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Associations between Child Disabilities and Caregiver Discipline and Violence in Low- and Middle-Income Countries

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Abstract

Using nationally representative samples of 45,964 2- to 9-year-old children and their primary caregivers in 17 developing countries, we sought to understand relations between children's cognitive, language, sensory, and motor disabilities and caregivers' use of discipline and violence. Primary caregivers reported on their child's disabilities and whether they or anyone in their household had used nonviolent discipline, psychological aggression, and physical violence toward the target child and whether they believed that using corporal punishment is necessary. Logistic regression analyses supported the hypothesis that children with disabilities are treated more harshly than children without disabilities. The findings suggest that policies and interventions are needed to work toward the United Nations' goals of ensuring that children with disabilities are protected from abuse and violence.

Keywords

child disabilities; discipline; low- and middle-income countries

Introduction

Developmental science has increasingly become focused on understanding the development of children in diverse international contexts, especially in the majority developing world (Bornstein, 2010). In setting global agenda for meeting Millennium Development Goals toward improving the status of the world's children (UNICEF, 2007), the United Nations outlined two priority areas that are the focus of the present study. First, the United Nations asserts that children with disabilities have the same rights as other children. Second, the United Nations promotes efforts to protect children from abuse, exploitation, and violence. The Millennium Development Goals have become an important catalyst for change as

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countries around the world use them as a framework for measuring progress toward an international standard. Using data from 45,964 primary caregivers of 2- to 9-year-old children in 17 low- and middle-income countries, the present study provides the largest examination to date of how different forms of child disability relate to primary caregivers' use of nonviolent discipline, psychological aggression, and physical violence to rear their children. Our main aim was to answer two questions: Are children with disabilities at greater risk for harsh treatment by their primary caregivers, and does this risk differ across low- and middle-income countries? Secondarily, we also examined whether these links differed by child gender or caregiver age and whether differences in disabilities and childrearing discipline and violence were related to country-level indicators of social and economic status.

Our work was guided by an ecological perspective emphasizing that children's development is shaped by multiple contexts, including proximal influences of parenting as well as more distal influences of culture and country (e.g., Bronfenbrenner, 1977, 1979, 2000). In the social bioecological model of development, children are embedded within various socio-cultural systems that interact either to support or hinder their development. These dynamic systems are conceptualized as different spheres of influence and include those that have a distal (i.e., indirect) effect and those that have a proximal (i.e., direct) effect on the individual (Cicchetti & Toth, 1997). Thus, parenting a child with a disability is particularly challenging for a multitude of reasons including individual factors related to the child's disability, parent factors related to increased stress, responsibilities, and new knowledge needs as well as other factors related to families, communities, and socio-cultural systems. All of these factors are constantly interacting, and the parent-child relationship is best conceptualized within this transactional context (Bornstein, 2009).

Children's Disabilities in Different Countries

The United Nations Convention on the Rights of Persons with Disabilities defines disabilities as "long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder [a person's] full and effective participation in society on an equal basis with others" (United Nations, 2009, p. 4). Approximately 1.4% of the world's population is estimated to have disabilities, with 80% of these individuals living in low- and middle-income countries (World Health Organization [WHO], 2006). At least 93 million children ages 0–14 years are estimated to have moderate to severe disabilities, and 200 million children are estimated to have cognitive or socioemotional delays (WHO, 2011). However, countries differ with respect to the prevalence of child disabilities, which are more prevalent in countries with high levels of poverty and deprivation (Dercon & Krishnan, 2009). Furthermore, countries differ in whether children have access to assistive devices and services to minimize the impact that their disability has on daily functioning (Üstün et al., 1999).

Bornstein and Hendricks (in press) found that variability emerged by disability type, by child age, and by country in the proportions of mother (or caregiver) reports of cognitive, language, sensory, and motor disabilities and their individual components in children 2 to 9 years of age in 16 low- and middle-income countries. One in five children screened positive

for a cognitive, language, sensory, or motor disability. Language disability was most prevalent, and sensory least. Younger children were reported to have more (especially language) disabilities. Disability type also varied with country standard of living; disabilities were more prevalent in lower income countries. Educational level was associated with fewer language and motor disabilities.

Cultural beliefs, attitudes, and values can affect the experiences of children with disabilities in different countries (Danseco, 1997). In many countries, children with disabilities are stigmatized and treated more poorly than are children without disabilities (United Nations, 2009). However, in other countries, children with particular disabilities are perceived as being special and even divine. For example, Edgerton (1981) described children with cognitive disabilities in parts of India and Nepal as having divine qualities because such children are thought to “serve as mediums through which divine intentions can be expressed” (p. 310). In some countries, disabilities are perceived as being temporary, with possibilities for change either in this life or in a future life (Reiter, Mar'i, & Rosenberg, 1986). Cultural beliefs may affect how parents treat individual children and how entire social structures address issues related to disabilities. For example, Jung (2007) described how humanistic values associated with Confucianism and Buddhism are reflected in historic policies related to individuals with disabilities in South Korea. In short, countries around the globe vary tremendously in terms of the prevalence of disabilities, how children with disabilities are perceived, and in concrete services and supports available to children with disabilities and their families.

Discipline and Childrearing Violence in Different Countries

Children develop not only within ecologically broad social and geopolitical contexts, but also within family environments that are more proximal to their daily experiences (Bronfenbrenner, 1979). Parents in all countries are charged with the task of rearing their children in a manner that maximizes children’s short- and long-term behavioral, emotional, and social competencies in ways that are culturally appropriate. Although there appear to be broad universal principles that guide parents’ socialization efforts, specific strategies that parents use often vary widely from country to country (Bornstein & Lansford, 2010). For example, Rohner’s (1986) empirically supported parental acceptance-rejection theory postulates that, universally, parents must convey to their children that they are loved, accepted, and valued rather than rejected or neglected (e.g., Rohner, Bourque, & Elordi, 1996; Rohner & Britner, 2002). However, the specific behaviors that parents use to convey this message to children are not universal; in some countries, parental warmth is conveyed through praise and physical affection, whereas in other countries indirect means such as implied pride are preferred over overt demonstrations (e.g., DeLoache & Gottlieb, 2000). For instance, Rohner (1994) observed that in West Bengal most Bengali children know unmistakably that their mothers have expressed something very special for them when their mothers peel an orange and remove the seeds before giving it to them. Bornstein (1995) articulated this distinction between forms and functions of parenting via a two-by-two matrix in which parents in different cultures or countries can use either the same or different behaviors (forms) to convey the same or different message (functions).

Because parents in all countries must manage their children's behavior, both by promoting desired behaviors and discouraging undesired behaviors, parents' discipline, strategies have emerged as a key component in understanding parenting in diverse contexts. For example, using data from the Multiple Indicator Cluster Survey (the same overarching survey used in the present study), Lansford and Deater-Deckard (2012) reported that country accounted for substantial percentages of the variance in parents' use of nonviolent forms of discipline, such as providing explanations or distractions (11–18%), psychological aggression, such as yelling and name calling (14–19%), physical violence, such as hitting or shaking (10–14%), and severe physical violence, such as beating (11–18%) their 2- to 4-year-old children. Perhaps most strikingly, they reported that 27–38% of the variance in parents' belief about whether it is necessary to use corporal punishment to rear their child properly was accounted for by the families' country of residence. To provide a sense of what this range entails, only 4% of caregivers in Albania reported believing that using corporal punishment is necessary to rear a child properly, in contrast to 93% of caregivers in the Syrian Arab Republic. Thus, there are substantial between-country differences in parents' beliefs about appropriate ways to discipline children as well as parents' actual behaviors.

Parents' Discipline of Children with Disabilities

Within the same nation or cultural group, parents are not equally likely to discipline all children using the same strategies. For instance, parents of children who have problems in conduct (Lytton, 1990), attention (Alizadeh, Applequist, & Coolidge, 2007), or compliance (Patterson, 2002) are more likely to use harsh forms of discipline than are parents of children who do not have such problems. Children with behavior problems elicit more of all kinds of discipline than do children without behavior problems because parents respond to children in ways intended to reduce problem behaviors (Larzelere, 2000). Initial levels of problem behaviors are not the only child characteristic that can make parents more likely to use harsh discipline. Any characteristic that makes some children more difficult to parent may increase the likelihood that parents will use harsher forms of discipline because those salient and challenging child attributes evoke chronically high levels of parental distress that increase the likelihood of frustrated or angry reactive parenting behaviors (Deater-Deckard, 2004). As such, children with disabilities may be the recipients of harsh parenting more often than children without disabilities (for reviews, see Stalker & McArthur, 2012; Westcott & Jones, 1999; but for caveats see Leeb, Bitsko, Merrick, & Armour, 2012).

What is it specifically about children's disabilities that might increase their risk of exposure to harsh parenting? Whittingham, Wee, Sanders, and Boyd (2011) analyzed responses from focus group discussions and outlined several factors that have the potential to make parenting children with disabilities more challenging than parenting children without disabilities. These factors included time pressure (especially related to time required to take children to medical and therapy appointments), additional parenting tasks related to helping manage the child's disability, parenting under public scrutiny when the child's disability draws attention to the family, behavior management difficulties in determining which behaviors are out of the child's control versus which are amenable to change, and parenting without a benchmark because typical developmental milestones may not be applicable

standards for children with disabilities (see also Weisleder, 2011). Each of these challenges, in turn, might increase parents' stress and likelihood of responding harshly to the child.

Some types of disabilities may be more strongly related to parents' disciplinary responses and violence toward the child than others. For example, if their child's disability involves difficulties with verbal communication (e.g., the child is deaf or has problems processing language), parents may be more likely to use corporal punishment because they feel unable to communicate with the child verbally to use reasoning or explanations. Consistent with this perspective, Knutson, Johnson, and Sullivan (2004) found that mothers of children with profound hearing loss were more likely than mothers of children without hearing loss to report that they would use corporal punishment in response to hypothetical child transgressions and to report that they would escalate their response to corporal punishment if the child persisted in misbehavior despite mothers' attempts to stop it.

Mild corporal punishment is a risk factor for more severe corporal punishment (Lansford, Wager, Bates, Pettit, & Dodge, 2012), and it can be difficult to distinguish between corporal punishment and physical abuse (Whipple & Richey, 1997). Indeed, in the 33 countries that have legally prohibited corporal punishment in all settings, even spanking is defined as a violation of children's rights to protection from abuse and violence (www.endcorporalpunishment.org). In a review of studies published in academic journals between 1996 and 2009, Stalker and McArthur (2012) found considerable evidence that children with disabilities are more likely to be abused than are children without disabilities. An earlier review of research published in the 1960s through 1990s (Westcott & Jones, 1999) came to a similar conclusion, while also highlighting the limitations of much of this early work (e.g., small, non-representative samples; lack of appropriate comparison groups). In one of the most authoritative and methodologically sound empirical studies, Sullivan and Knutson (2000) found abuse prevalence rates of 9% and 31% for U.S. American children without disabilities and with disabilities, respectively, suggesting that in the United States children with disabilities were 3.4 times more liked to be abused than were children without disabilities.

An important limitation of the majority of this previous work is a focus on the link between disabilities and discipline and childrearing violence in only a small number of high-income countries. For example, of the 38 studies that met inclusion criteria for the Stalker and McArthur (2012) review, 15 studies were conducted in the United States, 9 in the United Kingdom, 3 in Sweden, and a total of 9 in other high-income countries (Australia, Canada, Israel, New Zealand, Norway, and Poland). Only 2 studies included in the review (one each in Malawi and Turkey) included perspectives from countries not in the World Bank's highest economic classification (World Bank, 2012). Both of these studies focused specifically on sexual abuse of individuals with disabilities (Malawi: Kvam & Braathen, 2008; Turkey: Akbas et al., 2009). In a study in Iran that was not included in the Stalker and McArthur analysis, parents of children with attention deficit hyperactivity disorder (ADHD) were more likely to use corporal punishment than were demographically matched parents of children without ADHD (Alizadeh et al., 2007).

With these few exceptions, very little information is available about links between childhood disabilities and childrearing discipline and violence outside of highly developed countries. This has been identified as a major gap in the literature (Jarosz, 2008; Stalker & McArthur, 2012). Our aim is to address this gap. More generally, one should not assume that relations found in one country will generalize to others (Henrich, Heine, & Norenzayan, 2010), especially when, as reviewed earlier, there are reasons to believe that individuals perceive disabilities (Kapitanoff, Lutzker, & Bigelow, 2000) and discipline (Lansford & Deater-Deckard, 2012; Lansford et al., 2005) in different ways in different countries.

The Present Study

Using nationally representative samples of 2- to 9-year-old children and their primary caregivers in 17 low- and middle-income countries (see Table 1), we sought to understand relations between cognitive, language, sensory, and motor disabilities and childrearing discipline and violence. We separately examined these four broad types of disabilities because of evidence from previous research that some types of disabilities may be more likely to be associated with childrearing discipline and violence than others (see Knutson et al., 2004; Sullivan & Knutson, 2000). We hypothesized that children with disabilities would be treated with more psychological aggression and physical violence than would children without disabilities and that primary caregivers of children with disabilities would be more likely to believe that using corporal punishment is necessary to rear a child with disabilities. We also sought to examine whether links between disabilities and childrearing discipline and violence differed by country, child gender, or caregiver age. As previous research has demonstrated national and cultural differences in stigma attached to disabilities and resources available to help caregivers of children with disabilities, we hypothesized that links between disabilities and childrearing discipline and violence would be more pronounced in some countries than others. Although we did not hypothesize that gender would moderate associations between disabilities and childrearing discipline and violence, we examined this possibility because previous research has been inconsistent on this point (see Stalker & McArthur, 2012). Finally, we examined whether differences in disabilities and childrearing discipline and violence related to country-level indicators of social and economic status.

Method

The MICS3

The Multiple Indicator Cluster Survey (MICS) is a nationally representative and internationally comparable household survey (UNICEF, 2006). It is implemented in low- and middle-income countries and provides a unique source of information to examine protective and risk factors for child health, nutrition, education, development, and well-being in different regions of the world. UNICEF developed the MICS for countries to collect internationally comparable data to evaluate country-level progress on issues related to children and women in low- and middle-income countries. We use data from the MICS3, which was conducted in 2005–2010 (questionnaires are available at http://www.childinfo.org/mics3_questionnaire.html). Each questionnaire is composed of core,

additional, and optional modules, which are sets of standardized questions grouped by topics (see Bornstein et al., 2012 for additional details).

Each country was responsible for designing and selecting a sample. However, the MICS3 technical global team provided strong recommendations on the following: the survey sample should be a probability sample in all stages of selection, national in coverage, and designed in as simple a way as possible so that its field implementation could be easily and faithfully carried out with minimum opportunity for deviation from an overall standard design. Existing samples could be used only if they were valid probability samples (e.g., a Demographic and Health Survey on a labor force survey). When an existing sample could not be used, it was recommended to develop a frame for a new sample in accordance with the tenets of probability sampling. To foster simple implementation, implicit stratification was recommended. When this form of geographic stratification is used together with systematic probability proportionate to size (pps) sampling, the sample proportionately automatically distributes into each of a nation's administrative subdivisions as well as its urban and rural sectors. Furthermore, the recommended sample design was a three-stage sample. The first-stage, or primary sampling units (PSUs), were defined, if possible, as census enumeration areas, and they were selected with pps; the second stage was the selection of segments (clusters); and the third stage was the selection of the particular households within each segment that were to be interviewed in the survey.

Depending on country conditions and needs, the design was likely to vary from one country to another with respect to the number of PSUs, the number of segments or clusters per PSU, and the number of households per segment, and, hence, the overall sample size. The MICS Manual (UNICEF, 2006) tables calculated sample sizes to be used by the country if the table values fit the country situation. As a rule of thumb, the number of PSUs were to fall in the range of 250 to 350, the cluster sizes (that is, the number of households to be interviewed in each segment) were to fall in the range of 10 to 30, and the overall sample size was to fall in the range of 2,500 to 14,000 households.

A country could decide, for its own purposes, that it wanted indicator estimates for subregions in addition to the national level. In that case, its sample design included a different stratification scheme and a greater number of PSUs so as to ensure adequate geographic representation of the sample areas in each subregion. In addition, the sample size for the survey increased substantially to provide reliable estimates for subregions or other subnational domains.

Participants

Altogether 45,964 target children between the ages of 2 and 9 years (M = 5.23, SD = 2.25; 49.3% girls) from families in 17 low- and middle-income countries provided some or all data for both the disabilities and discipline questionnaires (Table 1). Primary female caregivers ranged in age from 15 to 97 years (M = 32.91, SD = 9.61). Thirty-one percent had no formal education, 32.3% had a primary school education, 30.4% had a secondary school education, and 6.1% had more than a secondary school education.

Disability Questionnaire

The MICS3 Disability Module used the Ten Questions Survey (TQS) of the Household Questionnaire which asked about disabilities in children aged 2 to 9 years. The TQS was originally developed as part of the International Pilot Study of Severe Childhood Disability (Belmont, 1986) and designed to be applicable across cultural settings (Durkin et al., 1995; Thorburn et al., 1992; Zaman et al., 1990). The TQS is a relatively easy, inexpensive, culture-free screening instrument to provide robust, comparable, and multidomain data on young children with disabilities or delays. The mother (or primary caregiver) of a target child answered *No* (0) or *Yes* (1) to 10 questions about any cognitive (learning and cognition), language (production and comprehension), sensory (vision and hearing), or motor (developmental milestones) impairments in that child's functional abilities relative to peers. The cognitive composite was composed of 2 questions: does child learn to do things like other children his/her age, and does child appear in any way mentally backward or slow. The language composite was composed of 4 questions: can child name at least one object; does child speak at all, make him or herself understood, and/or say recognizable words; is child's speech different from normal; when you tell child to do something does he/she seem to understand what you are saying. The sensory composite was composed of 2 questions: does child appear to have difficulty seeing and does child appear to have difficulty hearing. The motor composite was composed of 2 questions: does child have difficulty walking or moving his/her arms or have weakness and/or stiffness in arms or legs, and does child have any serious delay in sitting, standing, or walking. A total disability score was computed if the respondent indicated impairment on any question, and composite indices were created for the 4 disability domains if the respondent indicated impairment on any of the indicators. For example, if a respondent answered yes to either one or both of the motor indicators (motor difficulty or delay), the composite score was 1; if no impairment was reported, the score was 0. (Bosnia-Herzegovina did not provide data on one of the cognitive indicators.) These composites are indices (not scales) because they comprise conceptually related indicators of a developmental domain but are not necessarily statistically related (Bradley, 2004; Streiner, 2003). For example, the likelihood of having a visual impairment may be unrelated to the likelihood of having a hearing impairment, but both indicate sensory impairments. Small percentages of children had a disability in more than one domain: cognitive and language = 4.3%; cognitive and motor = 1.3%; cognitive and sensory = 0.8%; language and motor = 2.4%; language and sensory = 1.8%; motor and sensory = 1.0%. The analyses were conducted separately for each of the four kinds of disabilities, so children with a particular kind of disability were compared to children without a particular kind of disability (regardless of whether they had a different kind of disability). This enabled us to assess whether particular kinds of disabilities were associated with harsher treatment of children or whether patterns of treatment of children with disabilities generalized across types of disabilities.

The TQS has been cited as the most commonly used screening measure of child disabilities in low- and middle-income countries (Maulik & Darmstadt, 2007), and a number of studies have validated the utility of the TQS in identifying children with moderate to severe disabilities (Durkin et al., 1995; Muga, 2003; Thorburn et al., 1992; Zaman et al., 1990). Durkin, Islam, Hasan, and Zaman (1994) conducted a two-stage study of over 22,000

children in Bangladesh, Jamaica, and Pakistan, following up TQS administration with clinical evaluation. The sensitivity of the TQS for serious disabilities was generally high in all countries (range = .82 to .92).

Child Discipline Questionnaire

The Child Discipline module was developed using an approach that included convening an international panel of 25 experts to identify candidate items from existing validated measures of caregiving; field testing candidate items via cognitive interviews and quantitative surveys in the Americas, South Asia, and Africa; and convening a second international panel of 27 experts to evaluate items' performance within and across diverse cultures and settings (Kariger et al., 2012). The 11 items in the Child Discipline module that resulted from this process were adapted from the Parent-Child Conflict Tactics Scale (Straus, Hamby, Finkelor, Moore, & Runyan, 1998) and the WorldSAFE survey questionnaire (Sadowski, Hunter, Bangdiwala, & Munoz, 2004). The mother (or primary caregiver) of a target child was told, "All adults use certain methods to teach children the right behavior or address a behavior problem. I will read various methods that are used, and I want you to tell me whether you or anyone else in your household has used each method with (name of child) in the last month." The caregiver then answered *No* (0) or *Yes* (1) to 11 questions about whether in the last month anyone in the household had used nonviolent discipline, psychological aggression, physical violence, and severe physical violence with the target child. A twelfth item asked whether the caregiver believes that to bring up/raise/educate the target child properly it is necessary to punish him or her physically; *don't know/no opinion* responses for this item were treated as missing. The composite scales were constructed following the protocol recommended by UNICEF (2006) for these items. The nonviolence scale included 3 items: explained why something was wrong, gave the child something else to do, and took away privileges. The psychological aggression scale included 2 items: yelled at the child and called the child a name. The physical violence scale included 4 items: spanked with a hand, hit on the extremities, shook, and hit with an object. The severe physical violence scale included 2 items: hit on the head and beat with an implement. We recognize that views about the severity of specific forms of violence likely vary across countries and therefore caution that the results should be interpreted with this caveat in mind.

The Human Development Index

The Human Development Index (HDI) was created by the United Nations as a measure of the general social and economic status of a country (UNDP, 2009). The HDI has three components: life expectancy, education (adult literacy rate and gross enrollment in primary, secondary, and tertiary school), and gross domestic product. The HDI constitutes a reasonable proxy for national levels of support available for promoting human development and connects to many physical and social aspects of the home environment with known relations to child development. Countries with an HDI ≥.80 are considered high, .50–.79 medium, and ≤.49 low. Our sample of 17 countries adequately represents the full range of the HDI: 5 high, 9 medium, and 2 low. (The HDI could not be calculated for Iraq because of missing data about gross domestic product.)

Analytic Plan and Preliminary Analyses

First, we computed the means and standard deviations, by country, for children who screened positive for disabilities and for the use of each type of discipline for the composite indices. Next, we explored associations between disability and discipline and childrearing violence using logistic regression, with disability as the predictor and each type of discipline and belief about the need to use corporal punishment as the outcome variable. We used a deviation contrast to compare each country to the overall effect of country (analogous to the grand mean in OLS regression) to investigate the general ordering of the 17 low- and middle-income countries on a continuum. We compared each country to the overall effect because we did not want to single out a particular country as a reference group, and pairwise comparisons for all countries would be unwieldy (136 comparisons for each of 16 models). Instead, the deviation contrast shows whether a particular country is significantly above or below the overall effect.

We investigated main effects of disability, country, gender, and caregiver age as well as their 2- and 3-way interactions. Only one of the twenty 2-way interactions between gender and disability was significant, which would be anticipated by chance. In addition, only one 3-way interaction, country x language disability x caregiver age for belief in need to punish, showed a significant country difference (for Jamaica and Serbia), which would also be expected by chance. Therefore, the interactions involving gender and caregiver age are not reported. Country main effects were found in all analyses and are reported in the text. We report Cox and Snell's and Nagelkerke's pseudo-R^2 values as estimates of the percentages of variance accounted for in the final models; Wald estimates for significance of the logistic regression coefficients (which correspond to significance testing of b coefficients in OLS regression); and odds ratios for effect sizes. Finally, we examined correlations of country-wide averages of disabilities and childrearing discipline and violence with the HDI. We did not impute missing data because the sample size was large and fewer than 1% of data points were missing for all variables except for the cognitive composite which was missing 5.6% (Bosnia-Herzegovina did not ask one question) and belief in the need to use corporal punishment, which was missing 3.6%. The primary measures used in this study are dichotomous, and appropriate nonparametric analyses are used *passim*.

Mean child age varied across countries, $F(16) = 65.45$, $p < .001$, $\eta^2_p = .02$. Given the age range of the study sample and the knowledge that there are age-related differences in children's cognitive and socioemotional development and parenting discipline practices, we used child age as a covariate in the regression analyses.

Results

Descriptive Statistics

Table 1 provides descriptive statistics, by country, for number of families and child age and gender. Tables 2 and 3 show the proportions of children overall and by country for the composite indices and their indicators for disabilities and discipline. Although considerable variability characterized indices and indicators, more language disabilities were reported than cognitive, more cognitive than motor, and more motor than sensory. The use of

nonviolent discipline was reported more than psychological aggression, psychological aggression was reported more than physical violence, and physical violence was reported more than severe physical violence. On average, 27% of respondents reported they believed that corporal punishment was necessary to rear their child properly. In the reports of the logistic regressions below, all comparisons of countries are made in relation to the overall effect across countries (i.e., a given country is higher or lower than the grand mean).

Logistic Regressions Testing the Association between Child Cognitive Disabilities and Caregiver Discipline

Nonviolent discipline—There were overall main effects of cognitive disability, Wald χ^2 (1) = 52.36, $p < .001$, $OR = .71$, and country, Wald χ^2 (15) = 1328.57, $p < .001$, and a Disability x Country interaction, Wald χ^2 (15) = 33.98, $p < .01$. The model explained between 4.27% (Cox & Snell R^2) and 7.9% (Nagelkerke R^2) of the variance. Three of 16 countries showed significant effects of disability: Caregivers of children with cognitive disabilities in Serbia, Georgia, and Iraq were less likely to report the use of nonviolent discipline (Table 4).

Psychological aggression—There were overall main effects of cognitive disability, Wald χ^2 (1) = 12.48, $p < .001$, $OR = .76$, and country, Wald χ^2 (15) = 3433.41, $p < .001$, and a Disability x Country interaction, Wald χ^2 (15) = 44.98, $p < .001$. The model explained between 11.5% (Cox & Snell R^2) and 16.7% (Nagelkerke R^2) of the variance. Three of 16 countries showed significant effects of disability: Caregivers of children with cognitive disabilities in Serbia, Georgia, and Iraq were less likely to report the use of psychological aggression (Table 4).

Physical violence—There were overall main effects of cognitive disability, Wald χ^2 (1) = 30.85, $p < .001$, $OR = .79$, and country, Wald χ^2 (15) = 1847.19, $p < .001$, and a Disability x Country interaction, Wald χ^2 (15) = 26.44, $p < .05$. The model explained between 4.6% (Cox & Snell R^2) and 6.5% (Nagelkerke R^2) of the variance. Three of 16 countries showed significant effects of disability: Caregivers of children with cognitive disabilities in Georgia were less likely, and those in Laos and Suriname were more likely, to report the use of physical violence (Table 4).

Severe physical violence—There were overall main effects of cognitive disability, Wald χ^2 (1) = 4.61, $p < .05$, $OR = 1.11$, and country, Wald χ^2 (15) = 2395.01, $p < .001$. The model explained between 6.8% (Cox & Snell R^2) and 10.4% (Nagelkerke R^2) of the variance. Children with cognitive disabilities were more likely to experience severe physical violence.

Need to use corporal punishment—There was an overall main effect of country, Wald χ^2 (15) = 3867.05, $p < .001$, and a Disability x Country interaction, Wald χ^2 (15) = 64.71, $p < .001$. The model explained between 11.4% (Cox & Snell R^2) and 16.4% (Nagelkerke R^2) of the variance. Three of 16 countries showed significant effects of disability: Caregivers of children with cognitive disabilities in Serbia and Laos were more likely, and those in

Georgia were less likely, to report they believed that corporal punishment is necessary to rear their child properly (Table 4).

Logistic Regressions Testing the Association between Child Language Disabilities and Caregiver Discipline

Nonviolent discipline—There were overall main effects of language disability, Wald χ^2 (1) = 13.19, $p < .001$, *OR* = .78, and country, Wald χ^2 (16) = 1055.51, $p < .001$. The model explained between 4.1% (Cox & Snell R^2) and 7.8% (Nagelkerke R^2) of the variance. Overall, caregivers of children with language disabilities were less likely to report the use of nonviolent discipline.

Psychological aggression—There were overall main effects of language disability, Wald χ^2 (1) = 8.17, $p < .01$, *OR* = .88, and country, Wald χ^2 (16) = 4469.68, $p < .001$, and a Disability x Country interaction, Wald χ^2 (16) = 57.50, $p < .001$. The model explained between 14.9% (Cox & Snell R^2) and 21.3% (Nagelkerke R^2) of the variance. Six of 17 countries showed significant effects of disability: Caregivers of children with language disabilities in Albania, Belize, and Djibouti were more likely, and those in Montenegro, Georgia, and Yemen were less likely, to report the use of psychological aggression (Table 5).

Physical violence—There were overall main effects of language disability, Wald χ^2 (1) = 3.88, $p < .05$, *OR* = .92, and country, Wald χ^2 (16) = 2725.58, $p < .001$, and a Disability x Country interaction, Wald χ^2 (16) = 33.28, $p < .01$. The model explained between 7.7% (Cox & Snell R^2) and 10.7% (Nagelkerke R^2) of the variance. Four of 17 countries showed significant effects of disability: Caregivers of children with language disabilities in Albania and Ghana were more likely, and those in Georgia and the Central African Republic were less likely, to report the use of physical violence (Table 5).

Severe physical violence—There were overall main effects of language disability, Wald χ^2 (1) = 13.73, $p < .001$, *OR* = 1.26, and country, Wald χ^2 (16) = 2298.12, $p < .001$, and a Disability x Country interaction, Wald χ^2 (16) = 64.65, $p < .001$. The model explained between 7.7% (Cox & Snell R^2) and 12.0% (Nagelkerke R^2) of the variance. Six of 17 countries showed significant effects of disability: Caregivers of children with language disabilities in Albania and Ghana were more likely, and those in Serbia, Georgia, Sierra Leone, and Iraq were less likely, to report the use of severe physical violence (Table 5).

Need to use corporal punishment—There was an overall main effect of country, Wald χ^2 (16) = 3655.47, $p < .001$, and a Disability x Country interaction, Wald χ^2 (16) = 85.53, $p < .001$. The model explained between 12.0% (Cox & Snell R^2) and 18.0% (Nagelkerke R^2) of the variance. Six of 17 countries showed significant effects of disability: Caregivers of children with language disabilities in Bosnia-Herzegovina, Macedonia, and Ghana were more likely, and those in Djibouti, Georgia, and the Central African Republic were less likely, to report they believed that using corporal punishment is necessary to rear their child properly (Table 5).

Logistic Regressions Testing the Association between Child Sensory Disabilities and Caregiver Discipline

Nonviolent discipline—There was an overall main effect of country, Wald χ^2 (16) = 1356.53, $p < .001$. The model explained between 4.0% (Cox & Snell R^2) and 7.6% (Nagelkerke R^2) of the variance. There was no significant main effect of sensory disability and no significant Disability x Country interaction.

Psychological aggression—There were overall main effects of sensory disability, Wald χ^2 (1) = 3.86, $p < .05$, *OR* = 1.21, and country, Wald χ^2 (16) = 5218.25, $p < .001$. The model explained between 14.8% (Cox & Snell R^2) and 21.1% (Nagelkerke R^2) of the variance. Overall, children with sensory disabilities were more likely to have experienced psychological aggression.

Physical violence—There was an overall main effect of country, Wald χ^2 (16) = 3052.32, $p < .001$. The model explained between 7.6% (Cox & Snell R^2) and 10.6% (Nagelkerke R^2) of the variance.

Severe physical violence—There were overall main effects of sensory disability, Wald χ^2 (1) = 10.47, $p < .001$, *OR* = 1.46, and country, Wald χ^2 (16) = 2616.60, $p < .001$. The model explained between 7.6% (Cox & Snell R^2) and 11.9% (Nagelkerke R^2) of the variance. Overall, children with sensory disabilities were more likely to have experienced severe physical violence.

Need to use corporal punishment—There were overall main effects of disability, Wald χ^2 (16) =11.84, $p < .001$, *OR* = 1.44, and country, Wald χ^2 (16) = 4333.80, $p < .001$, and a Disability x Country interaction, Wald χ^2 (16) = 32.16, $p < .01$. The model explained between 12.0% (Cox & Snell R^2) and 17.0% (Nagelkerke R^2) of the variance. Five of 17 countries showed significant effects of disability: Caregivers of children with sensory disabilities in Albania were more likely, and those in Georgia, the Central African Republic, Sierra Leone, and Iraq were less likely, to report they believed that using corporal punishment is necessary to rear their child properly (Table 6).

Logistic Regressions Testing the Association between Child Motor Disabilities and Caregiver Discipline

Nonviolent discipline—There were overall main effects of motor disability, Wald χ^2 (1) = 5.16 $p < .05$, *OR* = .78, and country, Wald χ^2 (15) =1272.21, $p < .001$ (Montenegro was omitted from analyses due to small cell size). The model explained between 4.0% (Cox & Snell R^2) and 7.6% (Nagelkerke R^2) of the variance. Overall, children with motor disabilities were less likely to have experienced nonviolent discipline.

Psychological aggression—There were overall main effects of motor disability, Wald χ^2 (1) = 6.46, $p < .05$, *OR* = 1.32, and country, Wald χ^2 (16) = 5131.19, $p < .001$. The model explained between 14.8% (Cox & Snell R^2) and 21.1% (Nagelkerke R^2) of the variance. Overall, children with motor disabilities were more likely to have experienced psychological aggression.

Physical violence—There was an overall main effect of country, Wald χ^2 (16) = 2987.35, $p < .001$. There was no significant main effect of disability and no significant Disability x Country interaction.

Severe physical violence—There were overall main effects of motor disability, Wald χ^2 (1) = 10.45, $p < .001$, *OR* = 1.42, and country, Wald χ^2 (15) = 2506.99, $p < .001$, and a Disability x Country interaction, Wald χ^2 (15) =39.07, $p < .001$ (Montenegro was omitted from analyses due to small cell size). The model explained between 7.5% (Cox & Snell R^2) and 11.8% (Nagelkerke R^2) of the variance. Five of 16 countries showed significant effects of disability: Children with sensory disabilities in Ghana were more likely, and those in Georgia and the Central African Republic were less likely, to have experienced severe physical violence (Table 7).

Need to use corporal punishment—There were overall main effects of disability, Wald χ^2 (1) =7.40, $p < .01$, *OR* = 1.33, and country, Wald χ^2 (15) = 4063.27, $p < .001$, and a Disability x Country interaction, Wald χ^2 (15) = 40.23, $p < .001$ (Montenegro was omitted from analyses due to small cell size). The model explained between 12.0% (Cox & Snell R^2) and 17.0% (Nagelkerke R^2) of the variance. Four of 16 countries showed significant effects of disability: Caregivers of children with motor disabilities in Bosnia-Herzegovina were more likely, and those in Djibouti, Suriname, and Iraq were less likely, to report they believed that using corporal punishment is necessary to rear their child properly (Table 7).

Relations of Children's Disabilities and Childrearing Discipline and Violence with the Human Development Index

For each country, we computed the average of the disability and discipline composite indices and beliefs. This procedure reduced the number of "respondents" to 16–17 countries instead of approximately 45,964 families. Because respondents were averaged across countries, the power for the following tests is low and should be interpreted accordingly. Country averages were then correlated with the country HDI and its 3 constituent indices (life expectancy, education, and GDP). The HDI is multi-dimensional; although its components are related to one another, it is possible that they relate in different ways to child disabilities. Table 8 shows relations between the disability and discipline composite indices with the HDI and its components. The language composite was negatively related to schooling; the lower the schooling, the more language disability was reported. The motor composite was negatively related to education and literacy; the lower the national literacy rate and schooling, the more motor disability was reported. For the discipline composites, psychological aggression, physical violence, and severe physical violence were negatively related to the HDI, life expectancy index, education, and literacy. The lower the HDI index, life expectancy, and national literacy, the more reported use of psychological aggression, physical violence, and severe physical violence.

Discussion

Our main goal for this study of families in 17 low- and middle-income countries was to determine whether children with disabilities and children without disabilities were treated

differently by their caregivers with respect to nonviolent discipline, psychological aggression, physical violence, and severe physical violence. We also examined whether caregivers of children with disabilities were more likely to believe that corporal punishment was necessary to rear the child. Finally, we explored whether links between disability status and childrearing discipline and violence differed by country, child gender, or caregiver age. Our hypotheses that children with disabilities would be treated more harshly than would children without disabilities, and that primary caregivers of children with disabilities would be more likely to believe that using corporal punishment is necessary to rear the child, were partially supported. We found significant differences between children with and without disabilities in 15 of 20 analyses examining main effects of disabilities on caregivers' responses to children and their belief in the necessity of using corporal punishment. The magnitude of these differences was in some cases pronounced. For example, compared to children without disabilities, children with cognitive disabilities were 1.11 times more likely, children with language disabilities were 1.26 times more likely, children with sensory disabilities were 1.46 times more likely, and children with motor disabilities were 1.42 times more likely to experience severe physical violence from their caregivers. The findings were most consistent across types of disabilities for caregivers' reports of nonviolent discipline and severe physical violence. For three of the four types of disabilities examined, caregivers of children with disabilities were less likely to report that their child had experienced only nonviolent discipline (however, there were no differences for children with and without sensory disabilities). For all four types of disabilities, caregivers of children with disabilities were more likely to report that their child had experienced severe physical violence (hitting on the head and beating with an implement).

The findings differed across disabilities for the other primary caregiver responses. Caregivers of children with cognitive and language disabilities were less likely to report that their child had experienced psychological aggression and physical aggression, whereas caregivers of children with sensory and motor disabilities were more likely to report that their child had experienced psychological aggression and were equally likely as caregivers of children without disabilities to report that their child had experienced physical violence. Caregivers of children with sensory and motor disabilities were more likely than caregivers of children without disabilities to endorse the necessity of corporal punishment to rear the child properly. Of the four types of disabilities, motor disabilities were the most consistently associated with harsh treatment, including less nonviolent discipline, more psychological aggression, more physical violence, more severe physical violence, and stronger endorsement of the necessity of using corporal punishment.

These main effects of disability status on caregivers' reports of childrearing discipline and violence were tempered in some cases by interactions with country (with 11 of 20 interactions significant), partially supporting our hypothesis that links between disabilities and childrearing discipline and violence would be more pronounced in some countries than others. The country that differed most often in contrast to the overall grand mean across countries was Georgia, with 10 analyses showing that in parents' responses to children with disabilities, Georgia was lower than the overall effect of country on caregivers' reports of psychological aggression, physical violence, severe physical violence, and the belief that it is necessary to use corporal punishment to rear the child properly, but also in one analysis

showing lower scores on caregivers' reports of nonviolent discipline. Although we cannot say definitively why the most differences emerged for Georgia, we note that since 2000, a number of policy and programmatic changes have been made in Georgia that might be reflected in caregivers' treatment of children with disabilities. For example, whereas prior to 2000, many children with disabilities in Georgia were institutionalized, since that time there has been a push to care for children with disabilities in their homes with support from the government and community organizations (UNICEF, 2012). An important direction for future research will be to examine how national level programs and policies are related to the treatment of children with disabilities. The country that differed second most often in contrast to the overall effect of country was Iraq, with only half as many significant contrasts as Georgia. The other countries ranged from 0–4 significant contrasts out of a possible 20. Therefore, no country (with the possible exception of Georgia) emerged as being consistently more or less harsh as a context for rearing children with disabilities than the other low- and middle-income countries. We had not hypothesized child gender or caregiver age differences, and indeed we found no evidence that the links between children's disabilities and childrearing discipline and violence were moderated by child gender or caregiver age.

Our results are consistent with previous research, conducted primarily in the United States, Canada, and Western Europe, that children with disabilities are at higher risk of harsh parenting than are children without disabilities (Stalker & McArthur, 2012). Previous research suggests several mechanisms that could explain these links. For example, levels of stress are higher for parents of children with disabilities because of the extra demands on parents' time and energy that are required in managing the disability and because of stigma that may be associated with the disability (Deater-Deckard, 2004; Whittingham et al., 2011). In addition, parents of children with disabilities may be less confident of their abilities to parent (Alizadeh et al., 2007), perhaps resulting in more impulsive reactions to children such as corporal punishment rather than nonviolent forms of discipline that might require more consideration—as is found in community studies in the United States regarding low parenting self-efficacy and harsh parenting practices (Jones & Prinz, 2005). Moreover, depending on the child's disability, parents may feel less able to communicate with the child using verbal explanations and reasoning and resort to corporal punishment instead (Knutson et al., 2004).

We also found that disabilities as well as harsh childrearing practices and the belief that corporal punishment is necessary to rear a child properly were more prevalent in low-HDI than high-HDI countries. These findings are consistent with previous research showing that the prevalence of child disabilities is higher in countries with high levels of poverty and deprivation than in more affluent countries (Dercon & Krishnan, 2009) and also that childrearing violence is more prevalent in countries with fewer material resources (Lansford & Deater-Deckard, 2012). Physical conditions of the environment, such as undernutrition and lack of access to medical care, which are more prevalent in low- and middle-income countries, can contribute to child disabilities (Black et al., 2008). In addition, formal education systems (as would be captured by the HDI) change values and beliefs related to child development and parenting (Davis-Kean, 2005), which could account for the link between more childrearing violence and lower HDI (see Lansford & Deater-Deckard, 2012).

Limitations and Directions for Future Research

Because these data were cross-sectional, we cannot make any claims about direction of effects. Children with disabilities may be more likely to experience psychological aggression and physical violence because child disabilities elicit harsher treatment by parents, because harsh treatment by parents contributes to child disabilities, or because of other underlying causes that contribute both to harsh parenting and child disability status and severity. For example, shaking infants and young children can cause brain damage that could result in blindness or other neurologic problems that are then manifested as disabilities (e.g., Keenan, Runyan, Marshall, Nocera, & Merten, 2004). Likewise, experiencing other forms of severe physical violence could also lead to other disabilities (e.g., Stalker & McArthur, 2012). Furthermore, chronic levels of stress or illness in the mother prior to pregnancy may contribute both to elevated risk for pre- and perinatal complications that could contribute to child disability (e.g., Grizenko, Shayan, Polotskaia, Ter-Stepanian, & Joober, 2008; Lobel, 1994; Mulder, Robles de Medina, Huizink, Van den Bergh, Buitelaar, & Visser, 2002), and to higher rates of harsh reactive parenting behavior (e.g., Murphy, Orkow, & Nicola, 1985). Thus, future research is needed to understand directions of effects in relations between disabilities and childrearing discipline and violence in diverse countries. Furthermore, the MICS questions enabled us to categorize children as having a particular type of disability or not but did not provide information about severity of the disabilities. Assessing severity of disabilities would be an additional direction for future research.

We relied on primary caregivers to report on their own behavior and the behavior of other caregivers in their household. This approach had the advantage of making it possible to assess the behavior of multiple caregivers toward the target child, which might be especially important in households that include extended family members, many of whom share in the responsibility of disciplining the child. It is possible, however, that caregivers under-reported less socially desirable behaviors such as psychological aggression and physical violence. This concern is somewhat mitigated because caregivers were reporting not just on their own behavior, but caregivers may have been motivated to present the entire household in a favorable light. Thus, the proportion of children experiencing psychological aggression and physical violence may be even higher than our results indicate. Future research using a variety of reporters and methods will be needed to replicate the findings.

A strength of our study was the inclusion of nationally representative samples from 17 low- and middle-income countries that have been virtually unstudied in the developmental literature. However, although national and cultural groups vary in their accounts of the developmental origins of disabilities and beliefs about appropriate ways to respond to children with disabilities (Danseco, 1997), we did not have any information about such factors that we could examine in this investigation. It would be fruitful for future research to examine whether links between children's disabilities and childrearing discipline and violence are moderated by cultural beliefs and perceptions regarding parenting practices and child disability status and severity. For example, if parents believe that children's disabilities are the result of being the reincarnation of someone important (Leonard, 1985), or that children with disabilities have special powers (Edgerton, 1981), then parents may be less

likely to treat children with disabilities harshly. Future research also could examine whether national policies (such as laws prohibiting discrimination against individuals with disabilities) and services provided to children with disabilities and their families, which differ across countries (Agunloye, Pollingue, Davou, & Osagie, 2011; www.dredf.org), decrease the likelihood that children with disabilities will be treated harshly by their parents.

Although we were able to examine between-country differences, examining within-country differences was beyond the scope of this study. Within-country differences may be related to socioeconomic resources, rural versus urban residence, religious beliefs, and other individual and community factors that will be important to study in future research. Thus, we caution against overgeneralizing the results to all individuals within a country given that individuals and subgroups within countries may show different patterns of findings.

Implications for Policy and Practice

With the Convention on the Rights of the Child and the Convention on the Rights of Persons with Disabilities, the elimination of parents' violence toward children and promotion of the rights of children with disabilities have both been made prominent goals in the international community. Despite the ratification of the Convention on the Rights of the Child in all 17 of the countries included in this study, Albania was the only country included in the present study in which the use of corporal punishment has been outlawed. Albania also had the lowest percentage of caregivers report believing that it is necessary to use corporal punishment to rear a child properly.

Even in countries in which children with disabilities have been found objectively to have experienced higher rates of child maltreatment than children without disabilities, children with disabilities are less likely to report that they have been maltreated or are more likely to delay a month or more before reporting maltreatment (Hershkowitz, Lamb, & Horowitz, 2007). Thus, preventing psychological aggression and physical violence toward children with disabilities is critical because children with disabilities may be less likely than children without disabilities to obtain needed support to help them cope with such experiences.

Although contextual circumstances should not be used as justification for violence against children, they help to provide a more nuanced understanding of the results. Particularly in countries in which widespread violence and human rights violations are present, the consequences of a child's disobedience may be very severe. Parents may feel the need to use harsher forms of discipline to convey the importance of following rules, and they may resort to corporal punishment if they think the child is unable to benefit from nonviolent approaches such as providing an explanation or losing a privilege (e.g., in the case of cognitive or language disabilities). Therefore, it may be especially important for parents in such circumstances to have the opportunity to learn about alternative nonviolent forms of discipline that may be effective with children who have specific disabilities.

Our results highlight the importance of, and need for, intervention efforts and support services that specifically include a disability education element. If parents were better informed of the nature of their child's disability, in terms of cognitive, social, communicative, and motor functioning levels, they may gain a deeper understanding of what

is and is not within their child's control and be less likely to mistakenly assume that their child is willfully misbehaving. This aid may help caregivers to tailor discipline approaches more appropriately and avoid resorting to psychological aggression and physical violence.

In addition to implementing policies designed to reduce all children's risk of exposure to psychological aggression and physical violence, specific interventions may be targeted to parents of children with disabilities. For example, given the challenges of providing care for children with disabilities, parents may benefit from interventions that provide support to them as caregivers as well as to the whole family unit (Weisleder, 2011). A meta-analysis of parenting of children with disabilities found that positive parenting attributes contributed to positive child outcomes, including play behaviors, language gains, and daily living and socialization skills (Dyches, Smith, Korth, Roper, & Mandleco, 2012). In addition, to maximize effectiveness of interventions, policy makers should incorporate cultural factors that likely affect how parents treat children with disabilities (Kapitanoff et al., 2000). Even in low- and middle-income countries, there have been some recent attempts to incorporate information about children with disabilities into national parenting programs (Lansford & Bornstein, 2007). Kapitanoff et al. (2000) identified several cultural factors that may increase the likelihood that children with disabilities will be treated harshly by parents, including believing that the disability is the fault of the parent, perceiving the child's disability as shameful, needing the child to contribute to the family economically, and lacking ways to handle the disability to improve acceptability of the child and family in the society. Specific culturally relevant concerns could be integrated into interventions designed to help families of children with disabilities. Programs that are implemented at a broad societal level may not only directly help families of children with disabilities, but may also have the indirect, additional benefit of helping members of the community to develop a better understanding of the nature of various disabilities. This knowledge in turn may mitigate the risk factor of perceptions of external negative social judgment, an element known to be associated with parental stress, which may then translate into more positive parenting practices by parents of children with disabilities.

Conclusions

Across a variety of low- and middle-income countries, children with disabilities are treated more harshly by their caregivers than children without disabilities, particularly in terms of being less likely to experience nonviolent discipline and more likely to experience severe physical violence. These links varied somewhat between countries, but no country emerged as being clearly gentler or harsher than other countries in terms of caregivers' reported behaviors toward children with disabilities. Overall, the findings suggest that reinforced policies and interventions are needed to work toward the United Nations' goals of ensuring that children with disabilities have the same rights as other children and that all children are protected from abuse and violence.

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Table 1

Descriptive Statistics for Number and Child Age and Gender by Country

Country		Child age (years)		Child gender
	n	***M***	***SD***	**% female**
Albania	1290	5.78	2.24	47.1
Belize	639	5.67	2.25	51.3
Bosnia-Herzegovina	2266	4.56	2.22	50.2
Cameroon	3714	5.36	2.25	50.5
Central African Republic	5492	5.13	2.19	50.5
Djibouti	1738	5.45	2.23	47.6
Georgia	2257	5.57	2.32	46.2
Ghana	2419	5.48	2.27	48.7
Iraq	8051	5.26	2.31	48.1
Jamaica	1289	5.59	2.29	47.9
Laos	2908	5.44	2.23	48.5
Macedonia	2919	4.44	1.91	51.1
Montenegro	797	4.85	2.15	47.1
Serbia	2646	4.76	2.18	48.7
Sierra Leone	4020	5.37	2.15	49.9
Suriname	1729	5.52	2.32	51.9
Yemen	1790	5.28	2.31	51.5
Total	45964	5.23	2.25	49.3

Table 2

Proportions of Children by Country Screening Positive for Disability Composites

	Cognitive Composite		Language Composite		Sensory Composite		Motor Composite	
Country	***M***	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***
Albania	.06	.23	.14	.35	.02	.14	.02	.13
Belize	.09	.29	.34	.48	.10	.30	.10	.30
Bosnia – Herzegovina	n/a	n/a	.06	.25	.02	.14	.02	.14
Cameroon	.06	.25	.23	.42	.06	.24	.10	.30
Central African Republic	.08	.27	.37	.48	.07	.25	.08	.28
Djibouti	.22	.41	.49	.50	.05	.21	.07	.25
Georgia	.06	.23	.25	.43	.03	.17	.04	.19
Ghana	.05	.22	.12	.33	.04	.21	.06	.23
Iraq	.04	.19	.15	.36	.03	.17	.07	.26
Jamaica	.06	.24	.17	.37	.03	.17	.03	.16
Laos	.03	.18	.05	.21	.02	.14	.03	.16
Macedonia	.05	.23	.18	.38	.02	.15	.02	.15
Montenegro	.02	.15	.11	.31	.02	.12	.01	.09
Serbia	.06	.23	.14	.35	.03	.17	.01	.11
Sierra Leone	.10	.30	.28	.45	.04	.18	.06	.23
Suriname	.08	.28	.26	.44	.06	.24	.06	.24
Yemen	.08	.27	.19	.39	.06	.24	.11	.31
Total	.07	.25	.21	.41	.04	.20	.06	.23

Note. n/a = data not available

Table 3

Proportions of Caregivers by Country Indicating the Use of Type of Discipline and Belief in Need to Punish Physically

	Nonviolent Discipline		Psychological Aggression		Physical Violence		Severe Physical Violence		Need to Punish Physically	
Country	***M***	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***
Albania	.91	.29	.10	.31	.50	.50	.09	.28	.04	.20
Belize	.92	.28	.51	.50	.60	.49	.07	.25	.27	.44
Bosnia – Herzegovina	.91	.29	.25	.44	.27	.44	.03	.18	.07	.26
Cameroon	.80	.40	.86	.34	.81	.39	.27	.44	.46	.50
Central African Republic	.89	.31	.82	.39	.76	.42	.33	.47	.26	.44
Djibouti	.80	.40	.50	.50	.61	.49	.20	.40	.33	.47
Georgia	.76	.43	.62	.48	.55	.50	.24	.43	.15	.36
Ghana	.82	.38	.83	.38	.73	.45	.09	.29	.47	.50
Iraq	.94	.24	.79	.41	.70	.46	.30	.46	.25	.43
Jamaica	.90	.31	.74	.44	.82	.39	.06	.24	.35	.48
Laos	.80	.40	.64	.48	.51	.50	.09	.28	.18	.38
Macedonia	.88	.32	.59	.49	.62	.48	.18	.38	.08	.27
Montenegro	.93	.26	.57	.49	.51	.50	.06	.25	.05	.22
Serbia	.86	.35	.65	.48	.65	.48	.11	.31	.11	.32
Sierra Leone	.90	.30	.82	.39	.74	.44	.22	.41	.57	.50
Suriname	.95	.22	.81	.40	.65	.48	.09	.28	.18	.38
Yemen	.94	.23	.93	.27	.85	.35	.43	.50	.45	.50
Total	.87	.33	.71	.46	.67	.47	.21	.41	.27	.45

Table 4

Logistic Regression Parameter Estimates for Associations Between Child Cognitive Disability and Type of Caregiver Discipline

Country	Nonviolent Discipline		Psychological Aggression		Physical Violence		Need to Punish Physically	
	Wald χ^2	OR	Wald χ^2	OR	Wald χ^2	OR	Wald χ^2	OR
Albania	.18	1.18	.02	1.05	.05	1.05	.58	.59
Belize	.94	1.65	3.57	1.66	.17	1.12	.76	1.29
Bosnia – Herzegovina	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Cameroon	.13	1.07	.04	.96	.01	.98	2.51	.77
Central African Republic	.28	.92	.04	.98	.53	.92	.06	.97
Djibouti	.69	1.15	2.44	1.22	.25	.94	1.74	.82
Georgia	16.50	.45***	14.23	.50***	12.35	.52***	6.37	.42*
Ghana	1.18	1.31	.13	1.09	.30	1.12	1.35	1.26
Iraq	5.74	.62*	13.75	.62***	.39	.93	2.39	.77
Jamaica	.22	.85	1.59	.83	.16	1.13	.05	.95
Laos	.61	.83	.01	1.02	4.79	1.55*	25.71	3.07***
Macedonia	.03	.96	.20	1.08	.51	.89	.00	1.02
Montenegro	.44	1.91	.35	.77	.09	.87	.00	.96
Serbia	5.30	.62*	1.94	1.28	.42	1.12	13.05	2.20***
Sierra Leone	.00	.99	.33	1.08	2.94	.81	3.59	.77
Suriname	.38	.81	6.21	1.81*	5.07	1.53*	.05	.95
Yemen	2.52	1.93	.27	.87	.00	.99	.05	1.05

Note. n/a = data not available. *OR* = Odds ratio for Cognitive disability x Country interaction. Odds ratios > 1.00 indicate that caregivers of children with cognitive disabilities are more likely than the grand mean across countries to report the use of the respective type of discipline. Odds ratios < 1.00 indicate that caregivers of children with cognitive disabilities are less likely than the grand mean across countries to report the use of the respective type of discipline. Results from models including interactions are given in the text.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 5

Logistic Regression Parameter Estimates for Associations Between Child Language Disability and Type of Caregiver Discipline

Country	Nonviolent Discipline		Psychological Aggression		Physical Violence		Severe Physical Violence		Need to Punish Physically	
	Wald χ^2	*OR*	*Wald* χ^2	*OR*	*Wald* χ^2	*OR*	*Wald* χ^2	*OR*	*Wald* χ^2	*OR*
Albania	1.30	1.36	8.61	1.90*	4.33	1.38*	5.93	1.75*	1.25	1.47
Belize	4.89	.54*	4.49	1.41*	.24	.92	3.77	1.81	.37	.89
Bosnia – Herzegovina	1.89	.72	.39	1.13	1.69	1.27	1.72	1.58	10.78	2.30***
Cameroon	.01	.99	.14	1.04	.10	.97	.50	1.07	.54	.93
Central African Republic	2.33	1.16	1.92	.90	3.93	.87*	1.48	.91	19.11	.69***
Djibouti	.66	1.11	6.19	1.28*	2.15	.87	.91	.89	11.66	.68***
Georgia	1.45	.87	19.01	.65***	14.58	.69***	31.79	.48***	8.63	.63**
Ghana	.12	1.05	1.15	1.19	3.92	1.32*	5.25	1.52*	5.20	1.35*
Iraq	1.12	.88	1.36	.91	.00	1.00	7.28	.80**	.06	1.02
Jamaica	3.11	.69	.77	1.16	.00	1.00	1.64	.67	3.60	.73
Laos	.07	1.05	.06	1.04	1.52	1.24	.01	1.02	2.45	1.40
Macedonia	.58	1.12	.02	1.01	.62	.93	.97	.88	9.58	1.68**
Montenegro	.37	.80	9.57	.49**	.10	.93	.13	1.16	1.06	.49
Serbia	.39	1.10	.57	1.09	1.85	.86	5.41	.64*	2.63	1.32
Sierra Leone	4.90	1.31*	1.52	.89	3.01	.87	5.27	.80*	.03	1.02
Suriname	3.02	1.56	.00	1.00	.44	1.08	1.73	1.27	.30	.92
Yemen	.86	1.25	4.44	.67*	.34	1.10	1.05	.88	1.32	.86

Note. OR = Odds ratio for Language disability x Country interaction. Odds ratios > 1.00 indicate that caregivers of children with language disabilities are more likely than the grand mean across countries to report the use of the respective type of discipline. Odds ratios < 1.00 indicate that caregivers of children with language disabilities are less likely than the grand mean across countries to report the use of the respective type of discipline. Results from models including interactions are given in the text.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 6

Logistic Regression Parameter Estimates for Associations Between Child Sensory Disability and Caregiver Belief in the Need to Punish Physically

Country	*Wald* χ^2	*OR*
Albania	9.85	4.81**
Belize	.30	.85
Bosnia-Herzegovina	1.48	1.69
Cameroon	.94	.86
Central African Republic	5.69	.70*
Djibouti	.02	.97
Georgia	7.07	.22**
Ghana	.30	1.12
Iraq	4.51	.69*
Jamaica	.44	.80
Laos	.49	.79
Macedonia	.01	.95
Montenegro	1.86	2.78
Serbia	.10	1.10
Sierra Leone	4.28	.68*
Suriname	.02	.97
Yemen	.60	1.18

Note. *OR* = Odds ratio for Sensory disability x Country interaction. Odds ratios > 1.00 indicate that caregivers of children with sensory disabilities are more likely than the grand mean across countries to report the use of the respective type of discipline. Odds ratios < 1.00 indicate that caregivers of children with cognitive disabilities are less likely than the grand mean across countries to report the use of the respective type of discipline. Results from models including interactions are given in the text.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 7

Logistic Regression Parameter Estimates for Associations Between Child Motor Disability and Type of Caregiver Discipline

Country	Severe Physical Violence		Need to Punish Physically	
	Wald χ^2	*OR*	*Wald* χ^2	*OR*
Albania	.10	.80	.03	.84
Belize	.03	1.08	.35	.84
Bosnia- Herzegovina	.04	.87	11.48	3.23***
Cameroon	2.80	.78	.95	.87
Central African Republic	4.27	.75*	1.54	.84
Djibouti	.00	1.01	4.09	.64*
Georgia	7.93	.43**	2.06	.62
Ghana	12.30	2.23***	.56	1.16
Iraq	3.56	1.91	4.74	.75*
Jamaica	1.83	1.91	.11	1.13
Laos	.00	.98	2.34	1.48
Macedonia	.67	1.25	.51	.73
Montenegro	n/a	n/a	n/a	n/a
Serbia	.16	1.21	2.64	1.99
Sierra Leone	1.23	1.21	2.33	1.29
Suriname	.30	.83	4.78	.53*
Yemen	.12	1.06	.14	1.07

Note. n/a = Cell size for Montenegro too small to calculate statistics. *OR* = Odds ratio for Motor disability x Country interaction. Odds ratios > 1.00 indicate that caregivers of children with motor disabilities are more likely than the grand mean across countries to report the use of the respective type of discipline. Odds ratios < 1.00 indicate that caregivers of children with motor disabilities are less likely than the grand mean across countries to report the use of the respective type of discipline. Results from models including interactions are given in the text.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 8

Correlations between the Human Development Index and Disability and Type of Discipline

Measure	HDI	Life Expectancy Index	Education Index	Literacy	Schooling	GDP Index
Disability Indices						
Cognitive composite	.16	.17	.15	.19	.02	.15
Language composite	−.43	−.43	−.45	−.37	−.53*	−.34
Sensory composite	−.24	−.17	−.33	−.39	−.13	−.18
Motor composite	−.50	−.46	−.57*	−.61**	−.38	−.42
Discipline Type						
Non-violent punishment	.22	.21	.08	.01	.28	.30
Psychological aggression	−.54*	-.58*	−.53*	−.60*	−.27	-.48
Physical punishment	−.53*	−.54*	−.55*	−.61**	−.33	−.45
Severe physical punishment	−.61*	−.62**	−.59*	−.55*	−.55*	−.56*
Need to punish	−.30	−.25	−.35	−.37	−.24	−.19

Note. N = 16–17 countries.

* $p < .05$;

** $p < .01$