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## Gender Inequity Associated with Increased Child Physical Abuse and Neglect: a Cross-Country Analysis of Population-Based Surveys and Country-Level Statistics

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### Abstract

Gender inequity is proposed as a societal-level risk factor for child maltreatment. However, most cross-national research examining this association is limited to developing countries and has used limited measures of gender inequity and child homicides as a proxy for child maltreatment. To examine the relationship between gender inequity and child maltreatment, we used caregivers' reported use of severe physical punishment (proxy for physical abuse) and children under 5 left alone or under the care of another child younger than 10 years of age (supervisory neglect) and three indices of gender inequity (the Social and Institutional Gender Index, the Gender Inequality Index, and the Gender Gap Index) from 57 countries, over half of which were developing countries. We found all three gender inequity indices to be significantly associated with physical abuse and two of the three to be significantly associated with neglect, after controlling for country-level development. Based on these findings, efforts to prevent child abuse and neglect might benefit from reducing gender inequity.

### Keywords

Child abuse; Child neglect; Child maltreatment; Etiology; Cross-national

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Child abuse and neglect by parents and other caregivers happens around the world at alarming rates. The World Health Organization (WHO) estimates that approximately a quarter of adults worldwide have experienced child physical abuse (WHO 2016a), but rates

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#### Compliance with Ethical Standards

**Ethical Approval** Secondary data analyses; IRB approval not required.

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may vary across countries (Stoltenborgh et al. 2013a). For example, studies have found that rates of child physical neglect vary by geographic location from 19% in North America to 7% in Europe (estimates from other regions are not available; Stoltenborgh et al. 2013b). Given these differences, it is important to ask: what is driving the geographic variation in rates and how can this inform prevention efforts?

The occurrence of child abuse and neglect, and the unequal distribution of exposure across geographic locations can be understood using the socioecological model, which proposes that factors at the individual-, family-, community-, and societal-level simultaneously operate and interact to increase or decrease the likelihood of child maltreatment (Garbarino 1977). Numerous individual- and family-level factors that increase the risk for both physical abuse and neglect have been identified (Stith et al. 2009). Fewer studies have identified community-level factors (Coulton et al. 2007; Freisthler et al. 2006), and research examining societal- or country-level factors of child maltreatment remains scarce. Modifying societal-level risk factors has great potential for achieving population-level reductions in rates of child maltreatment (Putnam and Galea 2008).

Available research on societal-level factors of child maltreatment has predominantly focused on child homicides. These studies have found child homicides to be positively associated with the percent of women in the labor force (Briggs and Cutright 1994; Fiala and LaFree 1988; Gartner 1990, 1991; Hunnicutt and LaFree 2008), battle death rates (albeit only for homicides of children 0–4 years of age; Briggs and Cutright 1994; Gartner 1990, 1991), and rape rates (Briggs and Cutright 1994) and negatively associated with the ratio of females to males in tertiary education (Briggs and Cutright 1994; Fiala and LaFree 1988) or professional occupations (Fiala and LaFree 1988). The link between child homicide and the ratio of female to males in tertiary education or professional occupations are hypothesized to be related to the status of women (the higher women's status, the lower child homicide rates would be). Battle death rates are based on the theory of "cultural spillover"; which posits that legitimating of violence by the state (e.g., war or death penalty) may spillover to other types of violence (Baron and Straus 1987).

Inconsistent effects on child homicide rates have been found for income inequality (Briggs and Cutright 1994; Butchart and Engström 2002; Fiala and LaFree 1988; Gartner 1990; Hunnicutt and LaFree 2008), economic development (Fiala and LaFree 1988; Butchart and Engström 2002; Christoffel et al. 1981; Moniruzzaman and Andersson 2008), the divorce rate (Briggs and Cutright 1994; Fiala and LaFree 1988; Gartner 1990, 1991; Hunnicutt and LaFree 2008), female enrollment in tertiary education (Briggs and Cutright 1994; Fiala and LaFree 1988; Gartner 1990, 1991; Hunnicutt and LaFree 2008), countries' expenditures on social welfare programs ((Briggs and Cutright 1994; Fiala and LaFree 1988; Gartner 1990, 1991), overall homicide rates (Briggs and Cutright 1994; Christoffel et al. 1981; Fiala and LaFree 1988; Gartner 1991), teen births (Briggs and Cutright 1994; Gartner 1991), and the heterogeneity of the population (Briggs and Cutright 1994; Gartner 1990). Other societal-level factors that have not been found to be associated with child homicides include fertility and illegitimacy rates (Briggs and Cutright 1994; Gartner 1991); unemployment (Briggs and Cutright 1994; Hunnicutt and LaFree 2008), rapidity of development (Fiala and LaFree 1988); the death penalty (Gartner 1990); and physicians per 100,000 (Fiala and LaFree

1988; Hunnicutt and LaFree 2008). In one study, when the percentage of women with access to paid jobs relative to men was considered, the association between child homicide rates and economic wealth (gross domestic product per capita) and income inequality among young girls was strengthened, whereby less economic wealth and greater income inequality were associated with higher child homicide rates (Butchart and Engström 2002).

While this cross-national research has highlighted several societal risk factors for child homicides, with the exception of three studies (Butchart and Engström 2002; Hunnicutt and LaFree 2008; Moniruzzaman and Andersson 2008), the bulk of the research has focused on developed or high income countries limiting the generalizability of their findings. In addition, child homicides as an indicator of child maltreatment has several limitations. Previous research suggests that child homicide and child maltreatment are not similar constructs on a continuum, but rather, distinct forms of violence, and as such, examinations of child homicide may not be generalized to other forms of violence toward children, including child maltreatment (Gelles 1991). Moreover, death records and data tend to vary across countries and could lead to differential underestimates associated with country characteristics. For example, homicides could be coded erroneously as “undetermined” or “unintentional”. Finally, deaths due to child neglect may be excluded from homicides in some countries because they do not meet the definition of “homicide” when defined as a deliberate act of commission.

Given the limitations of using child homicide as a measure of child maltreatment, surveys asking participants about perpetration or victimization may be a better way of assessing child maltreatment. Indeed, rates of child maltreatment based on self-reported or parent-reported incidents have found physical abuse to be 20 times greater than abuse reported to authorities (Finkelhor et al. 2014). To our knowledge, only three cross-national studies have examined a societal-level risk factor using child maltreatment data collected from surveys. Two studies used Multiple Indicator Cluster Survey (MICS) data from 25 middle and lower income countries and found that past-month caregiver reported child physical and psychological abuse was higher in countries where violence in families was more of a cultural norm (i.e., they reported greater acceptance of corporal punishment and intimate partner violence; Lansford et al. 2014) and in countries with lower levels of education (Lansford and Deater-Deckard 2012). The third study utilized data from 28 countries reporting childhood trauma questionnaire (CTQ) scores, which asks children 12 and over to rate the frequency that events related to child abuse and neglect occurred when they “were growing up” (Viola et al. 2016). Findings revealed that countries with higher gross domestic products had lower childhood physical neglect estimates. It is likely that many other societal-level factors impact rates of child maltreatment, but such factors have yet to be explored.

The World Health Organization has suggested that gender inequity may be a societal risk factor for child maltreatment (Runyan et al. 2002). Gender inequity may lead to increased child abuse in at least two ways: (1) because limited opportunities among women may increase their stress and frustration with caring for children they may be more likely to abuse them (Fiala and LaFree 1988); and (2) disempowered women may be less able to protect their children from abuse (Gartner 1990). Although two studies mentioned above have

examined proxies of gender inequity to be associated with child homicides [i.e., the ratio of females to males in tertiary education (Briggs and Cutright 1994) and professional occupations (Fiala and LaFree 1988)] we build on this research by examining its associations with other, more robust indicators of child maltreatment by (a) focusing on caregiver-reported physical abuse and neglect; (b) examining child maltreatment's relationship to three comprehensive indices of gender inequity generated by three different international agencies; and (c) expanding the number of countries and their regional and stage of development variability.

## Method

This is a cross-sectional study based on country-level data as our unit of analysis. Our sample corresponds to all the countries reporting either severe physical discipline or child neglect in a Multiple Indicator Cluster Survey (MICS;  $n = 49$ ; United Nations International Children's Emergency Fund [UNICEF] 2015) or a Demographic and Health Survey (DHS;  $n = 8$ ; United States Agency for International Development [USAID] 2016) from 2011 to 2015. MICS and DHS are conducted in a large number of countries around the world using random sampling methods to obtain nationally representative samples and trained interviewers to administer a standardized questionnaire face-to-face to one adult in selected households. An index child between 1 or 2 and 14 years old is also selected randomly in the household for questions on child discipline. The 57 countries included in our analyses are listed by region in Table 1 with their corresponding level of development using the Human Development Index (HDI; United Nations Development Program 2015a) described in the measures section, data source (i.e., MICS or DHS), year data were collected, and age range of the children sampled.

## Measures

**Child Physical Abuse and Neglect**—Childhood physical abuse and neglect were the outcomes of interest. Childhood physical abuse is based on the MICS/DHS country reports of the percentage of caregivers who report that the index child experienced severe physical discipline in the past month. Severe physical discipline in MICS/DHS was defined as the index child being hit or slapped on the face, head or ear; beat/hit with something (e.g. an object); or hit over and over as hard as one could by anyone in the household in the past month in response to the child's bad behavior. This question is prefaced by "All adults use certain ways to teach or to address a behavior problem." Table 1 shows the percent of caregivers reporting this type of physical abuse for each country. Data for this variable were available for 51 countries.

Child neglect is based on another measure from the MICS/DHS in which they report the percentage of children aged 0–59 months left alone or under the care of another child younger than 10 years of age for more than one hour at least once in the last week. This variable was available for 55 countries (reported in last column of Table 1). To correct for the skewness of the distributions for both variables, we used their natural log.

**Gender Equity**—We used available data for the same year the MICS/DHS data were collected or the closest year available to that ( $\pm 1$ ) for three measures of gender equity:

**The Social and Institutional Gender Index (SIGI)**—The Social and Institutional Gender Index (SIGI) is a cross-country composite of 14 (in 2012) or 21 (in 2014) measures of discrimination against women in social institutions published by the Organisation for Economic Co-operation and Development (2016). It has five subindices: (a) discriminatory family codes (e.g., equality in minimum age for marriage, in parental authority in marriage or divorce, and inheritance); (b) restricted physical integrity (e.g., laws on partner violence, rape, sexual harassment, frequency of partner violence and genital mutilation); (c) son bias (e.g., missing women and fertility preferences); (d) restricted resources and assets (e.g., access to land and non-land assets use, control and ownership); and (e) restricted civil liberties (e.g., access to public space and political representation). Each sub-index score is calculated by aggregating the different indicators it is composed of with a weighting scheme obtained through a polychoric principal component analysis. Each sub-index score is squared and multiplied by one-fifth. The five resulting scores are added. Scores vary from 0 to 1 with higher scores indicating greater discrimination against women.

**The Gender Inequality Index (GII)**—The Gender Inequality Index (GII) is a composite of measures of across three dimensions: (a) reproductive health (i.e. maternal mortality ratio and adolescent birth rates); (b) empowerment (i.e., proportion of parliamentary seats occupied by females and proportion of adult females and males aged 25 years and older with at least some secondary education); and (c) economic status (i.e., labor force participation rate of female and male populations aged 15 years and older) representing women's disadvantage published by the United Nations Development Program (2015b). To calculate the index for each country, a minimum value for each indicator is set at 0.1 and extreme high values are truncated. The geometric mean is then calculated separately for women and men across each dimension. Finally, these means aggregated using a harmonic mean across genders. Scores vary from 0 to 1 with higher scores indicating women faring worse than men.

**The Gender gap Index (GGI)**—The Gender Gap Index (GGI), published by the World Economic Forum (2014), measures gender-based gaps in access to resources and opportunities in countries rather than the actual levels of the available resources and opportunities in those countries to make the index independent from the countries' levels of development. It is a composite of four constructs: (a) *economic participation and opportunity*, which captures three concepts: the participation gap (difference between women and men in labor force participation rates), the remuneration gap (ratio of estimated female-to-male earned income and wage equality for similar work) and the advancement gap (the ratio of women to men among legislators, senior officials and managers, and the ratio of women to men among technical and professional workers); (b) *educational attainment*, which assesses the gap between women's and men's current access to education (i.e., ratios of women to men in primary-, secondary- and tertiary-level education and the ratio of the female literacy rate to the male literacy rate); (c) *health and survival*, which provides an overview of the differences between women's and men's health (i.e., sex ratio at birth and the gap between women's and men's healthy life expectancy); (d) *political empowerment*, which measures the gap between men and women at the highest level of political decision-making (i.e., the ratio of women to men in minister-level positions, the ratio of women to

men in parliamentary positions, and the ratio of women to men in terms of years in executive office (prime minister or president) for the last 50 years). The Index is constructed using a four-step process. First, all indicators are converted to female-to-male ratios. Then, except for the two health indicators, these indicators are truncated at 1, meaning equal numbers of women and men. Next, indicators are normalized based on their standard deviations. The weighted average of the indicators within each sub-index is calculated to create the sub-index scores. An un-weighted average of the sub-index scores is used to calculate the overall Gender Gap Index score. Scores vary from 0 to 1 with higher scores indicating greater gender equity. To correct for the negative skewness of these data, we reverse scored and converted these to their natural log.

Finally, level of development as a potential confounder was measured with the HDI. The HDI is a composite of indicators of life expectancy, education (i.e., adult literacy rate and combined gross enrollment in primary, secondary, and tertiary school), and Gross Domestic Product. Scores range from 0 to 1 with higher scores indicating higher levels of development.

### Data Analyses

We estimated bivariate correlation coefficients, but report the squared correlation coefficient (or variance) for ease of interpretation as well as negative correlation coefficient signs, in parentheses, to inform the direction of the association. We used linear regression models to estimate the semi-partial correlation coefficient after adjusting for country-level of development using the Human Development Index.

### Results

The 57 countries in our sample come from Central Asia (4), Europe (6), Latin America and the Caribbean (13), Middle East and Northern Africa (9), South and East Asia (7) and Sub-Saharan Africa (18). Nearly half of the countries (44%) are considered to have high or very high human development and a third are considered to have low human development. Child physical abuse rates in the past month varied from a range of 1% to 43% and child neglect rates varied from 0.8% to 49% (see Table 1).

Table 2 shows the squared correlation coefficients between our two outcomes and the three indices of gender inequity. The three measures of gender inequity were highly correlated with each other (not shown) further demonstrating construct validity of the gender measures. We found statistically significant and positive associations between the SIGI, the GII, and the reverse-scored GGI and both child physical abuse and child neglect. This means that higher scores indicating greater levels of discrimination against women on the SIGI, greater gender inequity on the GII, and lower scores on the GGI indicating greater gender gaps are associated with higher rates of child physical abuse and child neglect.

In separate regression models for child physical abuse and neglect, discrimination against women (SIGI) accounted for 31% of the variance in child physical abuse (14% after adjusting for the HDI measuring country-level development,  $p = .006$ ) and 17% of the variance in child neglect (7% after adjusting for the HDI,  $p = .014$ ); gender inequality (as

assessed by the GII) accounted for 49% of the variance in child physical abuse (15% after adjusting for the HDI,  $p = .001$ ) and 40% of the variance in child neglect (but 1% after adjusting for the HDI and no longer significant); and gender gaps (as assessed by the GGI) explain 53% of the variance in child physical abuse (20% after adjusting for the HDI,  $p = .001$ ) and 15% of the variance in child neglect (8% after adjusting for the HDI,  $p = .019$ ).

## Discussion

We examined associations among three prominent and comprehensive indicators of gender inequity (the SIGI, measuring discrimination against women, the GII measuring health, economic and power inequities, and the GGI, measuring economic, education, health, and political power gender-based gaps), and two proxies of child maltreatment, severe child physical discipline and supervisory neglect. Rates of child maltreatment varied by geographic location, and our findings showed strong and statistically significant associations in the expected directions with all three gender inequity indices. After controlling for country-level development, all three gender indices continued to be significantly associated with physical abuse and two of the three (SIGI and GGI) continued to be significantly associated with neglect. These findings are consistent with previous research showing proxies of gender inequity to be associated with child homicides [i.e., the ratio of females to males in tertiary education (Briggs and Cutright 1994) and professional occupations (Fiala and LaFree 1988)]. The mechanisms for this relationship should be explored in future research.

Our study had several strengths including the use of nationally representative estimates of caregiver-reported abuse and neglect, robust indicators of gender inequity, and greatly expanded regional representation and developmental variability in our sample of countries. However, several limitations must be acknowledged before discussing the potential implications of these findings. First, our sample did not include countries in the European Union or many of the most populated countries such as Brazil, China, India, Indonesia, Japan, Russia, or the USA. As such, our findings may not be generalizable to the countries not included. It is possible that comparable data are available from excluded countries but not published. Future studies might consider contacting Ministries of Health or Child Welfare in an effort to include a more diverse sample of countries from the European Union and other major economies.

Second, our measures of child maltreatment (severe physical discipline and supervisory neglect) do not capture the entire universe of maltreatment that children might experience, such as physical abuse occurring outside disciplinary interactions, emotional abuse and neglect, or sexual abuse. Nor do they provide any indication of other traumatic experiences that can also impact the health and wellbeing of children across their life course. Severe physical discipline and supervisory neglect are also limited by issues related to caregivers' reports (i.e., recall bias, social desirability bias) and measurement problems (e.g., validity and reliability of one-item measures, short period of recall, including anyone in the household as a perpetrator). In addition, these measures may be culturally inappropriate for countries with different economic conditions, and concern over assessments that may be ethno-centric to Western post-industrial countries has been raised (Laird 2016).

Although we used three different indices of gender inequity that are composites of multiple indicators tapping many dimensions of inequity such as political, institutional, educational, economic, and health, these may not capture the universe of gender-based inequity (e.g., inequitable distribution of labor in the household). These composites are also constructed from government reports which may have variable reliability. Because data for some of the indices were available only for certain years, the exposure-outcome data are not optimally time-matched for all countries. However, examination of changes over time for those countries with various years of data revealed very small changes from year to year and therefore this mismatch should not be of great concern.

A major limitation is that our findings are based on correlations from cross-sectional data. It is possible that gender inequity and child maltreatment co-occur in a society due to some other, unexplored cause. Our small sample size ( $n = 57$ ) limited the number of potential confounders we could control for. Multi-level data analyses with a larger sample could control for individual-level confounders and clustering. Future studies using natural experiments could provide some evidence of causal effects. Although we cannot claim causal relationships between variables, there are several potential mechanisms to explain how gender inequity might be related to child maltreatment. Women's status has long been associated with several indicators of children's health (Heaton 2015). When women are in better economic positions, financial stress which is associated with harsh parenting may decrease (Brooks-Gunn et al. 2013) and women can afford higher quality child care arrangements instead of leaving a child home alone or under the care of a sibling. High-quality child care is associated with fewer symptoms of maternal depression (Gordon et al. 2011), a risk factor for both child physical abuse and neglect (Stith et al. 2009). However, the relationship between gender inequality and child maltreatment should not only be considered in terms of women making more money, but also in terms of gender equality whereby the gap between men and women is reduced, and women's economic position is equal to that of men. When women have greater political power, they tend to sponsor legislation and policy change that are supportive of children and families (UNICEF 2008). Policies that are supportive of families such as paid family leave (Klevens et al. 2016) or increased availability of child care are associated with decreased rates of child maltreatment (Klevens et al. 2015). Although the strong correlations of gender inequity and child abuse and neglect suggest new directions for understanding and addressing child maltreatment, their relevance should be replicated in future studies. Future research can take advantage of more robust measures of child maltreatment such as the Childhood Trauma Questionnaire that has been used in 28 countries from 6 continents (Viola et al. 2016). When policies or country levels of gender inequity change, conducting longitudinal analyses would provide stronger evidence for causal relationships.

Child maltreatment, including physical abuse and neglect, is a significant public health issue that can be prevented. Extensive research on risk factors of child maltreatment at the individual- and family-level have resulted in several effective interventions, including group-interventions that address harmful gender norms and gender-equity training (WHO 2016b). While child maltreatment interventions targeting individual- and family-level risk factors have led to declines in child physical abuse, prevention efforts that focus on societal-level risk factors like gender inequity would theoretically have a greater and more sustained

impact on child maltreatment rates. Thus, it is critical for researchers to continue to investigate societal-level factors associated with child maltreatment so that interventions and prevention efforts can incorporate strategies that have the greatest potential for population-level impact - assuring that all children and families have access to safe, stable, nurturing relationships and environments, the essentials for optimal health and development.

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Table 1

Countries by region, Human Development Index, data source (MICS/DHS), year data collected, age range of children, and percent of children reported to have experienced physical abuse or neglect

REGION	HDI	MICS/DHS	Year(s) collected	Age range of children	% Physically abused past month	% Children <5 neglected past week
CENTRAL ASIA						
	0.788	MICS	2015	1-14	1	5
	0.655	MICS	2014	1-14	3	4.5
	0.727	MICS	2013-14	1-14	4	10.2
	0.688	MICS	2015	1-14	NI	0.8
EUROPE	0.796	MICS	2012	2-14	NI	3.6
	0.724	MICS	2011-12	2-14	4.5	1.6
	0.738	MICS	2011	2-14	4.8	5
	0.801	MICS	2013	1-14	2	2.6
	0.771	MICS	2014	1-14	1.0	3.6
	0.743	MICS	2012	1-14	6.5	NI
LATIN AMERICA AND THE CARIBBEAN	0.818	MICS	2011-2012	2-14	9.8	8.2
	0.793	MICS	2012	2-14	6.1	1.4
	0.715	MICS	2015	1-14	6	12.9
	0.756	MICS	2011	2-14	3.1	4.0
	0.715	MICS	2014	1-14	3	5.3
	0.636	MICS	2014	1-14	6	5.0
	0.479	DHS	2012	2-14	16.1	NI
	0.612	DHS	2011-12	2-14	NI	4.4
	0.727	MICS	2011	2-14	5.7	1.8
	0.756	MICS	2015	1-14	5.9	5.1
	0.777	MICS	2013	1-14	2	2.6
	0.730	MICS	2012	2-14	5.9	4.7
	0.790	MICS	2013	2-14	3	2.9
MIDDLE EAST & NORTH AFRICA	0.732	MICS	2012-13	2-14	22.9	5.5
	0.690	DHS	2014	1-14	43.2	4.1
	0.648	MICS	2011	2-14	27.7	7.5

REGION	HDI	MICS/DHS	Year(s) collected	Age range of children	% Physically abused past month	% Children <5 neglected past week
Jordan	0.746	MICS	2012	2-14	20.3	9.4
Oman	0.793	MICS	2014	1-14	NI	44.7
Palestine	0.793	MICS	2014	1-14	23	14.3
Qatar	0.844	MICS	2012	2-14	6.4	11.6
Tunisia	0.715	MICS	2011-12	2-14	31.9	13.2
Yemen	0.498	MICS	2013	2-14	42.1	NI
Afghanistan	0.456	MICS	2011	2-14	38.4	40.2
Bangladesh	0.563	MICS	2012-13	1-14	24.6	11.6
Cambodia	0.555	DHS	2014	2-14	NI	9.8
Lao PDR	0.552	MICS	2011-12	2-14	7.6	14
Nepal	0.548	MICS	2014	1-14	14	20.6
Thailand	0.723	MICS	2012-13	1-14	NI	4.6
Viet Nam	0.666	MICS	2014	1-14	2.1	7
Benin	0.480	MICS	2014	1-14	23	34.1
Cameroun	0.512	MICS	2014	1-14	20	34.4
Chad	0.392	MICS	2014-15	1-14	15.3	NI
Congo-Brazzaville	0.591	MICS	2014-15	1-14	28	41.6
Congo-Kinshasa	0.433	DHS	2013-14	1-14	28.3	49.1
Ghana	0.566	MICS	2011	2-14	14.4	20.7
Guinea Bissau	0.420	MICS	2014	1-14	18	30.6
Malawi	0.445	MICS	2013-14	1-14	6	37.1
Mali	0.419	MICS	2015	1-14	14	32.2
Mauritania	0.506	MICS	2015	1-14	27	34.4
Niger	0.342	DHS	2012	2-14	29.4	NI
Nigeria	0.499	MICS	2011	2-14	34	39.9
Rwanda	0.483	DHS	2014-15	1-14	NI	35.0
Sao Tomé e Príncipe	0.555	MICS	2014	1-14	10	15.5
Sudan	0.479	MICS	2014	1-14	14.0	NI
Swaziland	0.531	MICS	2014	1-14	10	16.5
Togo	0.484	DHS	2013-14	1-14	11.4	29.1

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REGION	HDI	MICS/DHS	Year(s) collected	Age range of children	% Physically abused past month	% Children <5 neglected past week
Zimbabwe	0.509	MICS	2014	1–14	5	18.5

*HDI*/Human Development Index <0.550 indicates low development, 0.550–0.699 for medium development, 0.700–0.799 high development, and 0.800 is very high development (United Nations Development Program 2015a). *MICS* Multiple Indicator Cluster Survey, *DHS* Demographic and Health Survey, *NI* no information

**Table 2**

Variance ( $R^2$ ) in physical abuse and neglect accounted for by the Social Institutional and Gender Index, the Gender Inequality Index, Gender Gap Index, and Human Development Index (negative correlations indicated) and variance after adjusting for Human Development (semipartial correlation squared)

Variable	Ln Physical abuse		Ln Neglect	
	$R^2$ (p)	Semipartial <sup>a</sup> $R^2$	$R^2$ (p)	Semipartial <sup>a</sup> $R^2$
Social Institutional and Gender Index	.31 (.000)	.14 (.009)	.17 (.008)	.07 (.014)
Gender Inequality Index	.49 (.000)	.15 (.001)	.40 (.005)	.01 (.26)
Ln of reverse scored Gender Gap Index	.53 (.000)	.20 (.001)	.15 (.014)	.08 (.019)
Human Development Index	(-).31 (.001)		(-).51 (.000)	

<sup>a</sup>adjusted for the Human Development Index