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## Parenting, the other oldest profession in the world – a cross-sectional study of parenting and child outcomes in South Africa and Malawi

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### ABSTRACT

Parenting quality is important in child development. In the presence of HIV poverty and life stress, parenting may be challenged and child development affected. This study examines cross-sectional associations of situational factors such as poverty, mental health, HIV status, living with a biological parent, and stigma with good parenting and child outcomes ( $n = 989$ ; age = 4–13 years) within the Child Community Care study (South Africa and Malawi). A parenting measure was created from 10 variables comprising 6 child and 4 parent ratings. These were highly correlated. Total parenting score was generated on a 10-point continuous scale, with a good parenting cut-off then defined as  $\geq 8$  out of a possible 10. Five factors were associated with good parenting. Positively associated with good parenting were being the biological parent of the child, parental mental health and dwelling in households with multiple adults. Poverty and stigma were negatively associated with good parenting. Using multiple mediation analysis, a positive direct effect of good parenting was found on child self-esteem, child behaviour and educational risks with a partial mediation via child depression and trauma. These data highlight possible intervention points. Influences on parenting could be seen through being the biological parent, parental mental health, poverty and stigma. In these challenging environments, health, nutrition, mental health, education and treatment to keep parents alive are all clearly identified as potential pathways to ensure child well-being.

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### KEYWORDS

Parenting; poverty; stigma; caregiver mental health; household size; depression; trauma; educational outcomes; HIV/AIDS

## Introduction

Optimal child development does not occur in a vacuum. Indeed without optimum adult attention and care, educational, behavioural and emotional progress for children becomes increasingly negatively impacted. Young children in particular are highly dependent on

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adult caregiving for their learning and growth. Parenting demands no university degree, no specialised training, and yet it is one of the most important influences on tomorrow's generation.

### *Parenting style and child outcomes*

There is sound evidence that the parenting style, warmth, support and harsh parenting all affect child health and developmental outcomes. Both maternal and paternal depression have been shown to negatively affect child development (Kvalevaag et al., 2013; Tsivos, Calam, Sanders, & Wittkowski, 2015). Parenting that involves violence has long-lasting negative sequelae on children, notably in educational and emotional outcomes (Sherr et al., 2016; Skeen, Macedo, Tomlinson, Hensels, & Sherr, 2016). In high-income countries, adult studies of negative life outcomes have examined childhood experiences and found strong pathways of effect from negative family experiences to long-term outcomes (Schilling, Aseltine, & Gore, 2007). Parenting quality has been associated with many child outcomes, including social skill acquisition, general learning, mental health, various health behaviours and it has been shown that these early impacts persist into adulthood (Morrison, Pikhart, Ruiz, & Goldblatt, 2014). Prospective longitudinal studies demonstrate that early child development and stimulation can have long-lasting ramifications for child achievement, school outcomes and adult work and functioning (Walker, Chang, Powell, & Grantham-McGregor, 2005). More detailed understanding of child development demonstrates the importance of secure attachments, cognition, social communication, moral values, behaviour, boundaries, limitations and control, happiness and nourishment, skill and interest development, education and all it encompasses – reading, writing, maths, new skills in an interconnected world, growth and change (Grantham-McGregor et al., 2007).

There are several key domains in which caregiving influences child developmental progress (Bryanton, Beck, & Montelpare, 2013). For example, parenting involves input into regulation of an infant's emotional state which aids the infant's nascent development of self-regulation strategies (Gerhardt, 2004), while parental responsiveness plays a role in the formation of secure attachment bonds (Tomlinson, Cooper, & Murray, 2005). The literature on parenting is often skewed towards mothers, despite the growing evidence of the importance of fathers and co-parenting/multiple parenting (Panter-Brick et al., 2014). A significant part of the child developmental literature has been focused on defining "good parenting" and exploring the effects of different parenting styles on child outcomes (Arepattamannil, 2010). Dimensions of parenting that have been studied include supportiveness and firmness (Barber, Stolz, & Olsen, 2005). Supportive parenting involves high levels of warmth, positive affect and a child-centred orientation (Deater-Deckard et al., 2011). Supportive parenting is also associated with positive forms of discipline and contributes to the development of children's prosocial behaviours, fostering emotional sensitivity and the ability to help others (Barber et al., 2005). Parental monitoring as well as empathy (Stern, Borelli, & Smiley, 2015) have been shown to affect attachment and risk-taking behaviour in youth and adulthood (Dessie, Berhane, & Worku, 2014). Attachment history has been shown to be clearly related to the growth of self-reliance, capacity for emotional regulation and social competence (Sroufe, 2005), with harsh or coercive parenting styles associated with childhood and later conduct problems (Sitnick et al., 2015).

The literature includes both parenting styles and specific parenting practices (Carlo, McGinley, Hayes, Batenhorst, & Wilkinson, 2007). Parental expectations and parental beliefs have strong effects on child school outcomes (Carreteiro, Justo, & Figueira, 2016). Many of the studies on parenting are set up to prevent negative outcomes or to amend or ameliorate parental behaviour in the presence of factors such as poverty, depression, child behavioural problems, preterm birth or other diagnosed conditions in children.

### *HIV and parenting*

In the era of HIV infection, in high endemic countries – mostly in sub-Saharan Africa – there are significant challenges to parenting (Stein et al., 2005). These include parental illness and death (Sherr et al., 2008), economic challenge and poverty (Duggan, 2014), mental health strain (Chibanda, Benjamin, Weiss, & Abas, 2014) and stigma (Pantelic, Shenderovich, Cluver, & Boyes, 2015), household illness (Meinck, Cluver, & Boyes, 2015), trauma (Meinck, Cluver, Boyes, & Mhlongo, 2015) and multiple exposure to stressors (Casale, 2015). Parental illness and death has resulted in a broad range of alternative parenting arrangements, with parenting and support provided by grandparents, teachers, siblings, family and the wider community (Hosegood & Madhavan, 2010). Despite parental death and illness in the first waves of the HIV epidemic (Sherr et al., 2008), antiretroviral treatment roll-out may have turned the tide on parental survival (Kellerman & Sugandhi, 2013), and studies show that for the most part, at least one biological parent still provides most of the parenting for young children (O'Connor & Scott, 2007). Studies on orphanhood and on institutionalised children (Berens & Nelson, 2015) have demonstrated how the absence of dedicated, individualised and continuous parenting jeopardises development.

### *Parenting under stress*

Parenting under conditions of stress can compromise the efficacy of interventions and ameliorating capacity of interventions (Kim, Ho, Evans, Liberzon, & Swain, 2015). Newer and more intergenerational models are needed to understand the best path forward (Shonkoff & Fisher, 2013). Although a recent systematic review has shown that exporting parenting interventions to different cultural settings can be highly effective (Gardner, Montgomery, & Knerr, 2016), there is a dearth of studies in low-income settings examining the factors associated with good parenting and the subsequent outcomes for children or associated characteristics of the child in the presence of good parenting. This has been studied by examining interventions to enhance parenting and observations to see if these affect child outcomes – with a growing evidence base of efficacy in both resource-poor and rich settings (Evans, Whittingham, Sanders, Colditz, & Boyd, 2014; Meinck, Cluver, Boyes, & Mhlongo, 2015; Morrison et al., 2014). Yet many studies concentrate on infants (Miller, Maguire, & Macdonald, 2011) and evidence is required across a wider age range.

A second strategy to study parenting is to monitor a group of children and explore parenting experiences – perhaps in the absence of parenting interventions, to understand what factors in the general environment are associated with good parenting and what

child outcomes can be seen in the presence or absence of such factors. These data are valuable in that they are longitudinal, allowing for estimations of change over time as well as having data collected from both children and their caregivers. This has the potential to provide findings that offer insights into models of intervention with children as well as with policy (Shonkoff & Fisher, 2013).

### **Study aims**

This cross-sectional study utilised an existing database to explore two key research questions: firstly what factors predict good parenting and secondly what child outcomes are associated with good parenting. This study examines unique data from South Africa and Malawi and incorporates specific factors associated with these study settings that have been under-studied in the general parenting and child outcomes literature. Such variables include stigma, poverty, mental health and HIV considerations related to infection and family composition when faced with parental death. The study first examines social, economic, health and community-level factors associated with good parenting, and then secondly identifies child-level outcomes associated with the receipt of good parenting. Finally, we investigate whether good parenting influences key child outcomes through direct, indirect or mediated pathways.

## **Method**

### **Participants**

The study is drawn from the Child Community Care study. Questionnaire data were gathered from both 989 children (50.9% girls) aged 4–13 years ( $M = 8.91$  years,  $SD = 2.84$  years) and their primary caregivers attending community-based organisations (CBOs) in South Africa and Malawi. The CBOs were recruited by drawing up a list of all funded programmes from 11 partner organisations (World Vision, UNICEF, Bernard van Leer Association, REPSSI, Stop AIDS Now, the AIDS Alliance, The Diana Memorial Fund, Comic Relief, Help Age, Firelight Foundation and Save the Children). The cumulative 588 programmes were stratified by funder and geographical region and a random selection process generated 28 for inclusion (24 in South Africa and four in Malawi). Consecutive children attending the CBO completed standardised inventories. The children and their caregivers were interviewed by trained data collectors separately. Caregivers provided written consent and the children provided verbal assent. Research data were collected by trained data collectors using mobile phone technology (Tomlinson et al., 2009). The study was given ethical approval by the University College London ethics board (reference number 1478/002) and the Health Research Ethics Committee at Stellenbosch University (reference number N10/04/112). Questionnaires were constructed to examine broad domains of child functioning. The measures are set out below. The data supporting the conclusions of this article are available upon request via application to the principal investigator. The measures were chosen taking into account the age range of the respondents, the lack of validated measures within many of the low-income settings, and the need for full and detailed training of data collectors to ensure careful completion and full familiarity with instructions.

## Measures

These were gathered by a combination of direct child report, caregiver report and observer measures. (1) *Carer and family exposures* included (i) socio-economic measure: participants were asked to indicate in which of different types of houses they lived (house/flat or informal dwelling/shack); (ii) carer health: medical history questions adapted from the Mad about Art study were included (Mueller, Alie, Jonas, Brown, & Sherr, 2011). Carer HIV status was determined using self-report; (iii) carer mental health: Patient Health Questionnaire (PHQ) was used to screen for depression. The PHQ (Kroenke, Spitzer, & Williams, 2001) has been validated in two Kenyan studies (Monahan et al., 2009; Omoro, Fann, Weymuller, Macharia, & Yueh, 2006) and with young people in Nigeria (Adewuya, Ola, & Afolabi, 2006) and used extensively in South Africa. Participants are asked how often they have been bothered by certain problems in the past two weeks, such as “Little interest or pleasure in doing things”; (iv) carer exposure to stigma: stigma was determined using a caregiver report item consisting of three items measuring HIV-related stigma, from the Community Maltreatment, Exploitation, Stigma and Discrimination domain of a UNICEF tool for monitoring psychosocial support in AIDS-affected children. The questions address whether the community talks negatively about HIV, whether children with HIV are likely hurt, and whether the community rejects individuals with HIV. The questions were binary, so a score from 0 to 3 could be obtained, with higher scores indicating worse stigma (Snider & Dawes, 2006); (v) living arrangements: individual items about living and caregiving status of the child were developed for use in this study to determine whether the caregiver was the biological parent of the child or not; and (vi) separation and bereavement: carer and child report questions on recent death, illness and separation.

(2) *Child outcomes* included (i) child height and weight: children were measured and weighed and these measurements were used to calculate BMI-for-Age, Height-for-Age and Weight-for-Age using WHO Child Growth Standards. Cut-offs of these measures were used to determine the percentage of children who were stunting, wasting and/or underweight; (ii) child food security: the child and carer reported items from the Food Security Domain of the Child Status Index (CSI) (Nyangara, O'Donnell, Murphy, & Nyberg, 2009). Children were for instance asked whether they went to bed hungry the previous night. In Malawi, these items were found to have moderate validity (Sabin, Tsoka, Brooks, & Miller, 2011); (iv) child health: carer report medical history questions adapted from the Mad about Art study were included (Mueller et al., 2011), and were used to determine child HIV status; and (v) child mental health and cognitive outcomes are outlined in detail in Table 1. Given the age range (4–13) some measures were not reliably validated for the younger ages. All measures were completed according to the age range of the validation. See Table 1 for an overview of all the composite child outcome measures used.

## Parenting measure

We developed a parenting measure based on 10 variables aligned with the literature on parenting from 6 child and 4 parent ratings to generate a composite measure of parenting. By providing both child and caregiver perspectives, we aimed to strengthen the measure.

**Table 1.** Child measures.

Variable	Tool/scale	Items	Scoring range	Reliability ( $\alpha$ )	Item example	Reference	Validation/previous use of scale in similar setting
Quality of life	Paediatric Quality of Life Inventory	15	0–100	N/A	In the past ONE month how much of a problem has your child had with worrying about what will happen to him or her	Varni, Seid, and Kurtin (2001)	
Behavioural problems	Strengths and Difficulties Questionnaires	10	0–20	N/A	(In the past six months) is your child often unhappy downhearted or tearful?	Goodman (1997)	Cluver and Gardner (2006)
Depression	Child Depression Inventory	10	0–20	0.63	I have plenty of friends/I have some friends but I wish I had more/I don't have any friends	Kovacs (1992)	Mueller et al. (2011); Snider and Dawes (2006)
Self-esteem	Rosenberg Self-Esteem Scale	10	0–30	0.61	On the whole, I am satisfied with myself.	Rosenberg (1965)	Mueller et al. (2011); Schmitt and Allik (2005)
Trauma	Trauma Symptom Checklist for Children	10	0–30	0.74	I remember things that happened that I didn't like.	Briere (1996)	
Educational risk	Child Status Index, Paediatric Quality of Life Inventory school functioning subscale	4	0–4		How do teachers report your child is doing in school?	Nyangara et al. (2009); Varni et al. (2001)	
Digit span	Junior South African Individual Scales (JSAIS) and Senior South African Individual Scale – Revised (SSAIS-R)	8 (4–5y only)	0–16 (4–5y only)		N/A	Madge and Robinson (1985)	Madge and Robinson (1985)
Draw-a-person score		15 (6–13y)	30 (6–13y only)				
71 items (Woman)	73 items (Man) 0–144		N/A	Harris and Goodenough (1963)			

The variables reflected positive parenting, warmth, boundaries, expressing love and praise, consistent care, utilising positive discipline styles and an absence of abuse or neglect. Child-reported data included the following items: (1) feeling of belonging (“Do you feel that you belong with the people that you live with – i.e. does it feel like home?”) Responses categories were *yes, somewhat* or *not at all* and coded into yes/no; (2) receiving praise (“Does someone at home praise you when you do something well?”) Responses categories were *yes, somewhat* or *not at all* and coded into yes/no; (3) receiving love and praise (“How often do adults in your home hug, kiss and praise you?”) Responses categories were *weekly, monthly, less often* or *never*, and coded into yes, regularly/less often or never; (4) receiving treats (“How often have you been given treats?”) Responses categories were *weekly, monthly, less often* or *never*, and coded into yes, regularly/ less often or never; (5) receiving same necessities as other children (“Do you get the same food/clothes/school fees/ school equipment as other children you live with?”) Responses were *I get more, I get less* or *I get the same* and coded into *yes, I get the same or more/no, I get less*; and (6) treatment compared with other children (“How are you treated compared to other children you live with?”). Response categories were *better, worse* or *the same*, and coded into *yes, the same or better/ no, worse*. The parenting variables from the caregivers’ data included: (1) two items from the positive discipline subscale of the Conflict Tactics Scale (Straus, 1979) (“In the past year, how often have you explained to your child something they did was wrong?”, and “In the past year, how often have you took away privileges or stopped your child from going out with friends, or stopped other activities like playing sport to teach them a lesson?”) Responses categories were *weekly, monthly, less often* or *never*, and coded into *ever/never*, (2) two items taken from the CSI tool (O’Donnell, Nyangara, Murphy, Cannon, & Nyberg, 2013), the first focused on safety and lack of abuse (“Is this child safe from any abuse, neglect or exploitation?”. Response categories were *no, yes fully, yes partially, not sure* and coded into *yes fully/ all others*; and the second related to care and support (“Does your child have at least one adult (over 18) who provides consistent care, attention and support?”). Responses were coded into *yes, this child has a primary adult caregiver who is involved in the child’s life and who protects and nurtures the child/ no, this child’s caregiver is limited by illness, age or seems indifferent to this child or this child has no consistent adult in his or her life who provides love, attention and support or this child is completely without the care of an adult and must fend for him or herself or lives in a child-headed household*. There was a strong positive correlation between child parenting score ( $M = 4.53$ ,  $SD = 0.94$ ) and carer parenting score ( $M = 2.21$ ,  $SD = 0.61$ ),  $r = .072$ ,  $p = 0.03$ . All 10 items were converted into a binary (yes/no) variable. A total score on the 10 items provided for a working definition of good parenting with 0 being the lowest score and 10 the highest score. For the purposes of the study parenting was first used as a continuous variable and then good parenting was dichotomised to those scoring  $\geq 8$  seen as good parenting group ( $n = 231$ ) and those scoring  $< 8$  ( $n = 746$ ) as not good parenting. Of note was the fact that no participants scored 10, and only 37 scored 9.

### Statistical analysis

Data were analysed using SPSS v20. First, a principal component factor analysis was conducted on the 10 questions to examine the veracity of the scale. The analysis found three



factors with Eigenvalues higher than 1, which also loaded onto core parenting concepts in the literature. The first factor clustered around measures loading on belonging, the second encapsulated love, warmth and care, and the third centred around control and boundary setting. Together they explained 40.3% of the variance. A parenting scale score was created and then the parenting scale was dichotomised – good parenting was defined as scoring  $\geq 8$  on the parenting scale. Second, predictors of parenting were examined using univariate and multivariate regression analyses, controlling for relevant demographic variables. Third, we used linear (for continuous variables) and logistic (for binary outcomes) regression models to test associations between child outcomes and parenting (both parenting scores and good parenting). Finally, mediation analyses were performed using the SPSS macro PROCESS (Hayes, 2013). This mediation analysis was chosen because it allows for the simultaneous testing of multiple mediators (Hayes, 2013). Child depression and child trauma, being the two indicators of child mental health in the current study, were considered as potential mediators. The predictor variable was good parenting (dichotomous variable). All analyses were controlled for child and carer gender, child and carer age, and country of residence (i.e. South Africa or Malawi). Analyses were done on cross-sectional data. All reported confidence intervals are 95%.

## Results

The sample is described in Table 2. Just under 15% of the children and almost 20% of the caregivers were HIV-positive. Almost half of the caregivers were the children's biological parents, while nearly 12% of the caregivers scored above the cut-off for depression.

### *What factors are associated with good parenting?*

Tables 3 and 4 summarise the regression analyses showing predictors of parenting scores and good parenting. After controlling for relevant demographic variables, it was found that experiencing stigma predicted lower parenting scores ( $B = -0.30$ ,  $CI = -0.38, -0.23$ ;  $p < .001$ ). Living in informal housing also predicted lower parenting scores ( $B = -0.30$ ,  $CI = -0.52, -0.70$ ;  $p = .01$ ), indicating that poverty challenges parenting

**Table 2.** Sample characteristics, including demographics on the children and the caregivers.

Variable name	<i>M</i> (SD) or <i>N</i> (%)
Carer age	43.45 (15.01)
Carer gender	903 (94.9%)
Carer HIV status	185 (19.4%)
Carer mental health	112 (11.8%)
Biological parent	461 (46.6%)
Stigma	0.14 (0.51)
Number of adults in the household	6.42 (2.90)
Living in a shack	152 (15.4%)
Child age	8.91 (2.84)
Child gender	503 (50.9%)
Child HIV status	135 (13.7%)

Note: Gender variables display the number of females in the sample. The mental health variable displays the number of carers scoring above the cut-off for depression. The HIV variables display the number of HIV-positive individuals.

capability. On the other hand, being a biological parent was associated with higher parenting scores ( $B = 0.20$ ;  $CI = 0.03, 0.37$ ;  $p = .02$ ). Interestingly, caregivers who scored above the cut-off for depression had also higher parenting scores ( $B = 0.32$ ;  $CI = 0.08, 0.55$ ;  $p = .008$ ). We also explored predictors of good parenting (Tables 3 and 4). Similarly, experienced stigma ( $OR = 0.66$ ;  $CI = 0.54, .82$ ;  $p < .001$ ) and deprivation (living in informal housing) ( $OR = 0.62$ ;  $CI = 0.39, 0.97$ ;  $p = .03$ ) were both associated with lower odds of good parenting. Additionally, being a biological parent was associated with good parenting ( $OR = 1.58$ ;  $CI = 1.14, 2.19$ ;  $p = .006$ ). Caregiver mental health was also a significant predictor of good parenting – caregivers scoring above the threshold for depression had higher odds of being a good parent ( $OR = 1.95$ ;  $CI = 1.29, 2.94$ ;  $p = .009$ ). Lastly, the number of adults in the household was positively associated with higher odds of good parenting ( $OR = 1.09$ ;  $CI = 1.03, 1.15$ ;  $p = .002$ ).

### What child outcomes is good parenting associated with?

Tables 5 and 6 summarise the linear (for continuous outcomes) and logistic (for continuous outcomes) regressions analysing the association between the parenting scale score and

**Table 3.** Linear regression models showing predictors of parenting (continuous variable).

	Unadjusted <i>B</i> (95% CI)	Adjusted model <i>B</i> (95% CI)
Poverty (living in informal dwelling)	6.97 (6.70, 7.23)	-0.30 (-0.52, -0.70)**
Carer mental health	0.31 (0.08, 0.54)**	0.32 (0.08, 0.55)**
Biological parent	0.19 (0.04, 0.35)*	0.20 (0.03, 0.37)*
Stigma	-0.31 (-0.39, -0.24)***	-0.30 (-0.38, -0.23)***
Number of adults in the household	0.02 (-0.01, 0.05)	0.02 (-0.01, 0.06)
Child gender (female)	0.16 (0.007, 0.32)*	-
Child age	-0.004 (-0.03, 0.02)	-
Carer gender (female)	-0.12 (-0.46, 0.23)	-
Carer age	-0.004 (-0.009, 0.002)	-
Country (South Africa)	0.36 (0.16, 0.57)***	-

Note: Analyses are linear regression models showing predictors of parenting (scale 0–10). Adjusted model was controlled for child and carer gender, child and carer age and country.

*B* = unstandardised coefficient; *CI* = confidence interval.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

**Table 4.** Logistic regression models showing predictors of good parenting (dichotomous variable).

	Unadjusted OR (95% CI)	Adjusted model OR (95% CI)
Poverty (living in informal dwelling)	0.77 (0.50, 1.18)	0.62 (0.39, 0.97)*
Carer mental health	1.91 (1.27, 2.87)**	1.95 (1.29, 2.94)**
Biological parent	1.74 (1.29, 2.34)***	1.58 (1.14, 2.19)**
Stigma	0.67 (0.54, 0.82)***	0.66 (0.54, 0.82)***
Number of adults in the household	1.09 (1.02, 1.14)**	1.09 (1.03, 1.15)**
Child gender (female)	0.79 (0.59–1.06)	-
Child age	0.97 (0.92–1.02)	-
Carer gender (female)	0.96 (0.50–1.88)	-
Carer age	0.99 (0.98–0.99)**	-
Country (South Africa)	1.26 (0.83–1.93)	-

Note: The data are cross-sectional; all variables were measured at baseline. Analyses are logistic regression models showing predictors of good parenting (cut-off > 8). Adjusted model was controlled for child and carer gender, child and carer age and country.

OR = odds ratio; *CI* = confidence interval.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

**Table 5.** Linear regression models showing associations between parenting and child outcomes (continuous outcomes).

	Parenting score		Good parenting (cut-off $\geq 8$ )	
	Unadjusted <i>B</i> (95% CI)	Adjusted model <i>B</i> (95% CI)	Unadjusted <i>B</i> (95% CI)	Adjusted model <i>B</i> (95% CI)
Depression score	-0.29 (-0.38, -0.19)***	-0.28 (-0.37, -0.19)***	-0.29 (-0.54, -0.05)*	-0.30 (-0.54, -0.06)**
Self-esteem score	0.61 (0.45, 0.78)***	0.62 (0.46, 0.79)***	1.33 (0.89, 1.78)***	1.40 (0.96, 1.84)***
Digit span score	0.38 (0.14, 0.62)**	0.20 (-0.01, 0.41)	0.29 (-0.32, 0.90)	0.09 (-0.44, 0.63)
Draw-a-person score	1.19 (0.04, 2.34)*	0.14 (-0.82, 1.10)	1.16 (-1.77, 4.09)	0.14 (-2.33, 2.60)
Trauma score	-0.54 (-0.72, -0.37)***	-0.50 (-0.68, -0.32)***	-0.72 (-1.19, -0.24)**	-0.62 (-1.08, -0.16)**
Behavioural problems score	-0.38 (-0.52, -0.24)***	-0.39 (-0.53, -0.26)***	-0.71 (-1.05, -0.36)***	-0.74 (-1.08, -0.40)***
Educational risk score	-0.13 (-0.19, -0.06)***	-0.11 (-0.17, -0.05)***	-0.19 (-0.35, -0.03)*	-0.17 (-0.33, -0.02)*
Quality of life score	0.50 (-0.08, 1.07)	0.62 (0.05, 1.19)*	0.52 (-0.93, 1.97)	0.57 (-0.97, 2.01)

Note: Analyses are linear regression models conducted separately for each continuous outcome at baseline. For all analyses, the predictor variable was parenting scale score (range 0–10) or good parenting. Adjusted model was controlled for child and carer gender, child and carer age and country.

*B* = unstandardised coefficient; CI = confidence interval.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

**Table 6.** Logistic regression models showing associations between parenting and child outcomes (binary outcomes).

	Parenting score		Good parenting (cut-off $\geq 8$ )	
	Unadjusted OR (95% CI)	Adjusted model OR (95% CI)	Unadjusted OR (95% CI)	Adjusted model OR (95% CI)
% with stunting	0.87 (0.77, 0.99)*	0.92 (0.80, 1.04)	0.73 (0.52, 1.01)	0.73 (0.52, 1.03)
% with wasting	1.22 (0.97, 1.70)	1.24 (0.88, 1.75)	1.92 (0.90, 4.09)	2.02 (0.94, 4.35)
% underweight	0.72 (0.56, 0.93)**	0.78 (0.60, 1.00)*	0.53 (0.23, 1.23)	0.54 (0.23, 1.25)
% that went to bed hungry	0.74 (0.62, 0.87)***	0.75 (0.63, 0.89)***	0.50 (0.29, 0.84)**	0.49 (0.29, 0.83)**

Note: Analyses are logistic regression models conducted separately for each binary outcome at baseline. For all analyses, the predictor variable was parenting scale score (range 0–10) or good parenting. Adjusted model was controlled for child and carer gender, child and carer age and country.

OR = odds ratio; CI = confidence interval.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

children outcomes, controlling for child and carer age, child and carer gender, and country of residence. Results showed that higher scores of parenting were associated with fewer depressive symptoms ( $B = 0.28$ ;  $CI = -0.37, 0.19$ ;  $p < .001$ ), fewer trauma symptoms ( $B = -0.50$ ;  $CI = -0.68, 0.32$ ;  $p < .001$ ), fewer behavioural or emotional problems ( $B = -0.39$ ;  $CI = -0.53, 0.26$ ;  $p < .001$ ) and fewer educational risks ( $B = -0.11$ ;  $CI = -0.17, 0.05$ ;  $p = .001$ ). We also found that higher scores of parenting were associated with higher self-esteem scores ( $B = 0.62$ ;  $CI = 0.46, 0.70$ ;  $p < .001$ ), and better quality of life ( $B = 0.62$ ;  $CI = 0.05, 1.19$ ;  $p = .03$ ). Likewise, higher parenting scores were associated with lower odds of being underweight ( $OR = 0.56$ ;  $CI = 0.78, 0.10$ ;  $p = .045$ ) and going hungry ( $OR = 0.75$ ;  $CI = 0.63, 0.89$ ;  $p = 0.001$ ). In addition, we analysed associations between child outcomes and good parenting (caregivers scoring  $\geq 8$  on the parenting scale). The analysis showed that, in the adjusted model, good parenting was associated with fewer depression ( $B = -0.30$ ;  $CI = -0.54, -0.60$ ;  $p < .001$ ) and trauma symptoms ( $B = -0.62$ ;  $CI = -1.08, -0.16$ );  $p = .009$ ), fewer behavioural problems ( $B = -0.74$ ;  $CI = -1.08, -0.40$ ;  $p < .001$ ), and educational risks ( $B = -0.17$ ;  $CI = -0.33, -0.02$ ;  $p = .003$ ), and higher self-esteem ( $B = 1.40$ ;  $CI = 0.96, 1.84$ ;  $p < .001$ ). Finally, good parenting was associated with lower odds of going to bed hungry ( $OR = 0.49$ ;  $CI = 0.29, 0.83$ ;  $p = .009$ ). No associations were observed between parenting and children's cognitive outcomes (digit test and draw-a-person test).

### What are the mediators of the association between good parenting and child development?

Multiple mediation analyses controlling for child and carer gender, age and country of residence showed a direct effect of good parenting on two child outcomes: child behavioural problems as reported by the caregiver ( $B = -0.64$ ;  $CI = -1.09, -0.40$ ;  $p < .001$ ) and child self-esteem ( $B = 1.19$ ;  $CI = 0.77, 1.62$ ;  $p < .001$ ). Indirect effects were also observed. Child depression scores ( $B = 0.05$ ;  $CI = -0.11, -0.01$ ) and child trauma scores ( $B = -0.06$ ;  $CI = -0.13, -0.02$ ) partially mediated the relationship between good parenting and child behavioural problems (Figure 1(a)). Child depression scores ( $B = 0.15$ ;  $CI = 0.05, 0.26$ ) and child trauma scores ( $B = 0.07$ ;  $CI = 0.02, 0.15$ ) also mediated the relationship between good parenting and child self-esteem (Figure 1(a) and (b)). There was no direct effect of good parenting on educational risks ( $B = -0.15$ ;  $CI = -0.30, -0.007$ ),

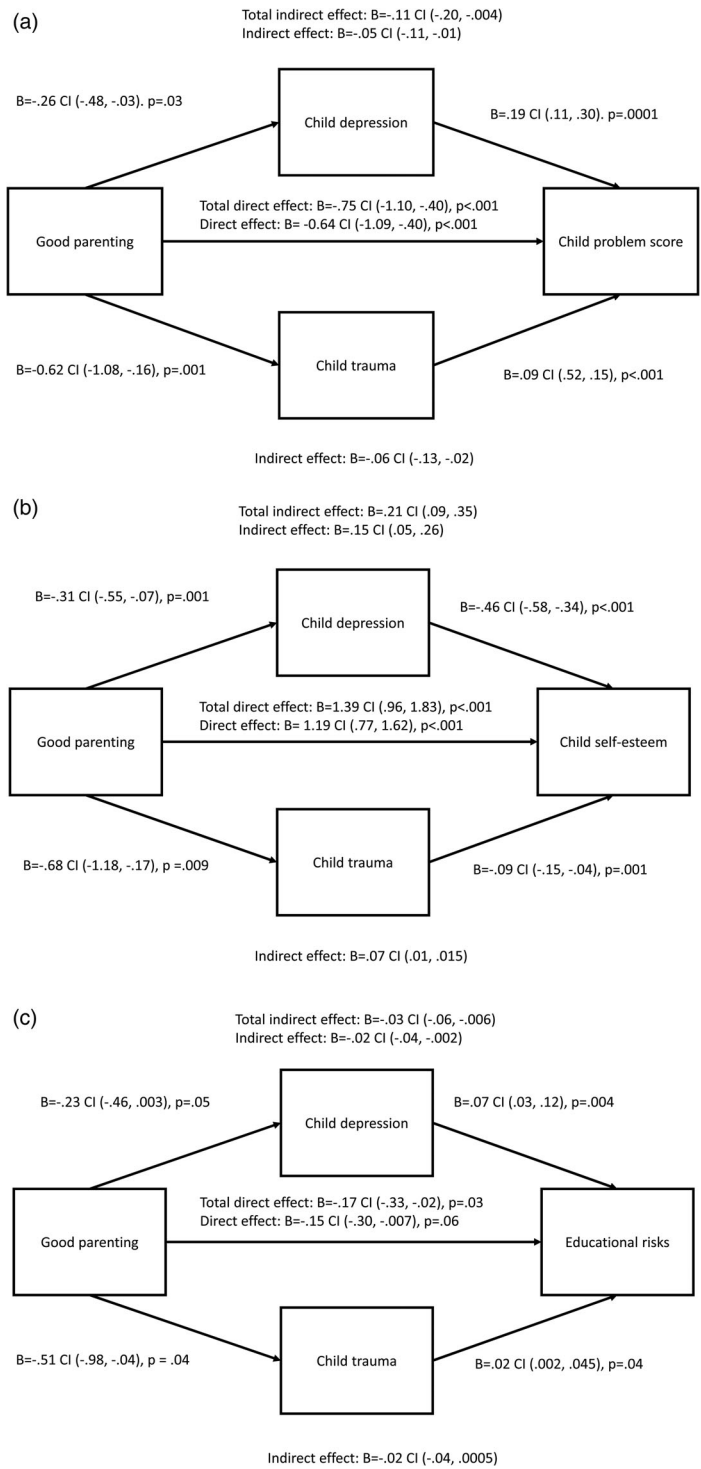


Figure 1. Multiple mediation analyses exploring good parenting and child development.

$p = .06$ . However, an indirect effect was observed as child depression ( $B = -0.03$ ;  $CI = -0.06, -0.002$ ) partially mediated the relationship between good parenting and educational risk outcomes (Figure 1(c)).

In summary, good parenting is directly associated with increased child self-esteem and decreased problematic behaviour and these relationships are also mediated by decreased child trauma and depression scores. Reduced educational risk is indirectly associated with good parenting through decreased child trauma and depression scores.

### Exploratory analyses

Several exploratory analyses were carried out to find possible explanations for unusual findings (e.g. the positive association between carer depression and good parenting). It was found that, controlling for child and carer age and gender, carers experiencing higher depression generally lived with more other adults in the house ( $B = 0.044$ ,  $t(835) = 2.07$ ,  $p = .039$ ).

### Discussion

This study investigated a large group of children living in high adversity. This in itself creates a strain on parenting where families are challenged economically, materially, emotionally and on health grounds. High HIV-affected communities may have specific parenting challenges. Findings showed a number of predictors of good parenting. First, poverty was negatively associated with good parenting. A likely explanation of this is that severely impoverished caregivers might be so preoccupied with providing food and shelter for the ones they care for that they simply lack the time and energy to form a good parenting relationship with the child. Survival becomes an overriding priority in terms of attention and resources. Second, stigma also adversely affects parenting (Krauss, Godfrey, O'Day, & Freidin, 2006), and reduced stigma is associated with enhanced parenting (Winskell, Miller, Allen, & Obong'o, 2016). Clearly stigma is a negative influence and distracts or detracts from parenting. This would suggest that interventions to reduce or remove stigma would have positive effects not only on the negative ramifications of stigma itself, but on the ability to then focus energy on parenting. It is also worth considering that stigma may be an indirect measure of challenge in the household, and it may be these challenges, rather than the stigma itself that is associated with poor parenting. Yet parents with the same challenges who have reduced or absent stigma have better parenting skills. Alternatively, interventions to enhance parenting may help with stigma. Of interest, we found that depression levels were associated with good parenting scores and this is in sharp contrast to the global literature which suggests that depressed parents deliver poorer quality parenting (Murray, Cooper, & Fearon, 2014). However, in this cross-sectional data, we note that depressed parents are significantly more likely to live in households with multiple adults. It may well be that the extended family life common to many households in Africa is particularly useful in buffering depression by having multiple adults available to care for children in the extended family living arrangements. It may be also of consideration that lack of privacy or dependence on others contributes to depression. Or it may be that parental depression is a trigger for families to merge as a protective action to support depressed

parents. The larger number of available adults may then account for the finding of better parenting and the depressed parent score may be a proxy indicator for greater availability of adults within the household. Longitudinal data would be needed to explore this finding further.

Whether the child is cared for by their biological parent also partly determines how well they are cared for. This data is a stark reminder of the negative effects of parental death (Menna, Ali, & Worku, 2014). Mortality due to AIDS and other causes is high in these settings and the data confirms the well-established findings that biological parents (mother, father or both) have the highest motivations for good parenting (Stein et al., 2014). Children who are cared for by non-biological caregivers are at risk of exposure to lowered parenting quality. This could be accounted for by a number of factors. Firstly, by definition, these children are bereaved and their outcomes may be directly affected by factors preceding as well as associated with the bereavement. Indeed, they may also be more difficult to parent. Alternative care arrangements may not be ideal, or even if they are of good quality they may not be equal to the standards of care, commitment and love provided by the biological mother and/or father (Sherr et al., 2014). Family members are mostly responsible for taking on the burden of care in the presence of biological parental death. They themselves may be bereaved by the family member loss. They may be ill-prepared or equipped for the new and additional parenting responsibilities. Their attention may be diluted with multiple responsibilities, especially if they have their own biological children to care for as well. Their commitment to the child may differ. Their understanding and long-term relationship with the child may be affected by recent changes and household moves. It is also well known that change is disruptive for children and the simple fact of change may create elevated parenting challenges (Chi et al., 2015).

Good parenting predicted a range of child outcomes and was associated with increased self-esteem in children, fewer behavioural problems and fewer educational risks. These associations are (partially) mediated by child depression levels and trauma. Good parenting – using both linear and dichotomous scales – interrupts the acquisition of elevated trauma and depression either by prevention in the first place or by amelioration when prevention is unavoidable. Good self-esteem can trigger a cycle where such children are then confident and open to other achievements. Good parenting is also associated with a reduction in child behavioural problems. Either this is prevented or if the child has a tendency towards problematic behaviour, this is managed and then contained and reduced. Boundary setting, warmth, positive guidance and avoidance of harsh punishment, abuse and violence may all be ingredients to manage behaviour. Good parenting also feeds into reduced educational risk (Bernier, Carlson, Deschenes, & Matte-Gagne, 2012). Educational risk is a summed score of school enrolment, attendance and progress. Good parenting promotes educational access and achievement by a combination of these factors and as such enhances a child's educational opportunity at every step. It is also important to consider the complexity and debate concerning concepts of “good parenting” in different cultural contexts (Wadsworth et al., 2013). Research – often in high-income countries – has clearly identified linkages between quality of parenting and positive child outcomes (e.g. Cuevas et al., 2014) but has also identified that there are potential differences across cultures in both parenting styles and their impacts on children (Bornstein, Putnick, & Lansford, 2011) in both the short and long term (Evans, Simons, & Simons, 2016).

Pressures and stresses may directly affect parenting (Conger, Schofield, Conger, & Neppl, 2010). In this study, the factors identified as contributing to adequate parenting were associated with improved outcomes, but future research could valuably unpack these concepts further within Southern Africa.

### **Limitations**

The results need to be viewed in the presence of a number of limitations. The original study was not designed to look specifically at parenting. No validated measure of good parenting was included in the questionnaire and we relied on the 10-item composite indicators. Therefore, the parenting score was based on incidental measures, which did seem to hold in a factor analysis and bear on factors that are associated with good parenting in the broader literature such as boundary setting and monitoring, love and warmth and protection factors. This was strengthened by having the perspectives of both the child and the caregiver – but future studies would do well to incorporate an objective observer rating as well. Assessing a cut-off measure for “good-enough parenting” presents a challenge for any research study. This study assessed 10 measures of basic requirements of parenting with clear evidence of importance to child outcomes. Parenting literature suggests that even good parenting is not consistently perfect and consequently a cut-off of 8/10 was chosen to reflect “adequate parenting”. We therefore used both the dichotomous scale and the continuous scale to examine our results. Many standardised questionnaires are not validated in low-income countries and this presents a challenge to researchers. The advantage of using validated measures is balanced with the cultural variations that may be present.

A potential limitation is the risk of response bias that exists with any self-reported measures of parenting, family and child outcomes. In some studies of parenting programmes, observational measures of parenting are used to mitigate this, but these have only been used in early childhood and were not relevant to the age-group in this study. In order to reduce risk of response bias, we used both child and parent reports of parenting and outcomes.

The study is cross-sectional and thus causal pathways cannot be established. The data are drawn from CBO attenders and can thus not be generalised to all children in South Africa and Malawi. There is a chance that some outcomes are directly supported by the CBO input given the sample source characteristics and the findings would need to be checked in an unselected community sample. The cut-off point for good parenting was set at 8 out of a possible 10. No caregivers scored 10. If the standard of parenting deemed as “good parenting” is lowered, results may vary.

These analyses provide important first steps in understanding associations between family situations, parenting and child outcomes in these under-studied contexts. It will be of great value for future analyses to utilise longitudinal data and methods such as structural models to advance our understanding of the complexity and interlinkages of these associations. It is important that research such as this is not limited to high-income countries.

### **Conclusion**

Despite the limitations, this study clearly shows that parenting measures can be generated with a strong consistency and alignment with theoretical concepts associated with



parenting. Using both caregiver and child reports enhances the robustness of the measure. Outsider reports may further endorse and strengthen such measures. On the basis of core components of parenting (providing children with a sense of belonging, love and control), good parenting was compromised by poverty, stigma and death. Good parenting was of benefit and was associated with enhanced child self-esteem, educational attainment and reduced behavioural problems, depression and trauma. The benefits of good parenting to children and interventions to enhance parenting quality may be a useful strategy for improvements in child outcomes.

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LS and MT are Co-Principal Investigators of the Child Community Care (CCC) study. LC is the Principal investigator of the YC study. Ph.D. Candidate working on the CCC study – SS. All authors contributed to the conceptualisation of the study, the paper, the analysis plan, drafting and comments on the paper. LS took the lead on drafting and writing the paper. IH, FM, AM and LTS took the lead on data analysis. All authors read and approved the final manuscript.

Availability of data and materials: Data taken from the YC study are available on Data Archive UK under “young carers of AIDS ill caregivers” (<https://discover.ukdataservice.ac.uk/catalogue/?sn=851277&type=Data%20catalogue>). Due to the sensitive nature of the data within this study regarding HIV and children, data from the CCC study are available upon request. All data enquiries should be directed to the principal investigators.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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## Ethics approval and consent to participate

The CCC study was given ethical approval by the University College London ethics board (reference number 1478/002) and the Health Research Ethics Committee at Stellenbosch University (reference number N10/04/112). For the YC study, ethical approval was received from the Universities of Oxford, Cape Town, and KwaZulu-Natal and all provincial Health and Education Departments: Oxford University Central Research Ethics

Committee (CUREC), University of Cape Town Health Sciences Research Ethics Committee, University of KwaZulu-Natal Research Ethics Committee, Western Cape Provincial Department of Health, Western Cape Provincial Department of Education, Mpumalanga Provincial Department of Health, and Mpumalanga Provincial Department of Education. All CBOs within the study provided consent. All caregivers received information detailing the study, the voluntary nature of participation, the consent procedures for themselves and their child, the confidentiality around the study and the ability to withdraw at any time with no consequences. In the YC study, written consent was obtained from caregivers and child participants, with the process provided orally and on written information sheets for them to keep. In the CCC study, written consent was obtained from the caregivers and assent was obtained for all children with standardised and age appropriate information explained.

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