



Harsh Physical Discipline: Prevalence and Associated Factors Among Primary Caregivers of Pre-school Children in Ethiopia

Menelik Desta¹ · Negussie Deyessa² · Yohannes Hailu¹ · Abenezer Baye¹ · Nataly Rodriguez³ · Irving Fish⁴ · Ann F. Garland³

Accepted: 2 June 2022 / Published online: 21 June 2022

© The Author(s), under exclusive licence to Springer Nature Switzerland AG 2022

Abstract

Harsh parental discipline is ineffective and potentially harmful to children, yet it is still common, particularly in many African countries. Culturally responsive education programs are needed to shift parenting practices in African countries, but there is limited baseline research to inform such efforts. This study's objectives were to establish the baseline prevalence of harsh physical discipline practices among primary caregivers of pre-school children in Ethiopia and to identify associated factors to inform intervention efforts. The well-established Parent–Child Conflict Tactics Scale section on physical assault was translated and administered to primary caregivers of 1139 pre-school children aged 4–6 years sampled from four regions of Ethiopia. Trained interviewers also collected basic socio-demographic data. Based on caregiver report, 52.5% ($n=598$) of the children had experienced harsh physical discipline and an additional 12.7% ($n=145$) experienced moderate physical discipline in their lifetimes. After controlling for covariates, the factors significantly related to increased likelihood of harsh discipline were geographic region, female caregivers, lack of employment, at least moderate perceived social status, and non-Muslim religion. These data establish a baseline from which to evaluate the impact of future educational interventions designed to shift practices. Information about the correlates can be used to tailor such intervention efforts toward those most likely to use harsh discipline practices.

Keywords Harsh physical discipline · Pre-school children · Ethiopia · Parenting practices

✉ Ann F. Garland
agarland@sandiego.edu

Extended author information available on the last page of the article

Introduction

Optimal child development requires caregiver support and positive parental disciplinary practices to teach children about acceptable behavior and protect them from harm (Sege et al., 2018). Compelling evidence indicates that physical discipline practices are ineffective and harmful. Specifically, a recent global review cited over 250 studies demonstrating a link between physical punishment and a number of negative outcomes (The Global Partnership to End Violence Against Children, 2021). Unfortunately, despite such evidence of potential risks and limited effectiveness, harsh physical disciplinary methods are still prevalent throughout the world (Akmatov, 2011).

School-age children are typically victims of harsh discipline in their homes (UNICEF, 2017). According to the UNICEF report, an estimated 6 in 10 or 250 million children aged 2–4-year experience physical punishment by their caregivers in the home (UNICEF, 2017). On average, 17% of children are subjected to the most severe form of physical punishment-hitting on the head, ears, face, or hitting hard and repeatedly (United Nations Children’s Fund, 2014). A recent study estimated that 220 million children (62.5% of the population) aged 2–4 years were exposed to harsh physical punishment in low and middle-income countries (LMICs) (Cuartas et al., 2019).

Harsh physical punishment in early life predisposes children to serious short-term and long-term negative developmental outcomes across several areas of functioning (Durrant & Ensom, 2012). For example, studies show that physical punishment of children places them at greater risk for chronic medical illnesses such as cardiovascular disorder (Afifi et al., 2013), metabolic diseases (Danese et al., 2009), neoplasia (Hyland et al., 2013), (Dede Yildirim et al., 2020) physical injury, and increased admission and longer hospital stays. In addition, physical punishment is associated with negative socio-emotional outcomes such as internalizing and externalizing behavioral problems, regression of cognitive development, poor academic achievement, and poor interaction with peers and caregivers (Dede Yildirim et al., 2020; Gershoff & Grogan-Kaylor, 2016; Lorber et al., 2011; Mackenzie et al., 2012; McKee et al., 2007; Mackenzie et al., 2013; Norman et al., 2012).

Research identifies numerous predictors and correlates of caregivers’ use of harsh physical punishment. Studies have indicated that poverty, low educational status, country of residency, large household size, parental depression, permissive legislation, and cultural beliefs are associated with a high prevalence of harsh physical punishment (Callender et al., 2012; Cappa & Khan, 2011; Lansford et al., 2015). According to a UNICEF report, 1 in 4 caregivers believed in the necessity of physical discipline to raise children properly. Unfortunately, to date, only 60 countries have adopted legislation that banned physical punishment at home, leaving 600 million children under age five without complete legal protection against harsh discipline (UNICEF, 2017).

Physical Punishment of Children in Ethiopia

According to the United Nations (UN) estimate, Ethiopia is the second-most populous country in Africa, with over one hundred ten million residents in 2020. Children under 5 years constitute 14%, while those under 14 years account for 47% of the country's total population (Owen, 2014; UNDP Ethiopia, 2018). Over 22 million people are living below the national poverty line. Children are more likely to experience poverty than adults, with consequent lifetime adversities that are extraordinarily difficult to alter (UNDP Ethiopia, 2018).

The Ethiopian government has ratified and adopted the United Nation's Convention on the child's rights that describes violence against children as "All forms of physical or mental violence, injury and abuse, neglect or negligent treatment, maltreatment or exploitation, including sexual abuse." However, the adopted local laws and policies only prohibit violent (physical) punishment against children in schools, childcare institutions, and penal institutions. The country's law lacks provisions that ban the violent punishment of children in the home setting and non-institutional child care settings (Owen, 2014; Tadesse, 2019).

Studies have found that the prevalence of harsh discipline is higher in African countries than in other countries (Akmatov, 2011). In Ethiopia, physical (violent) punishment is a widespread practice as it is in many other low-income countries. The Ethiopian cultural norms suggest that physical punishment is an effective means of child discipline; it is seen as something good and essential for instilling ethical behavior and preparing children for their future (Gebrehiwot, 2015).

Limited awareness about the negative effect of physical punishment combined with the unavailability of information on alternative ways of child disciplining contributes to the sustained high prevalence of harsh physical punishment in Ethiopia (Mulugeta, 2016; Pankhurst et al., 2016). Educational interventions are needed to bring attitudinal and behavioral changes to reduce extreme physical discipline.

Parenting training and caregiver support programs have been identified as critical strategies to prevent physical punishment. Promising programs have been implemented internationally. For example, recent outcome evaluation studies of programs for South African and Colombian caregivers of children aged 2–4 years showed a significant reduction of harsh disciplining and increases in positive parenting (Skar et al., 2017; Ward et al., 2020). Such programs are needed in Ethiopia and are in development through a nonprofit, nongovernmental organization called the "Ethiopian School Readiness Initiative" (ESRI). This is a comprehensive initiative to reduce school dropout and enhance overall child development through preschool participation for children, as well as parent education.

Purpose of Study and Hypotheses

The purpose of this study was to inform the development, implementation, and evaluation of the ESRI intervention in Ethiopia. Given that no data on prevalence of harsh discipline in Ethiopia are currently available, the primary goal was to establish

the baseline prevalence of harsh physical discipline practices in preparation for a later assessment of the impact of the ESRI intervention. While there is a general consensus that harsh physical discipline is relatively common in Ethiopia, there are no studies documenting prevalence. The authors hypothesized that more than half of parents of young children would report use of harsh discipline.

A secondary goal of this study was to identify correlates of harsh punishment in Ethiopia to ensure that intervention efforts are effectively targeted. Based on findings in other geographic areas, the authors hypothesized that factors such as lower parental education level, lower perceived social status, and greater household size may be associated with increased likelihood of harsh discipline practices.

Methods

Study Design The study used across-sectional design in Addis Ababa city and three regional towns in Ethiopia. In each of the four municipalities, ten pre-schools were included in the study. The survey assessed socio-demographic factors and the use of physical child discipline methods as reported by primary caregivers.

Study Setting Ethiopia had an estimated population of 115 million in 2021 (UNICEF, 2021). According to the Federal Ministry of Education report for 2019/20 academic year, the population of children under age 6 years in the country was 18,901,464. Of these, 7,934,577 were aged 4–6 years, the legal age for pre-school/preprimary education in the land. During the same academic year, 3,599,596 attended different forms of pre-schools, including government and private kindergartens (The Federal Democratic Republic of Ethiopia Ministry of Education (FMoE), 2020).

Among children attending pre-schools in Addis Ababa, 58% go to non-government (i.e., private) schools, while 42% attend government pre-schools. Outside Addis Ababa, more than 90% of preschoolers attend government schools. The pre-school children enrolled in these government schools are primarily from low-income households that cannot afford to send their children to expensive private pre-schools.

This study was conducted in Addis Ababa and three regional sites: Bishoftu city in the Oromia regional state, Debre-Markos city in the Amhara Regional State, and Mekele city in the Tigray Regional State. The Education Bureau selected the government pre-schools in consultation with district administrations and district school offices. The criteria for selection are based on socioeconomic indicators, and the most impoverished communities are prioritized.

Source/Study Population The source population for the study was pre-school children and their primary caregivers sampled from the four cities where the ESRI intervention is being implemented. Primary caregivers of the randomly selected pre-school children attending ESRI-supported pre-schools and selected controls from non-ESRI-preschools were included in the study.

Sample Size As a baseline for the implementation-science design, sample size determination for proportion in two populations was used. Based on prior research in ESRI pre-schools in Addis Ababa, the study estimated a prevalence rate of 83.0% for primary caregivers admitting to employing physical discipline. The study also anticipated a 10% reduction in the severe physical discipline associated with the ESRI interventions implemented in the country since an earlier report (unpublished ESRI report) showed such results in a pilot sample. Additionally, a 95% confidence level, 80% power, and a design effect of 2.0, were assumed for this study. With these assumptions, a total of 1310 caregivers of children from the schools were deemed to be sufficient for the study.

Sampling Procedure

The study used multi-stage sampling. First, all four regions in Ethiopia where ESRI implementation would begin were included. The second stage of selection involved including all 5 primary schools for ESRI implementation in each region. The second stage of sampling also involved randomly selecting five additional primary schools in the district which have government-run (non-ESRI) pre-schools. In the next stage of sampling, 33 preschool children from each selected school were chosen using systematic sampling, taking the school register as a sampling frame. The sample size allocated to each regional state was divided equally among all schools. However, in some pre-schools that had less than 33 pre-school children, all were included. Finally, the selected pre-school child's primary caregiver was recruited as study subject to assess the parental report of child discipline.

Participants

Socio-demographic Characteristics of Primary Caregivers of Pre-school Children

Of the 1310 individuals recruited to participate in the study, 1139 agreed to participate, thus yielding a response rate of 86.9%. Of the total participants, 29.8, 22.4, 25.9, and 21.9% of participants were respectively from Addis Ababa, Bishoftu, Debre Markos, and Mekele sites. As listed in Table 1, the majority of the respondents, 842 (73.9%), were female. The mean age of the participants was 33 years, with a standard deviation of 8.2 years. Nine hundred two (79.3%) of the respondents were married, 460 (40.6%) had attended primary education, 279 (26.2%) reported to have no education, and 907 (80.1%) were followers of Orthodox Christianity. Four hundred thirty-five (38.2%) identified as housewives. When the participants were asked about their perceived social status, 669 (59%) participants responded that they had moderate social status. When asked about the presence of serious financial problems (like being unable to buy a pencil or a pen for the child), four hundred forty one (38.9%) affirmed having serious financial problems.

Table 1 Socio-demographic characteristics of primary caregivers of 1139 pre-school children from four regions of Ethiopia

Characteristics	Frequency	Percent
Age		
18–29	392	34.9
30–39	513	45.7
40 +	218	19.4
Sex		
Male	294	25.9
Female	842	74.1
Education		
Not educated	297	26.2
Elementary	460	40.6
Secondary	191	16.8
Tertiary	186	16.4
Religion		
Orthodox	907	80.1
Protestant	88	7.8
Muslim	138	12.2
Marital status		
Married	902	79.3
Divorced/sep/widow	236	20.7
Occupation		
Housewife	435	38.2
Employee (paid)	230	20.2
Business (own)	198	17.4
Other small enterprises	276	24.2
Perceived social status		
Higher	151	13.3
Moderate	669	59.0
Lower	313	27.6
Parents living together		
Yes, together	897	79.0
No, separated, divorced	213	18.8
No, widowed	26	2.3
Presence of financial problem		
Yes	441	38.9
No	693	61.1

Socio-demographic Characteristics of Pre-school Children

Table 2 displays the socio-demographic characteristics of the 1139 children. Approximately half of the children were female (560; 49.3%). The mean age of the pre-school children was 5.13 years with a standard deviation (SD) of 0.55; 492 (44.2%) of the pre-school children were first-born. In 480 (42.3%) of pre-school children's households, there were three or more children. Seven hundred two (61.6%) of pre-school children had a moderate school performance as perceived by their primary caregivers.

Table 2 Socio-demographic characteristics of 1139 pre-school children from four regions of Ethiopia

Characteristics	Frequency	Percent
Site		
Addis Ababa	339	29.8
Bisheftu	255	22.4
Debre Markos	295	25.9
Mekele	250	21.9
Age		
5 yrs or less	819	78.6
More than 5 yrs	223	21.4
Sex		
Male	577	50.7
Female	560	49.3
Order of Birth		
First-born	492	44.2
Second	301	27.0
Third or more	321	28.8
Total children in the house		
1–2 children	656	57.7
Three or more	480	42.3
Transport to school		
Parent	900	79.2
Others	237	20.8
Child school performance (As perceived by parent)		
Higher	380	33.4
Moderate	702	61.6
Lower	57	5.0

Data Collection and Measurement

The baseline data were collected in February 2021, 2 months into the opening of schools following closure for almost a year due to the COVID-19 pandemic. A brief questionnaire was used to record relevant socio-demographic variables of the pre-school children and their primary caregivers. The socio-demographic characteristics of the caregivers and the pre-school children were assessed (including age, sex, religion, marital and educational status, occupation of the caregiver, sex, age, and birth order of the child, total siblings, and person who transports the child to and from school). The demographic questionnaire also included questions on perceived social status of the care provider, perceived educational performance of the child, and relationship of the interviewee to the child. Social status was assessed based on the interviewees' perceived status compared to their neighbors, with response options of lower, moderate, or higher.

The Parent–Child Conflict Tactics Scale (PC-CTS) (Straus et al., 1998) assesses three categories of child discipline and maltreatment, including non-violent discipline, psychological aggression, and physical assault. This study included only the 13 items on physical assault. Given the variability in literacy,

trained interviewers (details below) read questions and response options to the parent participants. The English PC-CTS version was translated into each local language of the project site using two licensed Bilingual linguistic professionals from each region. The forward-translated instruments were then translated back into English by two other bilingual experts. Discrepancies in conceptual and semantic equivalence were resolved through discussion with both forward and back translators until consensus was reached on a final version of the questionnaire.

The established informant instructions were used to introduce the PC-CTS to the parents. Specifically, the introduction notes that children can sometimes misbehave. Parents were told, “We will now ask you if you have done and how often you have done certain things when you felt that the child did wrong or when the child made you angry.”

The physical assault section of the PC-CTS includes items divided into (a) minor assault, (b) severe assault, and (c) very severe assault. For the purpose of this study, the severe and very severe categories were combined into a “Harsh Discipline” category. As listed in Table 3, there are five items assessing moderate physical discipline and eight assessing harsh discipline (incorporating the original severe and very severe assault categories). The questionnaire was used to determine the lifetime and 1-year occurrence of the discipline method. Each question item has “yes” or “no” responses. The 12-month occurrence of an event occurrence was asked when there

Table 3 The Parent–Child Conflict Tactics Scale questions of physical disciplining and labeling criteria

Item questions	Criteria for labeling
1. Moderate physical disciplining [minor assault]	
<ul style="list-style-type: none"> ● Did you spank the child on the bottom with your bare hand? ● Did you hit the child on the bottom with something like a belt, hairbrush, a stick, or some other hard object? ● Did you slap him/her on the hand, arm, or leg? ● Did you pinch him/ her? ● Did you shake him/ her? 	Labeled moderate physical discipline when child experienced at least one of the events without experiencing any harsh physical disciplining items
2. Harsh physical disciplining [severe and very severe assault]	
<ul style="list-style-type: none"> ● Did you slap him/her on the face, head, or ears? ● Did you hit him/her on some part of the body (not the bottom) with something like a belt, hairbrush, etc.? ● Did you throw or knock him/her down? ● Did you hit him/her with a fist or kicked him/ her hard? ● Did you beat him/her up, that is, you hit him/ her over and over as hard as you could? ● Did you grab him/her around the neck or choke him/her? ● Did you burn or scald him/her on purpose? ● Did you threaten him/her with a knife or gun? 	Labeled harsh physical discipline when child experienced at least one of these events

was a “yes” response for the lifetime occurrence of the practice. This measure is well-established, and items on physical discipline have been used in international studies of child discipline (Akmatov, 2011).

Data Quality Assurance

Data quality was assured through the use of a validated instrument that was administered by well-trained interviewers to minimize inter-observer bias. Supervision of data collection was ensured at the field level by assessing collected data for completeness and consistency. Similarly, data quality during data entry was assured through a programmed data entry template and double entry using two data clerks followed by validity checks. Data entry was assessed for outliers using frequency distribution of each variable and sorting. Counterchecking for missing and inconsistent entered values with the hard copy was also performed for each data set.

Data Analysis

The collected data were cleaned, coded, and entered into Epi data 3.1 using double data entry and exported to Statistical Package for the Social Sciences version 24 (SPSS 24) for statistical analysis. The PC-CTS questionnaire was used to assess the primary caregiver’s report of child physical punishment. Crude odds ratio with its 95% confidence interval was estimated to determine the association between each common socio-demographic characteristic of the pre-school child and the primary caregiver on the presence of practicing a harsh physical discipline. Socio-demographic characteristics resulting in a bivariate association with a p -value < 0.25 in the crude analysis were included in the multivariable model. A p -value < 0.05 was used to declare the level of statistical significance in the multivariable analysis, and adjusted odds ratios (AORs) and 95% CIs were estimated. The Pearson chi-squared and Hosmer–Lemeshow goodness-of-fit tests were used to test for model fitness. The explanatory variables were tested for multi-collinearity before entering them into multivariable models using the variance inflation factor (VIF) values of less than 10.

Ethical Considerations

The project was approved by the Institutional Review Board (IRB) of the College of Health Sciences, Addis Ababa University (ref.53/19). Informed consent was obtained from the study participants and school heads. Participant’s strict confidentiality was ensured, and there were no identifiers marked on the questionnaires. Project coordinators ensured that participants would not be interviewed by someone they might have known. Participants were reassured that the data would be used only for research purposes. The interviewers were trained to offer information about medical services if the family needed such services.

Results

Rates of Reported Physical Disciplining

Table 4 reports the rates of past year and lifetime experience of moderate and harsh physical discipline using criteria described in the “Methods” section. The results indicate that 61.5% ($n=701$) and 49.3% ($n=562$) of children had experienced “moderate” and “harsh” physical punishment, respectively, by their primary caregivers in the previous year. Lifetime exposure rates were slightly higher at 65.2% ($n=743$) and 52.5% ($n=598$) respectively.

There was regional variation; for example, the rate of harsh discipline in the previous year was 36% ($n=202$) in Mekele, 31% ($n=175$) in Addis Ababa, 21% ($n=118$) in Debre Markos, and 12% ($n=67$) in Bishoftu.

Factors Associated with Harsh Physical Disciplining in the Preceding Year

The results of analysis examining associations between harsh physical disciplining and socio-demographic factors are presented in Table 5. All socio-demographic characteristics except house ownership showed at least the minimal potential association with harsh physical disciplining for bivariate analysis ($p \leq 0.25$). Specifically, female caregiver, age above 40, a paid employee, achieving secondary educational status, and reporting higher perceived social status, was entered into multivariate logistic regression analysis. Results of multivariate analysis showed that the odds of practicing harsh physical punishment among females were 1.7 times higher than males (AOR 1.7, 95% CI 1.1–2.5). The odds of practicing harsh physical discipline on children among caregivers in Mekele are 3.2 (95% CI 2.0–4.9) times higher than caregivers from Addis Ababa. On the other hand, the likelihood of using harsh discipline is lower among caregivers in Bishoftu (AOR 0.3, 95% CI 0.2–0.6) and Debre-markos (AOR 0.6, 95% CI 0.4–0.8), compared to caregivers in Addis Ababa.

The odds of harsh disciplining among caregivers with a perceived low social status are 0.5 times (AOR 0.5, 95% CI 0.3–0.8) lower than caregivers having high social status perception. The result indicated a trend for observers of Protestant religion to be at greater risk for using harsh physical disciplining, but that did not reach statistical significance. Those identifying as Muslim were associated with significantly lower rates of harsh punishment. Primary caregivers who were

Table 4 The magnitude of reported physical disciplining against their pre-school children, from four regions of Ethiopia ($n=1139$)

Level of physical disciplining	Incidents	Prevalence	95% CI
Moderate physical disciplining			
Last 12 month	701	61.5	58.7 – 64.4
Lifetime	743	65.2	62.5 – 68.0
Harsh physical disciplining			
Last 12 month	562	49.3	46.4 – 52.2
Lifetime	598	52.5	49.6 – 55.4

Table 5 Socio-demographic correlates of harsh physical disciplining in the past year

Caregiver characteristics	Frequency	Harsh physical discipline in past year		
		Proportion <i>N</i> (%)	Crude <i>OR</i> (95% <i>CI</i>)	*Adjusted <i>OR</i> (95% <i>CI</i>)
Geographic site				
Addis Ababa	339	176 (51.9)	1.00	1.0
Bisheftu	255	68 (26.7)	0.3 (0.2, 0.5)	0.3 (0.2, 0.6)
Debre Markos	295	119 (40.3)	0.6 (0.5, 0.9)	0.6 (0.4, 0.8)
Mekele	250	199 (79.6)	3.6 (2.5, 5.3)	3.2 (2.0, 4.9)
Caregiver Age				
18–29	392	212 (54.1)	1.0	1.0
30–39	513	249 (48.5)	0.8 (0.6, 1.0)	0.9 (0.7, 1.3)
40+	218	93 (42.7)	0.6 (0.5, 0.9)	0.8 (0.5, 1.3)
Caregiver sex				
Male	294	110 (37.4)	1.0	1.0
Female	842	451 (53.6)	1.9 (1.5, 2.5)	1.7 (1.1, 2.5)
Caregiver education				
Not educated	297	137 (46.1)	1.0	1.0
Elementary	460	230 (50.0)	1.2 (0.9, 1.6)	1.0 (0.7, 1.5)
Secondary	191	106 (55.5)	1.5 (1.0, 2.1)	1.3 (0.8, 2.1)
Tertiary	186	84 (45.2)	1.0 (0.7, 1.4)	1.2 (0.7, 2.0)
Religion				
Orthodox Christian	907	477 (52.6)	1.0	1.0
Protestant	88	45 (51.1)	0.9 (0.6, 1.5)	1.9 (1.0, 3.4)
Muslim	138	37 (26.8)	0.3 (0.2, 0.5)	0.4 (0.2, 0.6)
Marital status				
Married	902	425 (47.1)	1.0	1.0
Divorced/sep/widow	236	136 (57.6)	1.5 (1.1, 2.0)	1.2 (0.8, 1.8)
Occupation				
House-bound wife	435	230 (52.9)	1.0	1.0
Employees (paid)	230	96 (41.7)	0.6 (0.5, 0.9)	0.6 (0.4, 0.9)
Business (own)	198	106 (53.5)	1.0 (0.7, 1.4)	1.4 (0.9, 2.2)
Other small enterprises	276	130 (47.1)	0.8 (0.6, 1.1)	1.0 (0.6, 1.4)
House ownership				
Self-owned	245	112 (45.7)	1.0	=====
Rented	855	443 (51.8)	1.3 (0.9, 1.7)	=====
Perceived social status				
Higher	151	96 (63.6)	1.0	1.0
Moderate	669	343 (51.3)	0.6 (0.4, 0.9)	0.8 (0.6, 1.3)
Lower	313	122 (39.0)	0.4 (0.2, 0.5)	0.5 (0.3, 0.8)

*Adjusted for variable(s): geographic site, sex and age group of primary caregiver, educational status, religion, and marital status, occupation of the primary caregiver, house ownership and perceived social status of the family were adjusted for. Age group of the child and person accompanying the child to school were also adjusted for

employed were also statistically significantly less likely to employ harsh physical methods to discipline children. The AOR (CI) for Muslims, the employed, and for those caregivers with perceived low social status were 0.4, (0.2, 0.6), 0.6 (0.4, 0.9), and 0.5 (0.3, 0.8) respectively (Table 6 and Fig. 1).

Socio-demographic variables related to the child were also examined to investigate the association with harsh physical disciplining practice. According to the results, children who were reportedly transported to school by someone other than the biological parents were more likely to experience harsh physical punishment. In the bivariate analysis, primary caregivers who perceived that the school performance of their children as moderate reported less use of harsh discipline. However, when these variables were entered for multivariate analysis, only age of child above 5 years showed a trend for higher use of harsh physical punishment.

Table 6 Socio-demographic correlates of harsh physical violence in the past year

Child characteristics	Frequency	Harsh physical violence in past year		
		Prevalence <i>N</i> (%)	Crude <i>OR</i> (95% <i>CI</i>)	Adjusted <i>OR</i> (95% <i>CI</i>)
Child age				
5 yrs or less	819	380 (46.4)	1.0	1.0
More than 5 yrs	223	135 (60.5)	1.8 (1.3, 2.4)	1.4 (1.0, 2.0)
Child sex				
Male	577	297 (51.5)	1.0	=====
Female	560	265 (47.2)	0.8 (0.7, 1.1)	=====
Order of birth				
First-born	492	254 (51.6)	1.0	=====
Second	301	146 (48.5)	0.9 (0.7, 1.2)	=====
Third or more	321	155 (48.3)	0.9 (0.7, 1.2)	=====
Total children in the house				
1–2 children	656	334 (50.9)	1.0	=====
3 or more	480	228 (47.5)	0.9 (0.7, 1.1)	=====
ZPresence of financial problem				
Yes	441	228 (51.7)	1.2 (0.9, 1.5)	=====
No	693	332 (47.9)	1.0	=====
Perceived child school performance				
Higher	380	209 (55.0)	1.0	=====
Moderate	702	324 (46.2)	0.7 (0.5, 0.9)	=====
Lower	57	29 (50.9)	0.8 (0.5, 1.5)	=====
Accompanied by to/from school				
Parent	900	417 (46.3)	1.0	1.0
Others	237	145 (60.7)	1.8 (1.3, 2.4)	1.2 (0.8, 1.8)

* Adjusted for variable: geographic site, sex and age group of caregiver, educational status, religion, marital status of and occupation of primary caregiver, house ownership, perceived social status of the family, age group of the child, person accompanying the child to and from school

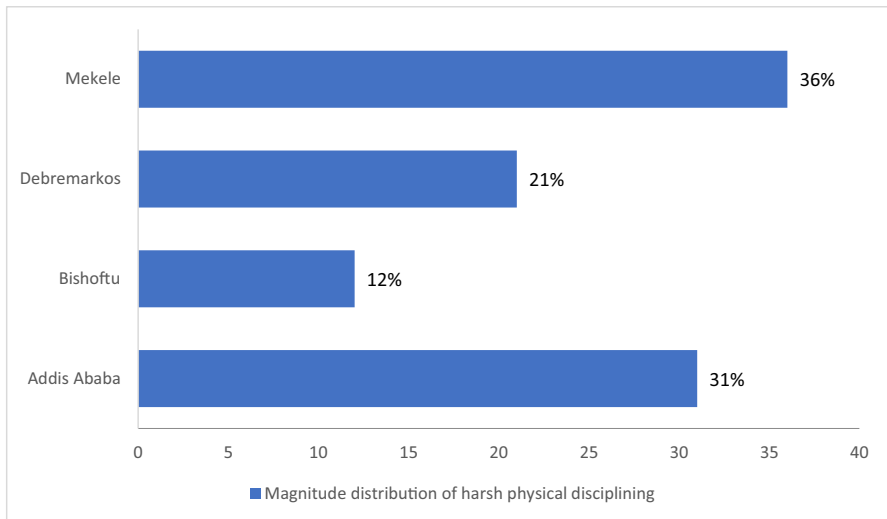


Fig. 1 Rate of harsh physical discipline by region in Ethiopia

Discussion

This study analyzed the overall prevalence of moderate and harsh physical disciplining practice by primary caregivers of Ethiopian pre-school children. The results indicated 1-year and lifetime prevalence rates of 49.3% and 52.5%, respectively, for harsh physical disciplining. These rates are consistent with the authors' speculative hypothesis that more than half of parents would report using harsh discipline. Given the young ages of the children, it is not surprising that the past year and lifetime rates are relatively similar (i.e., lifetime rates are only a bit higher). Direct comparisons of these rates across countries are challenging due to differences in measures, data collection procedures, and sample characteristics. However, despite these types of study variations, rates of reported harsh physical discipline found in this study with very young children are similar to rates reported for older children in Tanzania (51%) (Hecker et al., 2014) and other developing countries such as Yemen (59%) (Alyahri & Goodman, 2008) and India (42.3%) (Hunter et al., 2000).

In contrast, the rates found in this study are higher than rates of harsh discipline reported for the USA (39%), Laos (35.6%) (Pengpid & Peltzer, 2020a, b), and Brazil (30%). The rates found in this study are lower than harsh discipline rates reported for Iran (82.9%) (Shahhosseini et al., 2014) and Thailand (81.6%) (Watakakosol et al., 2019). Regardless of comparison, the fact that over half of pre-school age children in Ethiopia have experienced the severest form of physical discipline (Harsh physical discipline) is concerning.

The primary objective for this study was to get a baseline estimate of prevalence rates of moderate and harsh physical discipline for young children in Ethiopia in order to ultimately evaluate the impact of a community education program to reduce these rates. While many higher income countries have valid estimates of

data like this, this is the largest representative study of physical discipline of young children in Ethiopia. Ethiopia has only recently launched efforts to establish baseline prevalence of child and family health and wellness variables, specifically, in the past 10 years (Meshesha & Johnson, 2021). Such data are critical to influence policy decisions demonstrating the need for investment in interventions and to evaluate any intervention's impact over time.

A secondary objective of this study was to identify correlates of harsh disciplinary practices. Previous research suggests child age and gender, household size, geographic location, parental age, and family economic status can be associated with likelihood of harsh physical discipline (Cappa & Khan, 2011). These factors were evaluated in this study. Several factors had a potentially significant bivariate relationship with likelihood of harsh discipline, but only a few remained significant in multivariate tests accounting for the covariates.

Regional variations were significant. Primary caregivers residing in Mekele in the Tigray region used harsh discipline methods significantly more than caregivers in Addis Ababa. On the other hand, caregivers in Bishoftu site in Oromia region and those at Debre Markos site in the Amhara region used harsh discipline on children significantly less than parents in Addis Ababa. Geographic differences such as these have been found in other international studies. For example, area of residence was associated with likelihood of physical punishment in a study in Laos (Pengpid & Peltzer, 2020a, b). Socio-demographic and cultural/religious variations in area of residence likely influence community attitudes and parenting practice norms. Interestingly, the four regions included in this study have relatively similar socioeconomic and cultural/religious profiles, so the significant differences in rates of harsh discipline are somewhat surprising. It is possible that political and military conflict in the Tigray region could be associated with the higher rates of harsh punishment in that region. Further research into more subtle cultural factors that may explain these differences may illuminate potentially effective messaging to shift practices.

Female primary caregivers were significantly associated with higher use of harsh physical punishment compared to male caregivers in this study. The finding is consistent with the studies done in Kenya (Ayiro, et al., 2019), Vietnam (Cappa & Dam, 2014), Japan (Baba et al., 2020), Sierra Leone (Pengpid & Peltzer, 2020a, 2020b), and China (Wang & Liu, 2014). The possible explanation is that mothers are more engaged in child-rearing than fathers. Spending more time with children, mothers are more likely than the fathers to notice the unwanted child behavior that they feel needs correction. Lacking awareness of modern alternative parent discipline strategies, mothers may perceive that their only option is traditional physical disciplining.

Primary caregivers observing Protestant religion showed a trend for higher use of harsh discipline but that effect did not reach statistical significance. The finding that Muslim caregivers were significantly less likely to use corporal punishment than their Christian counterparts in this study is somewhat unexpected. Further research is required for a clearer understanding.

Like some previous studies (e.g., Tang, 2006), the odds of harsh physical disciplining were significantly higher for mothers identifying as housewives compared to paid employees. The explanation for this may be that house-bound primary caregivers usually spend much of their time with their children. Also, unlike employed

caregivers working outside home, the home-staying caregiver may not have much social interaction. It is possible that the ensuing loneliness, coupled with the burden of chores and childcare, often with more than one child in these communities, can cause mood swings and proneness to being harsh on the child (Sultana et al., 2015). Second, housewives likely have fewer opportunities to learn alternative skills to discipline their children, thus resorting to traditionally accepted corporal punishment (Singh and Kiran, 2014). Third, parents who work outside home might develop a guilty feeling for leaving their children and going to work; thus, they engage in supportive parenting to compensate for not being home during the working hours compared with non-working parents (Alam, 2012; Sultana et al., 2015).

Several international studies have reported that older children are at higher risk for harsh discipline compared to younger children (Runyan et al., 2010), including studies in Laos (Pengpid & Peltzer, 2020a, b) and Sierra Leone (Pengpid & Peltzer, 2020a, 2020b). In this study, there was a trend for children older than 5 years to be more likely to experience harsh physical punishment than children below 5 years, though this did not reach statistical significance. This may be due to the restricted age range of the sample in this study (ages 4–6).

While some of the correlational findings are consistent with previous research, there are also some findings that are different from the literature. Specifically, while many studies have found that male children are at greater risk for harsh physical discipline, there was no child sex effect in this study. Similarly, based on previous research, the authors hypothesized that lower family economic status and/or educational achievement level would be associated with greater likelihood of harsh discipline. However, in this study, neither of these factors contributed significantly. Furthermore, contrary to previous reports, perceived lower social status was actually associated with less likelihood of reported use of harsh physical punishment by primary caregivers in Ethiopia. These contradictory findings need to be looked into in future studies. However, one explanation may be that the average family income level and educational attainment level is relatively low among all the families in this study; this lack of variability may be one potential explanation for the unexpected findings (or lack thereof). In addition, it is possible that parents with higher perceived social status felt more comfortable openly endorsing harsh parenting practices from their more empowered social position.

Study Limitations

While the large and representative study sample and use of an adapted well-established measure are strengths of this study, there are some limitations. The data on parental discipline practices is based solely on parental report and thus subject to potential bias. One might expect that reliance on parental report would result in an underestimate of harsh discipline practices. However, the relatively high rates of endorsement of harsh disciplinary practices reported suggest that parents were not too reluctant to endorse these items. Of note, given that there are no statutes against harsh discipline in the home, parents would not face any negative consequences from disclosing harsh physical punishment. The fact that so many

parents were not reluctant to endorse these behaviors further reinforces that the harsh disciplinary practices are culturally acceptable, thus highlighting the need for educational interventions.

Also, while the Parent–Child Conflict Tactics Scale is well supported by sound psychometric data and the translation process used in this study was rigorous, the translated versions were not subjected to rigorous psychometric analysis. In addition, the interview format is different than in more standard self-report administration methods. However, this adaptation was necessary for use in Ethiopia with participants who have varied literacy and in regions with different language dialects.

Conclusions and Recommendations

This study represents the largest survey of parents of young children in Ethiopia reporting on disciplinary practices using an adapted established measure. The results highlight that the majority of young children in Ethiopia have experienced harsh physical punishment by age 6. These data provide strong evidence for the need for interventions to reduce such harmful practices. The study also identified significant correlates of harsh punishment that will be used to tailor educational, family support interventions to shift parenting practices. For example, given higher risks of harsh discipline practices among women identifying as housewives, there will be greater attention to the particular challenges experienced by these parents when implementing the intervention.

All types (moderate and severe) of corporal punishment are associated with many maladaptive outcomes for children and families. Global organizations have called for educational interventions to raise awareness of the harm of corporal punishment and to teach parents how to employ more effective, less harmful disciplinary methods. Shifting these parenting practices could have significant impact on a wide range of health, education, economic, and family outcomes (The Global Partnership to End Violence, 2021). Basing the implementation and evaluation of such interventions on rigorous data collection is critical to ensure that well-intended interventions are targeted appropriately and evaluated rigorously. Thus, a follow-up study using the same measurement tool will be conducted in Ethiopia after the ESRI interventions are delivered to determine if the rates of harsh physical discipline are reduced significantly.

Funding The study was funded in part by the Grand Challenges Canada and The ELMA Foundation.

Declarations

Conflict of Interest The authors declare no competing interests.

References

- Afifi, T. O., Mota, N., Macmillan, H. L., & Sareen, J. (2013). *Harsh Physical Punishment in Childhood and Adult Physical Health*. <https://doi.org/10.1542/peds.2012-4021>
- Akmatov, M. K. (2011). Child abuse in 28 developing and transitional countries—results from the multiple indicator cluster surveys. *International Journal of Epidemiology*, *40*(1), 219–227. <https://doi.org/10.1093/ije/dyq168>
- Alam, S. (2012). A study on stress and work family conflict among married women in their families. *Journal of Applied Sciences Research*, *8*(8), 4161–4166.
- Alyahri, A., & Goodman, R. (2008). Harsh corporal punishment of Yemeni children: Occurrence, type and associations. *Child Abuse & Neglect*, *32*(8), 766–773. <https://doi.org/10.1016/j.chiabu.2008.01.001>
- Ayiro, L., Mbagaya, C. V., & Othuon, L. A. (2019). Parenting style and maltreatment of Kenyan children in middle childhood. *International Academic Journal of Social Sciences and Education*, *2*(1), 247–261.
- Baba, S., Eshak, E. S., Shirai, K., Fujiwara, T., Yamaoka, Y., & Iso, H. (2020). Factors associated with family member's spanking of 3.5-year-old children in Japan. *Journal of Epidemiology*, *30*(10), 464–473. <https://doi.org/10.2188/jea.JE20190160>
- Callender, K. A., Olson, S. L., Choe, D. E., & Sameroff, A. J. (2012). The effects of parental depressive symptoms, appraisals, and physical punishment on later child externalizing behavior. *Journal of Abnormal Child Psychology*, *40*(3), 471–483. <https://doi.org/10.1007/s10802-011-9572-9>
- Cappa, C., & Dam, H. (2014). Prevalence of and risk factors for violent disciplinary practices at home in Viet Nam. *Journal of Interpersonal Violence*, *29*(3), 497–516. <https://doi.org/10.1177/0886260513505215>
- Cappa, C., & Khan, S. M. (2011). Understanding caregivers' attitudes towards physical punishment of children: Evidence from 34 low- and middle-income countries. *Child Abuse and Neglect*, *35*(12), 1009–1021. <https://doi.org/10.1016/j.chiabu.2011.10.003>
- Cuartas, J., McCoy, D. C., Rey-Guerra, C., Britto, P. R., Beatriz, E., & Salhi, C. (2019). Early childhood exposure to non-violent discipline and physical and psychological aggression in low- and middle-income countries: National, regional, and global prevalence estimates. *Child Abuse and Neglect*, *92*, 93–105. <https://doi.org/10.1016/j.chiabu.2019.03.021>
- Danese, A., Moffitt, T. E., Harrington, H., Milne, B. J., Polanczyk, G., Pariante, C. M., Poulton, R., & Caspi, A. (2009). Adverse childhood experiences and adult risk factors for age-related disease: Depression, inflammation, and clustering of metabolic risk markers. *Archives of Pediatrics & Adolescent Medicine*, *163*(12), 1135–1143. <https://doi.org/10.1038/jid.2014.371>
- Dede Yildirim, E., Roopnarine, J. L., & Abolhassani, A. (2020). Maternal use of physical and non-physical forms of discipline and preschoolers' social and literacy skills in 25 African countries. *Child Abuse and Neglect*, *106*. <https://doi.org/10.1016/j.chiabu.2020.104513>
- dos Santos, V., da Silva, P. H. D., & Gandolfi, L. (2018). Parents' use of physical and verbal punishment: Cross-sectional study in underprivileged neighborhoods. *Jornal De Pediatria (versão Em Português)*, *94*(5), 511–517. <https://doi.org/10.1016/j.jpedp.2017.10.004>
- Durrant, J., & Ensom, R. (2012). Physical punishment of children: Lessons from 20 years of research. *Canadian Medical Association Journal*, *184*(12), 1373–1377. <https://doi.org/10.1503/cmaj.101314>
- Gebrehiwot, SG. (2015). Violent child disciplining practices at home in Mekelle, Ethiopia: A child rights-based perspective. *Social Justice Perspectives (SJP)*. Retrieved from <http://hdl.handle.net/2105/33142>
- Gershoff, E. T., & Grogan-Kaylor, A. (2016). Spanking and child outcomes: Old controversies and new meta-analyses. *Journal of Family Psychology*, *30*(4), 453–469. <https://doi.org/10.1037/fam0000191>
- Hecker, T., Hermenau, K., Isele, D., & Elbert, T. (2014). Corporal punishment and children's externalizing problems: A cross-sectional study of Tanzanian primary school aged. *Child Abuse & Neglect*, *38*(5), 1–9. <https://doi.org/10.1016/j.chiabu.2013.11.007>
- Hunter, W. M., Jain, D., Sadowski, L. S., & Sanhueza, A. I. (2000). Risk factors for severe child discipline practices in rural India. *Journal of Pediatric Psychology*, *25*(6), 435–447. <https://doi.org/10.1093/jpepsy/25.6.435>

- Hyland, M. E., Alkhalaf, A. M., & Whalley, B. (2013). Beating and insulting children as a risk for adult cancer, cardiac disease and asthma. *Journal of Behavioral Medicine*, *36*(6), 632–640. <https://doi.org/10.1007/s10865-012-9457-6>
- Lansford, J. E., Godwin, J., Tirado, L. M. U., Zelli, A., Al-Hassan, S. M., Bacchini, D., Bombi, A. S., Bornstein, M. H., Chang, L., Deater-Deckard, K., Di Giunta, L., Dodge, K. A., Malone, P. S., Oburu, P., Pastorelli, C., Skinner, A. T., Sorbring, E., Tapanya, S., & Alampay, L. P. (2015). Individual, family, and culture level contributions to child physical abuse and neglect: A longitudinal study in nine countries. *Development and Psychopathology*, *27*(4 pt 2), 1417–1428. <https://doi.org/10.1017/S095457941500084X>
- Lorber, M. F., O’Leary, S. G., & Smith Slep, A. M. (2011). An initial evaluation of the role of emotion and impulsivity in explaining racial/ethnic differences in the use of corporal punishment. *Developmental Psychology*, *47*(6), 1744–1749. <https://doi.org/10.1037/a0025344>
- Mackenzie, M. J., Nicklas, E., Waldfogel, J., & Brooks-Gunn, J. (2012). Corporal punishment and child behavioral and cognitive outcomes through 5 years-of-age: Evidence from a contemporary urban birth cohort study. *Infant Child Development*, *21*(1), 3–33. <https://doi.org/10.1002/icd.758>
- MacKenzie, M. J., Nicklas, E., Waldfogel, J., & Brooks-Gunn, J. (2013). Spanking and child development across the first decade of life. *Pediatrics*, *132*(5), e1118–e1125. <https://doi.org/10.1542/peds.2013-1227>
- McKee, L., Roland, E., Coffelt, N., Olson, A. L., Forehand, R., Massari, C., Jones, D., Gaffney, C. A., & Zens, M. S. (2007). Harsh discipline and child problem behaviors: The roles of positive parenting and gender. *Journal of Family Violence*, *22*(4), 187–196. <https://doi.org/10.1007/s10896-007-9070-6>
- Meshesha, H. S., & Johnson, V. (2021). A systematic review of culturally responsive approaches to child and adolescent mental health care in Ethiopia. *Frontiers in Sociology*, *5*. <https://doi.org/10.3389/fsoc.2020.583864>
- Mulugeta, E. (2016). *Mapping report for young lives research policy program on violence affecting children and youth (VACAY)*. Addis Ababa University
- Norman, R. E., Byambaa, M., De, R., Butchart, A., Scott, J., & Vos, T. (2012). The long-term health consequences of child physical abuse, emotional abuse, and neglect: A systematic review and meta-analysis. *PLoS Medicine*, *9*(11). <https://doi.org/10.1371/journal.pmed.1001349>
- Owen, S. (2014). *Briefing on Ethiopia for the committee on the rights of the children*. Prepared for United Nations Human Rights Committee and Global Initiative to End all Corporal Punishment of Children. 2 The legality of corporal punishment of children in Ethiopia. <https://tbinternet.ohchr.org>
- Pankhurst, A., Negussie, N., & Mulugeta, E. (2016). *Understanding children’s experiences of violence in Ethiopia: Evidence from young lives*. UNICEF. <https://doi.org/10.18356/142350f1-en>
- Pengpid, S., & Peltzer, K. (2020a). Prevalence and associated factors of child abuse and its effects on anxiety and depression among children in Sierra Leone: Results of the 2017 Multiple Indicator Cluster Survey. *Journal of Psychology in Africa*, *30*(5), 466–470. <https://doi.org/10.1080/14330237.2020.1821982>
- Pengpid, S., & Peltzer, K. (2020b). Prevalence and factors associated with physical punishment and psychological aggression towards children in Laos: Results of the 2017 social indicator survey. *Iranian Journal of Psychiatry and Behavioral Sciences*, *14*(4), 10–16. <https://doi.org/10.5812/ijpbs.97456>
- Runyan, D. K., Shankar, V., Hassan, F., Hunter, W. M., Jain, D., Paula, C. S., Bangdiwala, S. I., Ramiro, L. S., Muñoz, S. R., Vizcarra, B., & Bordin, I. A. (2010). International variations in harsh child discipline. *Pediatrics*, *126*(3), 701–711. <https://doi.org/10.1542/peds.2008-2374>
- Sege, R. D., Siegel, B. S., Flaherty, E. G., Gavril, A. R., Idzerda, S. M., Laskey, A. “Toni”, Legano, L. A., Leventhal, J. M., Lukefahr, J. L., Yogman, M. W., Baum, R., Gambon, T. B., Lavin, A., Mattson, G., Montiel-Esparza, R., & Wissow, L. S. (2018). Effective discipline to raise healthy children. *Pediatrics*, *142*(6), e20183112. <https://doi.org/10.1542/peds.2018-3112>
- Shahhosseini, Z., Esmacili, D., Vaezzadeh, N., Esmacili, M., Hosseini, S., Kaheni, S., & Esmacili, H. (2014). Identification of child maltreatment in Iranian children with the parent-child conflict tactics scale. *Annals of Medical and Health Sciences Research*, *4*(5), 713–718. <https://doi.org/10.4103/2141-9248.141527>
- Singh, A., & Kiran, U. V. (2014). Impact of mother’s working status on personality of adolescents. *International Journal of Advanced Scientific and Technical Research*, *4*(1), 86–99. <https://doi.org/10.13140/2.1.1727.8084>
- Skar, A.-M.S., Sherr, L., Macedo, A., von Tetzchner, S., & Fostervold, K. I. (2017). Evaluation of parenting interventions to prevent violence against children in Colombia: A randomized controlled trial. *Journal of Interpersonal Violence*, *36*(1–2), 1098–1126. <https://doi.org/10.1177/0886260517736881>
- Straus, M. A., Hamby, S. L., Finkelhor, D., Moore, D. W., & Runyan, D. (1998). Identification of child maltreatment with the parent-child conflict tactics scales: Development and psychometric data for a

- national sample of American parents. *Child Abuse and Neglect*, 22(4), 249–270. [https://doi.org/10.1016/S0145-2134\(97\)00174-9](https://doi.org/10.1016/S0145-2134(97)00174-9)
- Sultana, A. M., Nor, S., Binti, M., & Suhaili, S. (2015). Parenting styles and satisfaction among working women in Kedah, Malaysia. *Asian Journal of Humanities and Social Studies*, 1(3), 136–141.
- Tadesse, M. E. (2019). Corporal punishment against children in the home setting in Ethiopia. *African Journal of Social Work*, 9(2), 107–115.
- Tang, C. S. (2006). Corporal punishment and physical maltreatment against children: A community study on Chinese parents in Hong Kong. *Child Abuse and Neglect*, 30(8), 893–907. <https://doi.org/10.1016/j.chiabu.2006.02.012>
- The Federal Democratic Republic of Ethiopia Ministry of Education (FMoE). (2020). *Education statistics annual abstract September 2019-March 2020* (Issue September 2019).
- The Global Partnership to End Violence Against Children. (2021). *Corporal punishment of children: Review of research on its impact and associations*. <https://endcorporalpunishment.org/wp-content/uploads/2021/09/Research-effects-full-working-paper-2021.pdf>. Accessed 16 June 2022
- UNDP Ethiopia. (2018). *Ethiopia's progress towards eradicating poverty*. Implementation of the Third United Nations Decade for the Eradication of Poverty (2018 – 2027), 1–9. <https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2018/04/Ethiopia%E2%80%99s-Progress-Towards-Eradicating-Poverty.pdf>. Accessed 16 June 2022
- UNICEF. (2014). *Hidden in plain: Sight a statistical analysis of violence against children*. <https://data.unicef.org/resources/hidden-in-plain-sight-a-statistical-analysis-of-violence-against-children/>. Accessed 16 June 2022
- UNICEF. (2017). *A familiar face: Violence in the lives of children and adolescents*. <https://data.unicef.org/resources/a-familiar-face/>. Accessed 16 June 2022
- UNICEF. (2021). *Ethiopia (ETH) - Demographics, health & infant mortality - UNICEF data*. <https://data.unicef.org/country/eth/>. Accessed 16 June 2022
- Wang, M., & Liu, L. (2014). Parental harsh discipline in mainland China: Prevalence, frequency, and coexistence. *Child Abuse and Neglect*, 38(6), 1128–1137. <https://doi.org/10.1016/j.chiabu.2014.02.016>
- Ward, C. L., Wessels, I. M., Lachman, J. M., Hutchings, J., Cluver, L. D., Kassanjee, R., Nhapi, R., Little, F., & Gardner, F. (2020). Parenting for lifelong health for young children: A randomized controlled trial of a parenting program in South Africa to prevent harsh parenting and child conduct problems. *The Journal of Child Psychology and Psychiatry*, 61(4), 503–512. <https://doi.org/10.1111/jcpp.13129>
- Watakakosol, R., Suttiwan, P., Wongcharee, H., Kish, A., & Newcombe, P. A. (2019). Child abuse & neglect parent discipline in Thailand: Corporal punishment use and associations with myths and psychological outcomes. *Child Abuse & Neglect*, 88, 298–306. <https://doi.org/10.1016/j.chiabu.2018.12.002>

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Authors and Affiliations

Menelik Desta¹ · Negussie Deyessa² · Yohannes Hailu¹ · Abenezer Baye¹ ·
Nataly Rodriguez³ · Irving Fish⁴ · Ann F. Garland³

Menelik Desta
menelikdesta@gmail.com

Negussie Deyessa
negdaysun@gmail.com

Yohannes Hailu
yhailu2@gmail.com

Abenezer Baye
abenezer.baye@gmail.com

Nataly Rodriguez
natalyrodriquez@sandiego.edu

Irving Fish
drirvingfish@gmail.com

- ¹ Ethiopian School Readiness Initiative, Addis Ababa, Ethiopia
- ² School of Public Health, Health Science College, Addis Ababa, Ethiopia
- ³ School of Leadership and Education Sciences, University of San Diego, San Diego, CA, USA
- ⁴ School of Medicine, New York University, New York, NY, USA