Published in final edited form as:

Child Dev. 2012 ; 83(1): 46–61. doi:10.1111/j.1467-8624.2011.01673.x.

Cognitive and Socioemotional Caregiving in Developing Countries

Marc H. Bornstein and Diane L. Putnick

Child and Family Research, *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, National Institutes of Health, Public Health Service

Abstract

Enriching caregiving practices foster the course and outcome of child development. We studied two developmentally significant domains of positive caregiving -- cognitive and socioemotional -- in more than 127,000 families with under-5 year children from 28 developing countries. Mothers varied widely in cognitive and socioemotional caregiving and engaged in more socioemotional than cognitive activities. More than half of mothers played with their children and took them outside, but only a third or fewer read books and told stories to their children. The GDP of countries related to caregiving after controlling for life expectancy and education. The majority of mothers report that they do not leave their under-5s alone. Policy and intervention recommendations are elaborated.

Cognitive and Socioemotional Caregiving in Developing Countries

Parenting

Parenting is a job whose primary object of attention and action is the child—healthy human children do not and cannot grow up without competent caregivers. Beyond their children's survival, parents are fundamentally invested in their children's education and socialization broadly construed. Early childhood is the time when we first make sense of the physical world, forge our first social bonds, and first learn how to express and read basic human emotions. Normally, it is parents who lead children through these developmental firsts. Thus, caregiver cognitions and practices contribute in important ways to the course and outcome of child development (Bornstein, 2002, 2006; Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2001). Parents sometimes act on their intuitions about caregiving; for example, parents almost everywhere speak to their infants even though they know that babies cannot understand language. However, human beings also acquire knowledge of what it means to parent, and generational, social, and media images of caregiving, children, and family life play significant roles in helping people formulate their caregiving cognitions and guide their caregiving practices (Bornstein & Lansford, 2009). For these reasons, parents from different places vary in their caregiving.

Parenting and Society

More specifically, the parent's role is to educate and socialize children in ways that are appropriate to their stage of childhood and prepare children to adapt to a wide range of life roles and contexts they will occupy as they grow. All societies prescribe certain expected characteristics of their members and proscribe certain others if their citizens are to function

appropriately (Harkness & Super, 2002). Some prescriptions and proscriptions are essentially universal, such as the requirement for parents to nurture and protect their offspring. Others vary across groups: For example, parents in some societies play with their children and see children as interactive partners, whereas parents in other societies think that adult play with young children falls outside their job description (Bornstein, 2007).

Thus, caregiving from very early in life varies in terms of opinions about the significance of specific competencies for children's successful adjustment, the ages expected for children to reach developmental milestones, when and how to care for children, and so forth (Bornstein & Lansford, 2009). Indeed, socially constructed beliefs are so powerful that parents sometimes act on them more than on what their senses tell them about their own children (Ochs, 1988). An investigation of developmental timetables in Australian mothers of Australian and Lebanese descent revealed that national origins shaped mothers' expectations of children and their teaching behaviors more than gender, birth order, or socioeconomic class (Goodnow, Cashmore, Cotton, & Knight, 1984).

Caregiving has benefits as well as costs for offspring. Positive caregiving in terms of education and socialization promotes children's cognitive and social competencies and improves success in managing their lives. However, compromised caregiving jeopardizes optimal child development, especially among parents who lack the resources, knowledge, investment, or competencies to rear their young so as to augment individual and common good (Bugental & Grusec, 2006).

Societal variation in beliefs and behaviors is always impressive, whether observed among different ethnic groups in one nation or across nations in different parts of the world. A prevailing critique of developmental science is, however, that research has tended to describe childrearing and child development that accord with ideals mostly or exclusively appropriate to Western, educated, industrialized, rich, and developed societies (Bornstein, 1980, 2002; Henrich, Heine, & Norenzayan, 2010). Yet, locale pervasively influences how parents view parenting and how they parent (Bornstein & Lansford, 2009). The move to encompass a broader understanding of caregiving has given rise to a set of important questions (Bornstein, 2001), among them how does caregiving vary around the globe and especially in the developing world? This study addresses this question using the Multiple Indicator Cluster Survey (MICS), a nationally representative and internationally comparable household survey of developing countries in different regions of the world (UNICEF, 2006). The MICS provides a unique source of information to examine protective and risk factors for child health, nutrition, education, development, and well-being.

Two Domains of Positive Caregiving: Cognitive and Socioemotional

Caregiving is instantiated in cognitions and practices. Caregiving is also multidimensional, modular, and specific (see Bornstein, 2006). In this investigation, we adopted an *etic* approach (Jahoda, 1977) to the cross-national study of child caregiving. We focused on constituents of cognitive and socioemotional parenting because they are prominent, active, and enriching caregiving responsibilities that would also be expected to vary globally. Beginning in infancy, children learn about the physical world through cognitive interactions, and children are motivated to connect with others through socioemotional interactions. Many investigators have operationally distinguished cognitive and socioemotional caregiving domains (e.g., Bornstein, 2006). These two broad types of caregiving are relatively independent of one another and developmentally significant because they relate to children's communicative, mental, emotional, and social competencies (National Research Council, 2000; Walker et al., 2007). For example, mother-child cognitive interactions predict mental and verbal development in children (e.g., Bornstein, 1985; Olson, Bates, & Bayles, 1984), and mothers who are more socioemotionally sensitive to their children

promote children's interpersonal competencies (e.g., De Wolff & van IJzendoorn, 1997). These two modalities not only lay the foundation for future development, they are universal (in the sense that they are common), even if they vary in form and the degree to which they are shaped by experience and influenced by culture (Greenfield, Suzuki, & Rothstein-Fisch, 2006; Morelli & Rothbaum, 2007).

Cognitive caregiving—Generally, cognitive caregiving consists of the variety of strategies parents employ in stimulating children to engage and understand the environment by describing and demonstrating and providing children with opportunities to learn. Education is a vital generic caregiving function (e.g., Papoušek & Bornstein, 1992). Few studies have examined international variation in cognitive caregiving practices with young children, especially from developing countries. Experiments and interventions that have (e.g., Behrman, Cheng, & Todd, 2004; Kagitcibasi, Sunar, & Bekman, 2001; Magnuson & Waldfogel, 2005; Magwaza & Edwards, 1991; Psacharopoulos & Parrinos, 1994) attest to higher cognitive functioning and lasting effects of early cognitive interventions (Victora, Victora, & Barros, 1990) with some gains enduring into adulthood (Mehansho, 2006; Walker, Chang, Powell, & Grantham-McGregor, 2005). Walker et al. (2007) targeted cognitive caregiving stimulation as one of four key factors in need of urgent intervention in developing countries.

The MICS asks about mothers' specific cognitive caregiving practices in terms of reading, telling stories, and naming, counting, and drawing with their young children. Consider caregivers' reading to children. Joint book reading exposes children to vocabulary and concepts that are not commonly used in everyday conversations (DeTemple & Snow, 2003; Hoff-Ginsberg, 1991); for example, mean length of utterance and responsive replies to children are higher during book reading compared to play and mealtimes (Crain-Thoreson, Dahlin, & Powell, 2001; Lewis & Gregory, 1987; Sorsby & Martlew, 1991). However, reading to children is widely variable within and between cultures (e.g., DeBaryshe, 1993; Payne, Whitehurst, & Angell, 1994).

Closely related to reading are the other cognitively enriching activities asked about in the MICS. The oral tradition of storytelling is among the oldest means of communicating cultural ideas. Storytelling is in part a linguistic and educative activity (Bruner, 1986; Egan, 1995, 1999), and storytelling constitutes a prominent pastime in most cultures in the developing world. Wells (1986) documented links between storytelling and school success and found that literacy development relied on consistent exposure to storytelling and narrative discourse in the home. Like reading, storytelling promotes a range of language and literacy skills in children from complexity of vocabulary and sentence structure to imagination and originality in narrative ability.

Parental speech directed to young children is crucial for early child cognitive development for many reasons. Language is among the most immediate and relevant means parents have to convey both information and affect to children. Speech directed to children has been thoroughly investigated, and associations between parent speech and child language, social, and emotional development abound in the literature (Blount, 1990; Bornstein et al., 1992; Garton, 1992; Stern, 1985; Thiessen, Hill, & Saffran, 2005). Verbal engagement between parents and young children is one of the strongest influences on subsequent language development (Hart & Risely, 1995), and information-salient speech (especially tutorial and didactic features like naming) has positive predictive associations with child language acquisition (Longobardi, 1992). Young children's numerical experiences provide a foundation for the formulation of standards for early childhood education (Clements, Sarama, & DiBiase, 2004). The mathematics knowledge that children acquire before they begin formal schooling has manifest ramifications for school performance and later career

options (National Mathematics Advisory Panel, 2008). Finally, although the arts often are viewed as a matter of “feeling” or “inspiration,” they draw on a wide range of cognitive abilities and skills (Gardner, 1980, 2004; Goodnow, 1977). For example, drawing involves perceptive observations of the visual-spatial world, sensitivity to multiple aspects of spatial displays, and capacity to represent information graphically.

Socioemotional caregiving—Generally, socioemotional caregiving includes activities that engage children in interpersonal interactions. Through openness, listening, and emotional closeness, parents make their children feel valued, accepted, and approved of. Socioemotional caregiving grounds interpersonal interaction and communication, supports the regulation of affect and emotions, and models children’s social relationships with others (Emde, 1992; Stern, 1985).

The MICS asks specifically about parents’ socioemotional caregiving in terms of playing with children, singing songs, and taking children with them out of doors. Adults influence the development of child play in many ways: by provisioning the play environment, modeling, engaging children actively and symbolically, responding to children’s overtures, and scaffolding more advanced play. When children play with more mature caregivers, they are furnished with models, stimulants, materials, and opportunities to perform at levels above those they may achieve on their own (Vygotsky, 1978). During such play, children are also guided in the re-creation, expression, and elaboration of symbolic themes (Tamis-LeMonda, Katz, & Bornstein, 2002). Slaughter and Dombrowski (1989, p. 90) opined on anthropological evidence that “children’s social and pretend play appear to be biologically based, sustained as an evolutionary contribution to human psychological growth and development,” but they also observed that social and cultural “factors regulate the amount and type of expression of ... play forms.” In some places, as we observed earlier, caregivers eschew play with children, reportedly attach no particular value to play, and do not view play as especially significant in children’s development (Farver, 1993). In other places, however, caregivers consider play with children to be a central element of the parental role and take an active part in child play, although they may emphasize different aspects (Bornstein, Haynes, Pascual, Painter, & Galperin, 1999; Haight, Wang, Fung, Williams, & Mintz, 1999).

Like play, children experience music in a variety of ways: through singing, performing on instruments, listening to performances, and dancing. Singing conveys information and emotion at multiple levels from the topics and words of the song through the rhythm and melody of the music to perquisite emotional connection between partners. Singing is an enjoyable and important social activity throughout the developing world (Huron, 2003; Trehub & Trainor, 1998). Singing does not require literacy and appears to be effective in sustaining child attention (Nakata & Trehub, 2004). With children’s attention captured, caregivers can use singing to convey emotional information, and singing allows adults and children to synchronize their emotional states, affording an important social regulatory function (Bergeson & Trehub, 1999; Dissanayake, 2000; Nakata & Trehub, 2004; Trehub & Trainor, 1998). Singing also modulates arousal reactions considered essential for affect regulation (Thompson, 1994). Maternal sensitivity and child affect regulation play important roles in the development of secure attachment (de l’Etoile, 2006), and singing consolidates this vital feature of the mother–child relationship (Standley & Whipple, 2003).

The MICS also asks about mothers taking children out of doors versus leaving children alone. Taking young children outside the house or their common enclosure facilitates parent and child sharing sights, sounds, and other events that deepen their mutual relationship. Reciprocally, leaving very young children alone abrogates caregiving responsibilities and communicates a careless attitude that is demeaning and can be frightening to young

children. Leaving young children alone (or in the care of minors) is a risk factor for harm and injury, accounting for approximately 40% of deaths in the developing world (UNICEF, 2001). For example, the Young Lives Study in Ethiopia, Peru, Vietnam, and India reported that regularly leaving the child alone or with other young children is associated with increased odds of falls and injury (<http://www.younglives.org.uk/>).

Parents' activities are directed to meet the biological, physical, cognitive, and socioemotional requirements of children. Caregiving plays an influential part in early child development because it regulates the majority of child-environment interactions and helps to shape child adaptation (Bornstein, 2006). Many studies evidence short- and long-term influences of caregiving practices on child development. By reading, telling stories, and engaging in naming, counting, and drawing with their children, parents ready their children with basic cognitive skills and set the stage for their entry into the worlds of literature, school, and the wider culture. By playing with their children, singing songs, and taking them out of doors, parents instill in their children a foundation of socioemotional competencies and confidence to engage the wider social world.

Country-Level Factors and Caregiving

When they reviewed evidence linking compromised development with modifiable biological and psychosocial risks encountered by children from birth to 5 years of age, Kuklina, Ramakrishnan, Stein, Barnhart, and Martorell (2004) identified three aspects of caregiving consistently related to young children's cognitive and socioemotional competencies: cognitive stimulation, sensitivity and responsiveness to the child, and emotional warmth toward the child. These effects were all susceptible to contextual influences. Thus, challenging even in optimal circumstances, successful caregiving is extraordinarily difficult when family resources are inadequate. Edin and Lein (1997) described poor mothers' constant struggles to provide food, housing, and other necessities as well as to keep their children out of danger. Parents under stress generally have difficulty mobilizing effective levels of caregiving (Repetti & Wood, 1997). Compared to middle-SES parents, low-SES parents are less likely to provide children with stimulating learning experiences, such as reading (e.g., Feitelson & Goldstein, 1986) or appropriate play materials in the home (Gottfried, 1984). Lower-SES mothers converse with their children less, and in systematically less sophisticated ways, than middle-SES mothers do with their children (Hart & Risley, 1995; Hoff, Laursen, & Tardif, 2002). In McLoyd's (1998) analysis, the stresses on poor parents stemming from the day-to-day struggle to find resources, and the stresses of trying to cope with living in deteriorated dangerous circumstances, undermine caregiving skills and contribute to disorganized family life.

Most established relations between country-level factors and caregiving are based on North American and European samples. Our understanding of child development is limited by the existing body of research, and it is unclear whether relations that obtain in industrialized nations apply to developing ones.

To explore country-level correlates of caregiving, we therefore evaluated relations of mothers' cognitive and socioemotional caregiving to the Human Development Index (HDI) and its three constituent indices (life expectancy, education, gross domestic product). The United Nations adopted the HDI as a way of representing the general standard of living present in a country. Most composite indices reflect a country's level of wealth rather than convey an array of conditions available to support health and adaptive functioning in the population. Although the HDI has shortcomings (Bornstein et al., 2012), it stands as a reasonable proxy for levels of support generally available for promoting human development. As such, it pertains in meaningful ways to caregiving.

With these considerations in mind, the present study documents two prominent domains of caregiving and their individual constituents in more than 125,000 families in 28 developing countries around the world. This work was guided by two questions. First, what is the prevalence of each domain of caregiving in each country, and how do countries compare with respect to the prevalence of each domain? Second, how is each caregiving domain related to country-level indicators of the nations' life expectancy, educational achievement, and economic well-being?

Method

Participants

We used data from the MICS3, which was conducted in 2005–2007, to evaluate cognitive and socioemotional caregiving in 127,347 families in 28 countries (Table 1). All but 1 (the Ukraine) included questions about caregiving activities in their MICS3, and all but 5 (Bangladesh, Belarus, Guinea Bissau, Iraq, and Somalia) included optional questions about leaving the child alone or in the care of another under-10 child. In Tables and Figures, countries are ordered by their HDI score unless otherwise noted. Across countries, the average number of children under 5 in the family was 1.30 ($SD = .53$; range = 1–6); for this study, we randomly selected a target child under 5 from families with more than one child under 5. The randomly selected child under 5 averaged 29.10 months of age ($SD = 16.83$; range = 0–59), and 48.5% were female. Mothers averaged 29.37 years ($SD = 8.13$, range = 15–95), and the highest level of education mothers had completed was none or preschool for 29.5%, primary school for 27.5%, secondary school for 36.0%, and higher for 6.9%.

Procedures

MICS3—The MICS3 has three questionnaires: a Household Questionnaire, a Questionnaire for Individual Women (15 to 49 years old), and a Questionnaire for Children Under Five (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. Each country was responsible for designing and selecting a sample, usually a probability sample in all stages of selection, national in coverage, and designed so that its field implementation could be easily and faithfully carried out with minimum opportunity for deviation from a standard design. Multiple steps were taken to ensure data reliability. MICS3 respondents were normally the mother or primary caregiver of the child. This study included only the responses about what mothers did with their children in past 3 days. Six items were each coded as 0 = *mother did not read books/tell stories/name,count,draw/play with the child/sing songs/take outside*, 1 = *mother read books/told stories/named, counted, drew/played with the child/sang songs/took outside*. Two questions about leaving children alone in the last week were recoded into a single question with values 0 = *child was left alone or in care of another child*, 1 = *child was not left alone or in care of another child*.

Caregiving scales—Because 5 countries did not ask questions about leaving children alone, we investigated whether the remaining 6 items formed cohesive scales of cognitive and socioemotional caregiving. Reading books, telling stories, and naming, counting, and drawing were the cognitive caregiving items, and playing with the child, singing songs, and taking the child outside were the socioemotional caregiving items. Kuder-Richardson 20 reliabilities were satisfactory (DeVellis, 2003) at .68 for the cognitive caregiving scale and .64 for the socioemotional caregiving scale. Therefore, we summed the items to create two scales, which were moderately correlated, $r(123,983) = .47, p < .001$.

Human Development Index—The Human Development Index (HDI; UNDP, n.d.) was developed by the United Nations as a measure of the social and economic status of a country. It serves as a proxy for standard of living and is associated with the general level of purchasing power present within a country. The HDI ranges from 0 to 1 and has three major indices: life expectancy, education (comprised of the adult literacy rate and combined gross enrollment in primary, secondary, and tertiary school), and gross domestic product (GDP). Countries with an HDI of .80 or greater are considered high, .50 to .79 medium, and .00 to .49 low. The countries in our study draw from high, medium, and low ranges of the HDI. (Additional information about the HDI is available in Bornstein et al., 2012.)

Results

Following the analytic plan in Bornstein et al. (2012), the caregiving scales and the 7 individual items were explored with analysis of covariance (ANCOVA) for the scale and logistic regression for the items. For logistic regression models, we report Cox and Snell's and Nagelkerke's pseudo- R^2 values as estimates of the percentages of variance accounted for by country. Caregiving scales and items were then correlated with the country Human Development Index and its 3 indices.

Covariates

We considered child age, child gender, family crowding, and number of children under 5 in the family as potential covariates. Child age and number of children under 5 in the family varied across countries, $F(27, 127,319) = 52.94, p < .001, \eta^2_p = .01$, and $F(27, 127,319) = 359.47, p < .001, \eta^2_p = .07$, respectively, and were significantly associated with the caregiving items, $r_s = -.11$ to $.26, p_s < .001$, for child age, and $r_s = -.03$ to $-.10, p_s < .001$, for the number of children under 5. Household crowding and the number of children under 5 in the family showed the same patterns of relations with the dependent variables; therefore, we chose to use number of children under 5 as a proxy for household crowding. Child gender was not used as a covariate or factor because there were very similar percentages of girls and boys in each country and across countries, $\chi^2(27, N=127,347) = 60.11, p < .001, R^2 = .000-.001$, Odds ratios = .90 to 1.10, and child gender was unrelated to the caregiving scales and items, $r_s = -.01$ to $.01, ns$ to $p = .01$.

Configuration of Total Caregiving Activities

Ideally, mothers would engage in all caregiving activities with their children. Figure 1 shows the percentages of mothers in each country who engaged in all 6 caregiving activities (we excluded not leaving the child because of missing countries) as well as the percentages of mothers who engaged in none of the activities by country. In general, countries with a high percentage of mothers who engaged in all of the activities had a low percentage of mothers who engaged in none, $r(25) = -.58, p < .01$. However, in some countries there were relatively high percentages of mothers in both groups (e.g., Thailand), and in others there were relatively low percentages of mothers in both groups (e.g., Sierra Leone).

Cognitive Caregiving: Deviation from the Grand Mean

The caregiving scales and the 7 individual items were explored via ANCOVA for the scale and logistic regression for the items, with country as a predictor and child age and number of children under 5 in the family as covariates. For the caregiving scales, we calculated standardized effect sizes by dividing the contrast estimate by the standard deviation of the grand mean (similar to Cohen's d ; Cohen, 1988). For the individual caregiving activities, we present odds ratios. Tables displaying the individual country results for each caregiving behavior are available online at [URL].

Cognitive caregiving scale—Mothers in different countries varied widely in the number of cognitive caregiving activities they engaged in (Table 1). The overall effect of country was significant, $F(26, 124,129) = 994.36, p < .001, \eta^2_p = .17$. Mothers in all of the high-HDI countries engaged in more cognitive caregiving activities than the grand mean of 1.16, and mothers in all of the low-HDI countries engaged in fewer cognitive caregiving activities than the grand mean. Countries in the medium-HDI and HDI-N/A groups were split above and below the grand mean (Figure 2).

Read books—Overall, only 25% of mothers said they had read to their children in the last 3 days, but countries varied widely. All countries differed significantly from the average effect of country. Country explained between 16.9% (Cox & Snell R^2) and 24.9% (Nagelkerke R^2) of the variance in book reading. Mothers in all high-HDI countries were at least twice as likely to read to their children than the average effect (ORs = 2.57–19.31); mothers in medium-HDI countries varied in whether or not they were more or less likely to read to the child than the average effect (ORs = .22–6.97); mothers in all low-HDI countries were more than 4 times less likely to read to their children than the average effect (ORs = .06–.18); mothers in the HDI N/A countries were also less likely to read to the child than the average effect (ORs = .23–.58).

Tell stories—Across all countries, 35% of mothers said they had told their children stories in the past 3 days. All countries differed significantly from the average effect of country. Country explained between 12.8% (Cox & Snell R^2) and 17.7% (Nagelkerke R^2) of the variance in telling stories. Mothers in all countries with high HDI were more likely to have told their children stories than the average effect (ORs = 1.81–9.55); mothers in all countries with low HDI were more than 2 times less likely to have told their children stories than the average effect (ORs = .05–.44); mothers in countries in the medium-HDI (ORs = .30–2.80) and HDI-N/A groups (ORs = .65–2.12) varied in whether they were more or less likely to have told their children stories.

Name, count, draw—Fewer than half (47%) of mothers across countries said they spent time with their children naming, counting, or drawing in the past 3 days. All countries differed significantly from the average effect of country. Country explained between 10.1% (Cox & Snell R^2) and 13.4% (Nagelkerke R^2) of the variance in naming, counting, or drawing. Each HDI group contained countries in which mothers were more and less likely than the average effect to have named, counted, or drawn with their children: ORs = .59–5.12 for high-, ORs = .27–3.07 for medium-, ORs = .24–1.33 for low-, and ORs = 1.23–7.39 for N/A-HDI groups.

Socioemotional Caregiving: Deviation from the Grand Mean

Socioemotional caregiving scale—Mothers in different countries varied in their number of socioemotional caregiving activities (Table 1). The overall effect of country was significant, $F(26, 124,273) = 670.03, p < .001, \eta^2_p = .12$. Each HDI group contained countries in which mothers were more and less likely than average to have engaged in socioemotional caregiving (Figure 2).

Play—Across all countries, 60% of mothers said they had played with their children under 5 in the past 3 days. However, the range was large. Only Bangladesh and Somalia did not differ from the average effect of country. Country explained between 9.8% (Cox & Snell R^2) and 13.3% (Nagelkerke R^2) of the variance in play. Each HDI group contained countries in which mothers were more and less likely than the average effect to have played with their children: ORs = .79–5.01 for high-, ORs = .37–2.99 for medium-, ORs = .24–3.51 for low-, and ORs = .72–1.06 for N/A-HDI groups.

Sing songs—On average, over 50% of mothers said they had sung songs to their children, and at least a quarter of mothers in all countries said they sang to their children in the past 3 days. All countries but Macedonia and Kyrgyzstan differed from the average effect of country. Country explained between 9.8% (Cox & Snell R^2) and 13.1% (Nagelkerke R^2) of the variance in singing songs. With the exception of Macedonia, mothers in the high-HDI countries were more likely to have sung to their children than the average effect (ORs = 1.03–5.17); mothers in the medium- (ORs = .34–1.87), low- (ORs = .22–1.87), and N/A-HDI countries (ORs = .37–1.49) varied in whether they were more or less likely to have sung to their children than the average effect.

Take outside—Overall, 64% of mothers said they had taken their children outside the home, compound, yard, or enclosure in the past 3 days, which also varied greatly across countries. Albania, Kazakhstan, Ghana, Mongolia, and Togo did not differ from the average effect of country. Country explained between 12.2% (Cox & Snell R^2) and 16.7% (Nagelkerke R^2) of the variance in taking children outside. Each HDI group contained countries in which mothers were more and less likely than the average effect to have taken their children outside: ORs = .87–3.83 for high-, ORs = .40–2.34 for medium-, ORs = .05–1.53 for low-, and ORs = .39–.60 for N/A-HDI groups.

Not leave alone—Across the 23 developing countries with data, the percentage of mothers who said they had not left their child under 5 alone or with another child under 10 in the past week averaged 79% but varied greatly. All countries (except Albania) differed from the average effect of country. Country explained between 11.7% (Cox & Snell R^2) and 18.2% (Nagelkerke R^2) of the variance in not leaving the child alone. With the exception of Albania, mothers in the high-HDI countries were less likely to have left their children than the average effect of country (ORs = 1.07–3.10); mothers in the medium-HDI countries varied in whether they were more or less likely to have left their children than the average effect (ORs = .31–5.09); mothers in the low-HDI countries were all more likely than the average effect to have left their children alone (ORs = .12–.76).

Summary

More than half of the mothers across all countries played with their under-5 children and took them outside, but only a third or fewer mothers read books and told stories to their children. Mothers engaged in more socioemotional than cognitive caregiving overall, $t(123,984) = 213.24$, $p < .001$, $d = 1.32$, and in every country, $t(584-26,135) = 2.67-106.82$, $ps < .05-.001$, $ds = .04-1.93$. Countries with lower HDI scores had larger discrepancies between cognitive and socioemotional caregiving, $r(23) = -.65$, $p < .001$ (Figure 2).

Caregiving Relations with the Human Development Index

For each country, we computed the average of the caregiving scales and mothers' responses to each of the 7 items, creating the average number of cognitive and socioemotional caregiving activities and overall percentages of mothers who performed each activity in each country. This procedure reduced the number of "observations" to 23–27 countries instead of approximately 127,000 families across all countries. Because the participants were averaged across countries, the power for the following tests is low, and they should be interpreted accordingly. Country averages were then correlated with the country HDI and its 3 constituent indices (life expectancy, education, and GDP), controlling for average child age and number of children under 5 (Table 2). The HDI is multi-dimensional and, although life expectancy, education, and GDP are related to one another, it is possible that they relate in different ways to caregiving. Controlling the other 2 constituent indices (of the HDI)

allowed us to remove the shared variance among indices and obtain more precise estimates of the effects of the HDI index in question.

Cognitive caregiving—The HDI, schooling, and GDP were significantly correlated with the cognitive caregiving scale. The correlation between schooling and cognitive caregiving attenuated to nonsignificance when controlling life expectancy and GDP. The correlation between GDP and cognitive caregiving remained significant when controlling for life expectancy and education. The HDI, all 3 indices, and schooling were significantly correlated with reading books in the past 3 days; however, when controlling for the other two indices, only GDP remained significantly associated with reading books, and education, schooling, and life expectancy were unrelated to book reading when the other 2 indices of the HDI were controlled. The HDI, education, schooling, and GDP were significantly correlated with telling stories; when controlling for the other 2 HDI indices, only GDP remained significant. Only GDP was associated with naming, counting, or drawing with children; when controlling for the other 2 HDI indices, GDP remained significant.

Socioemotional caregiving—Only GDP was associated with the socioemotional caregiving scale and its indices, singing songs and taking children outside; when controlling for the other 2 HDI indices, GDP remained significant. No index of the HDI was related to playing with children.

Not leave alone—The HDI, life expectancy, education, literacy, and schooling were all associated with not leaving children alone. After controlling the other 2 constituent indices of the HDI, only schooling remained significant.

Summary—With the exception of playing with the child and not leaving the child alone, all caregiving items were uniquely related with GDP, but no other index of the HDI. Not leaving the child alone was uniquely related to schooling. Playing with the child was unrelated to the HDI or any of its constituent indices.

Discussion

Children under 5 have limited agentic capacities, and parents are responsible for their developmentally important cognitive and socioemotional caregiving. We studied these caregiving domains in mothers in over 127,000 families in 28 underresearched developing countries.

Caregiving in Developing Countries

Major country differences emerged in both domains of positive child caregiving interactions relative to the grand means of countries. Notably, mothers from countries high on the Human Development Index tended to score higher than the grand mean, and mothers from countries low on the HDI tended to score lower than the grand mean. On all items, however, some medium-HDI countries out-performed some high-HDI countries. In addition, among developing countries included in the MICS3, mothers from Sierra Leone performed well above what their country-level HDI would predict on most items. Considering the prevalences of individual caregiving activities, the range varied from 2–3% to 80–90%. Overall, caregivers in every country do more socioemotional than cognitive parenting, and not leaving a child alone and taking a child out were the most prevalent forms of caregiving, followed by playing, singing, and naming, and finally telling stories and reading books. Country rankings were similar for cognitive and socioemotional caregiving, but somewhat larger discrepancies between cognitive and socioemotional caregiving emerged in low-HDI countries. Although the MICS is not administered in developed countries, similar cognitive

and socioemotional caregiving questions have been asked in the National Household Education Survey, a population-based instrument administered every 2 years from 1991 to 2001, and in the Early Head Start Research and Evaluation Project (McKey, Tarullo, & Doan, 1999). As a benchmark, a national survey in the United States (Civitas Initiative, Zero to Three, & Brio Corporation, 2000) found that nearly all children in the zero to 6 age range have been read to or read (95%), listen to music (97%), and play outside in a typical day (83%).

Between-country differences notwithstanding, within-country variation was substantial for most reported caregiving practices (see the *SDs* in Table 1). Family patterns vary substantially both within and across samples. Mothers vary in terms of whether they engage in various caregiving activities, even when they come from the same nation. As we found here in every country, Teale (1986) observed that book reading to children is unevenly distributed even across low-income families in San Diego, CA; book reading occurred 4 or 5 times a week in some homes, but only about 5 times in a year in others. This is not to say that there are not also systematic cross-national differences in caregiving; as we have seen, there are. This study focused on variation across rather than within countries.

Country-Level Factors and Caregiving

What accounts for country-level differences in caregiving in the developing world? To begin to address this question, we explored the HDI. Country-level HDI factors related to many caregiving activities. Despite considerable diversity among parents in low-SES families, research points to developmental disparities based on sociodemographic risk status even within the first 2 years of life (Brooks-Gunn & Duncan, 1997; Parks & Bradley, 1991; Rostad, Nyberg, & Sivberg, 2008). For example, Halle et al. (2009) identified significant disparities in cognitive and socioemotional development as early as 9 months of age in a nationally representative U.S. sample based on low income and low maternal education. Here, we found that among life expectancy, education, and GDP, GDP was most consistently and uniquely associated with cognitive and socioemotional caregiving.

Limitations and Future Directions

This study has limitations that raise additional questions about caregiving in developing countries. The MICS relies on self-reports of specific caregiving activities, surveyed at only one point in time. Consider just these three parameters of the study. First, observations of actual practices would constitute a stronger data base than reports. Second, the MICS uses a limited number of specific and presumably universal (*etic*) items to quantify caregiving. Yet, caregivers in different countries may engage in other country-specific (*emic*) forms of caregiving that adequately substitute for specific MICS items. Fully understanding caregiving cognitions and practices and their meaning requires situating them in context (Bornstein, 1995). The same caregiving cognition or practice can have the same or different meanings in different contexts, just as different caregiving cognitions or practices can have the same or different meanings in different contexts. European American parents use questions during joint book reading as a way of encouraging their children's cognitive development (van Kleeck, 2003), where Tongan dyads rely on a recitation style (McNaughton, 1995). In some places, parents could display socioemotional involvement predominately through singing to a child, whereas in others parents could demonstrate affection physically. These different displays serve the same function of making children feel loved, valued, and approved of by parents in their respective societies. Moreover, next to quantitative aspects of caregiving qualitative aspects matter a great deal. Consider play. Two mothers could equate in their frequencies of play, yet one mother might solicit sequences of high-level play that challenge and advance her child's play skills, whereas another mother might solicit low-level play that does not advance her child's skills. In

addition to considering the form and level of caregiving, it is critical to consider the timing and content of caregiving with respect to children's ongoing activities.

Moreover, the MICS provides only a snapshot of parent-child interaction, when parenting, child development, and parent-child relationships all develop dynamically. Thinking about parent-child relationships from a MICS point of view highlights parents as agents of child socialization; to a considerable degree, however, caregiving is a two-way street. Parent and child activities are characterized by intricate patterns of sensitive mutual understandings and unfolding synchronous transactions (Bornstein, 2006, 2009; Stern, 1985; Trevarthen & Aitken, 2001). Future research in developing countries needs to take child effects into consideration. The MICS also asks about the parenting activities of one principal caregiver, usually mother. In many societies, children spend large amounts of time with caregivers other than their mothers, all of whom contribute to the caregiving environment of the child (Clarke-Stewart & Allthusen, 2002; Smith & Drew, 2002; Zukow-Goldring, 2002).

We parsed MICS caregiving questions into cognitive and socioemotional domains. Parenting is a multidimensional endeavor, but parenting also bundles socioemotional and cognitive indices. For example, book reading, a verbal communication whose goal seems manifestly cognitive in the sense of promoting literacy, commonly transpires in a socioemotional context of close mother-child contact and positive emotion. Singing attracts children and creates opportunities for meaningful social interaction as well as cognitive communication with caregivers (Trainor, 1996). That said, the cognitive and socioemotional scales shared only 22% of their variance.

In the standard model, variation in childrearing philosophies, values, and beliefs mediates differences in childrearing practices vis-à-vis local and larger physical and social environments (e.g., Bornstein & Lansford, 2009; Harkness et al., 2007). In consequence, parents in different societies may structure and distribute their caregiving differently. Why do parents in different countries behave the way they do? How is adult caregiving shaped? Parenting is multiply determined by a plethora of possible sources of influence in the individual (e.g., personality, education), in the home (e.g., family members), as well as outside the home (e.g., culture, media). Future work might explore how locale moderates sources of caregivers' cognitions and practices.

Implications for Policy

Cognitive and socioemotional caregiving varied among developing nation states. Some countries were low. As the "Matthew effect" asserts, discrepancies that are already present early in development will tend to increase over time (Espy, Molfese, & DiLalla, 2001; Feinstein, 2003; Liddell & Rae, 2001; Walker & Grantham-McGregor, 1990). Reading books to children, a universally agreed-on significant parenting activity, was the form of caregiving performed least among MICS3 developing nations. A positive source of evidence on the effects of reading experience comes from the Reach Out and Read (ROR) intervention underway nationwide in the United States. Children attending clinics serving low-SES families receive a new, age-appropriate, high-quality picture book at each of their well-child visits from 5 months to 5 years. Pediatricians instruct parents on the benefits of early reading and give parents a pamphlet on age-appropriate book reading activities and reading techniques. High, LaGasse, Becker, Ahlgren, and Gardner (2000) randomly assigned parents to receive the ROR intervention or their usual well-child checkups between infancy and toddlerhood. Parents in the intervention reported a higher frequency of reading by the time their children were toddlers compared to controls. They also rated their toddlers' expressive and receptive vocabulary as higher, with effects obtained completely mediated by parents' reported reading frequency.

Cognitive and socioemotional caregiving matter. In developed as well as developing countries, long-term benefits from high-quality early intervention programs to improve parenting include better health outcomes for children, higher verbal and mathematics achievement, greater success at school, improved employment and earnings, less welfare dependency, and lower crime rates (Adair, 1999; Deaton, 2001; UNESCO, 2005). In Jamaica, for example, caregiving practices improved among parents who were actively involved in a home-visiting program (WHO Multicentre Growth Reference Study Group, 2006).

Conclusions

Parents throughout the world are the first and primary individuals entrusted with child caring and the central task of rearing children to become competent members of their society. From a parent's point of view, child survival is achieved through protection and provision of nourishment, but child thriving is attained through cognitive and socioemotional caregiving that involve sharing information through education and inculcating interpersonal competence through socialization. Parents who engage their children in the cognitive and socioemotional caregiving activities we have described also gain access to their children's learning potential, emotional competencies, and social style, and they learn about their children's proclivities, capabilities, and limits. Such knowledge can lead toward more appropriate and beneficial interactions with the salutary result of enhanced child development and well-being.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

This research was supported by the Intramural Research Program of the NIH, NICHD.

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Figure 1.
Percentages of mothers in developing countries who did all (■) and no (□) caregiving activities with their under-5 child (ordered by the percentage of mothers who engaged in all caregiving activities).

Figure 2.

Average number of cognitive (■) and socioemotional (□) caregiving activities of mothers in developing countries in the past 3 days, arranged by high, medium, and low national Human Development Index.

Table 1
Descriptive Statistics and Deviation Contrast Effect Sizes for Two Domains of Caregiving

	n	Cognitive			Socioemotional		
		M	SD	ES	M	SD	ES
High HDI							
Montenegro	814	2.23	1.09	1.79	2.65	.76	1.68
Serbia	2868	1.77	1.23	1.04	2.35	.99	1.02
Belarus	2810	2.17	1.04	1.71	2.57	.72	1.47
Macedonia	3225	1.76	.98	.95	1.80	1.12	−.09
Albania	944	1.44	1.26	.38	2.15	1.00	.60
Kazakhstan	3536	1.54	1.18	.66	2.04	1.05	.35
Bosnia and Herzegovina	2704	1.78	1.10	1.01	2.41	.80	1.16
Medium HDI							
Thailand	8312	1.53	1.29	.61	2.06	1.21	.39
Ukraine	2748	--	--	--	--	--	--
Belize	585	1.88	1.20	1.28	2.36	1.02	1.05
Jamaica	1168	1.91	1.20	1.28	2.38	1.00	1.08
Syrian Arab Republic	7553	1.01	1.16	−.23	1.99	1.02	.28
Mongolia	3040	.78	1.00	−.69	1.62	1.13	−.54
Viet Nam	2302	1.01	1.02	−.31	1.70	1.09	−.36
Uzbekistan	3876	1.20	1.10	.06	1.77	1.09	−.20
Kyrgyzstan	2353	1.25	1.06	.12	1.58	1.07	−.61
Tajikistan	3136	.76	.89	−.72	1.15	1.06	−1.50
Yemen	2409	.39	.73	−1.27	1.29	1.11	−1.20
Ghana	2624	.45	.73	−1.25	1.96	1.14	.19
Bangladesh	26206	1.25	1.15	.08	1.77	.98	−.21
Low HDI							
Togo	3151	.42	.64	−1.27	1.92	1.08	.10
Gambia	4886	.41	.68	−1.23	1.12	1.11	−1.62
Côte d'Ivoire	6541	.52	.64	−1.08	1.95	1.12	.16
Guinea-Bissau	4485	.25	.48	−1.56	.88	.94	−2.12
Central African Republic	6565	.60	.74	−.89	1.32	1.19	−1.17

	<i>n</i>	Cognitive			Socioemotional		
		<i>M</i>	<i>SD</i>	<i>ES</i>	<i>M</i>	<i>SD</i>	<i>ES</i>
Sierra Leone	4066	.80	.74	-.62	2.41	.93	1.14
HDI N/A							
Iraq	10587	.91	.92	-.38	1.34	1.07	-1.09
Somalia	3853	1.41	.74	.51	1.86	1.12	.04, <i>ns</i>
TOTAL	127347	1.16	.59	NA	1.87	.47	NA

Note. All countries significantly differed from the grand mean at $p < .05$, except where noted. Effect sizes (*ES*) are based on models with covariates. --= data were not collected. NA = Not applicable.

Table 2

Correlations of the Human Development Index with Two Domains of Caregiving

	Cognitive Caregiving				Socioemotional Caregiving			
	Scale	Read Books	Tell Stories	Name, Count, Draw	Scale	Play	Sing Songs	Take Outside
HDI	.56**	.64***	.59**	.33	.18	.03	.29	.17
Life Expectancy Index	.24	.46*/-.11	.33	-.16	.04	-.07	-.02	.18
Education Index	.38	.43*/-.10	.41*/.04	.24	-.06	-.23	.25	-.14
Literacy	.28	.32	.33	.16	-.17	-.31	.19	-.26
Schooling	.56**/.24	.60**/.12	.54**/.17	.38	.19	-.00	.36	.18
GDP Index	.73***/.76***	.79***/.71***	.69***/.63**	.51*/.80***	.46*/.69***	.35	.42*/.53*	.44*/.63**
								.39

Note. $N = 23$ – 27 countries. Partial correlations after the / control for child age, number of children in the family, and the other 2 indices that compose the HDI.

* $p < .05$.

** $p < .01$.

*** $p < .001$.