantly more frequent relational aggression than European American children. There was no ethnic group difference in physical aggression, and the Ethnicity X Gender interaction was not significant.

of boys in the highly relationally aggressive group, $\chi^2(1) = 1.75$, *ns*; chi-square analyses conducted within each country revealed no significant gender differences in the percentage of girls versus boys in the highly relationally aggressive group within each country.

Correspondence between Relational and Physical Aggression

Our final research question was whether associations between relational and physical aggression were similar or different across countries. Paired samples *t*-tests (Table 3) revealed that children reported being more relationally than physically aggressive in three countries (China, Italy, and Thailand), more physically than relationally aggressive in two countries (Jordan and Kenya), and no significant differences between their physical and relational aggression in four countries (Colombia, Philippines, Sweden, and United States).

We found positive and significant correlations between relational and physical aggression in all nine countries (Table 3), with an average weighted correlation of .49 across all nine countries. Because of the disparity in sample sizes, a mean weighted and normalized correlation coefficient was computed for the whole sample. The correlations to be combined were transformed into Fisher Z values, which are approximately normally distributed and are numbers on a ratio scale and can thus be directly compared. Z values were then weighted and subjected to a linear combination. The result is a weighted and normalized average correlation (Hedges & Olkin, 1985). The correlations were in the medium to large effect size range using Cohen's (1988) criteria.

To examine whether the correlations between relational and physical aggression differed significantly across any countries, we statistically compared the Fisher Z values representing each country's correlation with each other country's correlation. Relational and physical aggression were significantly more strongly correlated in Colombia than in China, Italy, Jordan, Kenya, the Philippines, or in the United States. Relational and physical aggression also were significantly more strongly correlated in the United States than in China.

Discussion

Research often makes implicit assumptions about the universality of psychological or social processes without empirically investigating the generalizability of findings across diverse populations around the world (Norenzayan & Heine, 2005). Our overarching goal and first specific research question focused on providing a comparative description of relational and physical aggression in diverse countries that have been underrepresented in the literature to date. We found that relational and physical aggression share a common factor structure across nine countries. However, we also found that countries differ significantly in the mean levels of both relational and physical aggression that children report using. To our knowledge, this is the first study to address these issues.

Our second research question focused on gender differences in relational and physical aggression. As hypothesized, using our diverse international sample, we did not find consistent evidence of gender differences in relational aggression, although we did replicate the widely reported gender difference in physical aggression (Archer, 2004). The average effect sizes for gender differences across our diverse international sample were .08 and .22 for relational and physical aggression, respectively, in comparison to effect sizes of -.02 and .39 for gender differences in self-reported indirect and physical aggression, respectively, in Archer's (2004) meta-analysis of studies including primarily North American samples. The lack of gender differences in relational aggression is consistent with findings reported in some (e.g., Österman et al., 1994; Hart et al., 1998; Sakai & Yamasaki, 2004), but not other (e.g., Crick & Grotpeter, 1995; French et al., 2002) samples. Developmentally, our sample of 7- to 10-year-olds was in the middle childhood period in which gender differences in

relational aggression have been reported more consistently than during the preschool period (Crick et al., 1999). Although gender differences in physical aggression appear to be robust to methodological features of studies, such as age of the children and method of assessing aggression, findings regarding relational aggression may be more sensitive to such methodological features that vary from study to study.

Our third research question was whether associations between relational and physical aggression were similar across countries. As hypothesized, more frequent relational aggression was associated with more frequent physical aggression in all nine countries. The average correlation between relational and physical aggression across countries was .49, similar to the moderate correlations between relational and physical aggression of .54 in Japan and .60 in the United States reported by Kawabata et al. (2010b). The average correlation in Western industrialized countries reported in Card et al.'s (2008) meta-analysis was .76. These average correlations between relational and physical aggression, both in our diverse international sample and in the samples included in other recent work, suggest that the magnitude of similarity between relational and physical aggression is similar to the magnitude of similarity between verbal and physical aggression that has been reported in previous literature (e.g., correlations of .44 and .51 reported by Archer, Kilpatrick, & Bramwell, 1995 on two different aggression inventories; correlation of .45 reported by Buss & Perry, 1992). Interestingly, verbal and physical aggression often are combined into composite aggression scores with good psychometric properties (e.g., Howes & Phillipson, 1998; Kokko & Pulkkinen, 2000), whereas since the introduction of the concept of relational aggression, studies have tended to treat relational aggression as distinct from physical aggression. An issue that might bear consideration is whether it is fruitful to treat relational aggression as a distinct form of aggression, or whether relational aggression could be combined with other forms of aggression in overall composites, without compromising unique developmental properties of the different forms. On the one hand, correlations in the .50 to .70 range represent large effect sizes in Cohen's (1988) terms, suggesting that the different forms could be combined. On the other hand, these correlations mean that approximately 50% to 75% of the variance is not shared by relational and physical aggression, suggesting enough difference to be explained by factors unique to either relational or physical aggression.

Within this context of significant correlations between relational and physical aggression, which were stronger in Colombia but otherwise generally of comparable magnitude across the countries, there were differences across countries with respect to whether children reported using more physical than relational aggression or more relational than physical aggression. Österman et al. (1994) hypothesized that the particular type of aggression children use depends on children's evaluations of the risks versus benefits of using that type of aggression in a given cultural context. Risks of using a particular type of aggressive behavior will depend on how normative that type of aggression is within the cultural context, and benefits will depend on how likely that type of aggressive behavior is to have its desired effect.

There is evidence that the countries involved in this research vary in terms of values, beliefs, attitudes, and behaviors that together constitute culture (see Bornstein, Putnick, & Lansford, 2011; Lansford & Bornstein, 2011). Given the large number of countries involved in the present study, it is not possible for us to go into depth about the cultural factors that might predict children's relational and physical aggression in each context. What follows is meant to be a set of illustrative examples rather than a comprehensive list. One factor that has been hypothesized to affect the extent to which children engage in relationally aggressive behavior is cultural values related to collectivism and the importance of social relationships. For example, Kawabata et al. (2010b) argued that in collectivist cultures, in which intimacy

and interdependence in social relationships are stressed, children may be especially likely to favor relational aggression because they recognize the power of this form of aggression to hurt peers. By contrast, one might also argue that because harmony in social relationships is highly valued in collectivist cultures, children in them may be less likely to use relational aggression. In the present study, countries that have been regarded as collectivist (China, Colombia, Thailand; Hofstede, 2001) did not differ systematically in relational and physical aggression from countries that have been regarded as individualist (Italy, United States). This finding is consistent with the argument that cultural differences attributed to the collectivist versus individualist taxonomy may not be generalizable across populations (Oyserman, Coon, & Kemmelmeier, 2002). Instead some of the collectivist countries were higher in relational aggression than the grand mean across countries, whereas other collectivist countries were lower than the grand mean in relational aggression, suggesting that factors other than societal levels of individualist versus collectivist orientation contribute to children's relational aggression.

A second factor that may affect the extent to which children engage in relationally aggressive behavior is normativeness of relational aggression within a particular culture. In one sense, this kind of argument appears to be circular (the more aggressive a society is, the more aggressive an individual child in the society is likely to be). Nevertheless, conceptually, the normativeness framework provides a useful way of thinking about children's social learning. As has been demonstrated since the time of Bandura's classic Bobo doll studies (Bandura, Ross, & Ross, 1961, 1963), children learn new aggressive behaviors by observing the behaviors of those around them. If children observe many of their peers, adults, or characters in the media engaging in relationally aggressive behavior, particularly if such behavior is successful in obtaining a desired effect, then they are more likely to come to believe that this type of behavior is a desirable way to behave and to engage in the behavior themselves. A direction for future research will be to delve into the mechanisms predicting relational aggression in diverse cultural contexts.

Limitations and Directions for Future Research

We want to be clear that, although each sample was meant to be locally representative of the community from which it was drawn, the samples are not nationally representative, and caution should be used in not overgeneralizing the results to entire countries. We sampled from two cities in China, two cities in Italy, and three ethnic groups in the United States; we recognize great variability within all of the participating countries (e.g., as a function of socioeconomic status, urban versus rural residence, and so forth). Future research would benefit from additional within- as well as between-country comparisons. We relied on children's reports of their own relational and physical aggression. Previous research has taken a number of different approaches to studying aggression in childhood, including observation, peer nomination, teacher report, parent report, and self report. Each of these approaches has advantages and disadvantages. For example, an advantage of self report (as used in the present study) is that children may have greater awareness of their own behavior (especially the kinds of covert behavior that can characterize relational aggression) than do parents or teachers, who may lack inside knowledge of peer relationships. A disadvantage of self report is that children may have been reluctant to report all of the aggressive behavior in which they actually engaged.

Conclusions

One advantage of cross-national comparative research is that more confidence can be placed in the robustness of findings that generalize across diverse cultural contexts than in findings that are found only in a single cultural group (Norenzayan & Heine, 2005). In the present study, there are at least three take-home messages. First, relational and physical aggression

shared a common factor structure in nine diverse countries. In some countries, relational aggression was more frequent than physical aggression, whereas in other countries, physical aggression was more frequent than relational aggression, and the mean levels of relational and physical aggression varied across countries. Second, although boys reported more physical aggression than girls across countries, there were no gender differences in relational aggression across countries. Third, in all nine countries, more frequent use of relational aggression was moderately to highly correlated with more frequent use of physical aggression. Despite mean level differences in relational and physical aggression across countries, the findings provided support for cross-country similarities in associations between relational and physical aggression, as well as links between gender and aggression.

Acknowledgments

This research has been funded by the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development grant RO1-HD054805 and Fogarty International Center grant RO3-TW008141. Kenneth A. Dodge is supported by Senior Scientist award 2K05 DA015226 from the National Institute on Drug Abuse. Patrick S. Malone is supported by grant K01DA024116 from the National Institute on Drug Abuse. This research also was supported by the Intramural Research Program of the NIH/NICHD. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH or NICHD.

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Table 1

Descriptive Statistics for Relational and Physical Aggression by Gender and Country

Country	Relational Aggression		Physical Aggression	
	Boys <i>M (SD)</i>	Girls <i>M (SD)</i>	Boys <i>M (SD)</i>	Girls <i>M (SD)</i>
China (<i>n</i> = 239)	.22 (.28)	.16 (.26)	.20 (.27)	.07 (.15)
Colombia (<i>n</i> = 108)	.21 (.30)	.16 (.29)	.25 (.36)	.12 (.27)
Italy (<i>n</i> = 202)	.27 (.29)	.27 (.31)	.24 (.32)	.20 (.28)
Jordan (<i>n</i> = 114)	.34 (.36)	.30 (.34)	.56 (.38)	.33 (.34)
Kenya (<i>n</i> = 100)	.47 (.36)	.43 (.37)	.67 (.34)	.66 (.31)
Philippines (<i>n</i> = 120)	.21 (.28)	.21 (.29)	.22 (.32)	.20 (.32)
Sweden (<i>n</i> = 102)	.14 (.22)	.17 (.27)	.17 (.29)	.14 (.24)
Thailand (<i>n</i> = 119)	.29 (.34)	.22 (.30)	.19 (.27)	.07 (.16)
United States (<i>n</i> = 306)	.19 (.28)	.15 (.24)	.21 (.33)	.16 (.26)

Note. Tests of country and gender differences are reported in the text.

Table 2

Percentages of Boys and Girls Scoring Higher than 1SD above the Within-Country Mean on Relational and Physical Aggression

Country	Relational Aggression		Physical Aggression	
	Boys	Girls	Boys	Girls
China	19	11	15	2
Colombia	17	12	25	10
Italy	20	25	22	14
Jordan	15	9	31	11
Kenya	21	20	41	33
Philippines	13	15	20	15
Sweden	6	15	17	13
Thailand	23	17	13	3
United States	16	9	18	10

Table 3

Descriptive Statistics, T-Tests, and Correlations between Relational and Physical Aggression

Country	Relational Aggression	Physical Aggression	<i>t</i>	<i>r</i>
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		
China	.19 (.27)	.13 (.23)	2.96**	.33***
Colombia	.18 (.30)	.18 (.32)	-.06	.64***
Italy	.27 (.30)	.22 (.30)	2.39*	.48***
Jordan	.32 (.35)	.45 (.38)	-3.15**	.32**
Kenya	.44 (.37)	.66 (.32)	-6.07***	.44***
Philippines	.21 (.28)	.21 (.31)	.00	.44***
Sweden	.16 (.24)	.16 (.28)	-.13	.49***
Thailand	.26 (.32)	.13 (.23)	4.93***	.50***
United States	.17 (.26)	.18 (.30)	-.93	.48***

*
p < .05.**
p < .01.***
p < .001.