

# Pathways to parenting stress reduction among parents in South Africa

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## Abstract

Parenting stress has a range of effects on parents and their children. Despite existing evidence on the effectiveness of family-based interventions on reducing parenting stress, little is known about the mechanism of change that contributes to its reduction. This study investigates the mechanism of change in a parenting programme (Parenting for Lifelong Health [PLH]) on reducing parenting stress among parents of adolescents in South Africa. A pragmatic cluster randomized controlled trial was conducted among a total sample of 552 parents and primary caregivers (aged,  $M = 49.37$ ;  $SD = 14.69$ ) who were recruited from 40 communities in South Africa's Eastern Cape Province. A mediation analysis was performed to investigate direct and indirect effects using PROCESS macrostatistical software. The findings of the study indicate that parenting stress reduction operates via three significant mediators: improved parent-child relationship ( $\beta = 0.058$ ,  $P < 0.000$ ), reduced parental depression ( $\beta = -0.103$ ,  $P < 0.000$ ) and reduced family financial strain ( $\beta = -0.049$ ,  $P < 0.000$ ). The findings of the study highlight the importance of considering child, parental and contextual factors in the design and development of interventions aimed at reducing parenting stress in families in low- and middle-income settings.

## KEYWORDS

parental mental health, parent-child relationship, parenting stress, poverty

## 1 | INTRODUCTION

Parenting stress is a complex construct that has been identified both as a consequence and a predictor of parenting and family dynamics (Sánchez-Sandoval & Palacios, 2012). The everyday challenges associated with child rearing can exert a strain on parents, especially when the parents' responsibilities as caregivers for their children cannot be met with available resources (Cousino & Hazen, 2013; Pereira et al., 2012).

A number of studies have shown that parenting stress can affect parents and their children in myriad ways (Cousino & Hazen, 2013; Respler-Herman et al., 2012). It is associated with negative parenting practices, including harsh discipline (Venta et al., 2016), hostility (McMahon & Meins, 2012) and child maltreatment (Chaplin et al., 2021; Miragoli et al., 2018; Pinquart, 2017). In families characterized by greater parenting stress, children and adolescents have more internalizing and externalizing problems (Mackler et al., 2015; Robinson & Neece, 2015; Silinskis et al., 2020), poorer cognitive

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skills, such as executive function (de Cock et al., 2017), and more social and interpersonal difficulties (Anthony et al., 2005). In addition, parents who experience higher parenting stress report poorer psychological well-being (Deater-Deckard et al., 2016).

Parenting stress may be particularly salient during the developmental stage of adolescence. With the start of adolescence, parenting becomes increasingly stressful due, in part, to the many biological, emotional and social changes that adolescents undergo (Chaplin et al., 2021; Suleiman & Dahl, 2019). Moreover, parents who live in high-risk communities, such as those characterized by deprived socio-economic conditions, face even greater challenges in raising their teenage children. Living in a context of poverty, the stress these parents experience can be markedly compounded, and this can negatively affect their parenting abilities and their relationships with their children (Gorman-Smith et al., 2000; Pinderhughes et al., 2001). Consequently, there is a clear need to further explore the mechanisms of change (mediation pathways) that could contribute to parenting stress reduction in families of adolescents in highly vulnerable communities.

There is a growing body of knowledge indicating that interventions for supporting parents are effective at improving parenting outcomes, including parenting stress (Barlow et al., 2012; Burgdorf et al., 2019). A systematic review conducted of 48 randomized controlled trials of a total sample of 4937 parents taking part in different parenting interventions found that group-based parent training programmes are effective at improving parental psychosocial functioning and well-being, in addition to decreasing levels of parental stress (Barlow et al., 2012). For example, a randomized controlled trial among families in Germany found that family-based intervention (Multisystemic Therapy for Child Abuse and Neglect [MST-CAN]) that targeted maltreatment of children (aged 6–17) was effective in reducing psychological stress among parents (Hefti et al., 2018). In a similar vein, a study conducted among parents of children (aged 2–12) in the United Kingdom who attended a parenting programme called '123Magic', indicated that participants reported lower levels of parenting stress by improving their parental self-efficacy and perceptions of their parental role (Bloomfield & Kendall, 2012).

Another review found that parenting interventions that rely on mindfulness practices were effective at reducing parenting stress by improving the parents' mindfulness, emotional awareness and reactivity to their children (Burgdorf et al., 2019). For example, mothers of adolescents (aged 12–17) from a suburban community in the mid-Atlantic United States reported lower levels of parenting stress following participation in a parenting-focused mindfulness intervention (Chaplin et al., 2021).

Despite the existing body of knowledge about interventions that target parenting stress in high-income countries (HICs) (Burgdorf et al., 2019; Hefti et al., 2018), less is known about the effectiveness of family-based programmes in combatting parenting stress among parents of adolescents in low- and middle-income countries (LMICs). Findings of a randomized controlled trial conducted in South Africa have shown that Parenting for Lifelong Health (PLH)—a parenting intervention that combines parenting and economic consolidation for parents of adolescents (aged 12–18)—was effective at reducing stress

among the parents. Other secondary outcomes included improved parental mental health, improved parent–child relationships and improved family economic welfare at post-intervention (Cluver et al., 2018). Aiming to explain the impact of the PLH programme on parenting stress reduction, we conducted a secondary analysis of the trial data to investigate the mechanism of change in parenting stress reduction by addressing potential mediation pathways.

The study is largely guided by Bronfenbrenner's (1979) socioecological theory of human behaviours, which offers a framework for integrating various factors associated with parenting. In this model, parenting stress is dependent on an interplay of several ecological subsystems, including the individual parent, child, family and the broader social context in which the parent–child interaction is embedded (Belsky, 1984). This type of nested ecological theory aims to produce an understanding of human behaviours and interactions as the result of a 'duet' between individual and contextual variables.

Utilizing this socioecological perspective, parenting stress models (Abidin, 1992, 1995; Belsky, 1984) have conceptualized parenting stress as a multifactorial variable that comprises characteristics of the child, the parent(s) and the social context. Identifying the specific characteristics that promote increased parenting stress will facilitate our understanding of what constitutes an effective, family-based intervention to improve dysfunctional family relationships. Based on these multifactorial perspectives, we explore the mediating role of different factors including the parent–child relationship, parental depression and family financial strain, in explaining the impact of the PLH programme on parenting stress reduction.

The Parenting Model of Abidin (Abidin, 1992, 1995) focuses on parenting stress as an outcome of the parent–child interaction. A parent's level of satisfaction with the parent–child relationship is an important reward of being a parent (Nomaguchi, 2012). Thus, the closer the relationship between parent and child, the lower the incidence of parenting stress (Costa et al., 2020). However, because little is known about the potential of a positive parent–child relationship to reduce stress among parents of adolescents in low- and middle-income settings, the current study aims to address this gap in the literature. We expected that improvements in the parent–child relationship would be associated with a reduction in parenting stress at follow-up.

Investigations of the association between parental factors and parenting stress show a significant association between parenting stress and parental mental health problems, such as depression (Hefti et al., 2016, 2018; Rodriguez-JenKins & Marcenko, 2014). For example, a study conducted among 93 low-income mothers who participated in a home-visit programme (in-home cognitive behavioural therapy) indicated that improvements in the mothers' mental health (lower levels of depression) were associated with lower levels of parenting stress (Ammerman et al., 2014). Despite the well-established body of knowledge about the link between parental depression and parenting stress, most of the work that has been done has focused on depression among mothers of very young children (Callender et al., 2012; Guo et al., 2014). Little is known about parental depression among parents of adolescents, especially in high-risk settings

typical to LMICs. The current study aims to contribute to filling this gap in the literature by investigating parental depression as a potential mediating pathway for reducing parenting stress among parents of adolescents. We expected that improvements in parental mental health (fewer depressive symptoms) would be associated with a reduction in parenting stress following the intervention.

Last, studies of the association between social context and parental stress strongly indicate that economic disadvantage is an important determinant of parenting stress. The Eastern Cape Province of South Africa (where the study was conducted) is characterized by high poverty rates (with the lowest GDP nationally), 50% of households lacking an employed adult and poor infrastructure development (Statistics South Africa, 2016). In many families, state-provided cash transfers are the only income source, and these are often shared by large numbers of household members. Consequently, families often fall short of funds needed to maintain subsistence levels between monthly subsidy payments (Steinert et al., 2020). Previous studies have shown that families suffering from financial strain experience chronic stress which diminishes the resources at their disposal to navigate the demands of daily life (Cassells & Evans, 2017). This chronic stress can, in turn, undermine parent and child psychological well-being (Taylor et al., 2004; Ward & Lee, 2020). It may also lead to conflictual relationships between parents and their children (Barnett, 2008). For instance, Gershoff et al. (2007) found that material hardship (food insecurity, housing instability, inadequate medical care and prolonged financial trouble) increase parenting stress, which, in turn, increases the incidence of negative parenting behaviours. Previous studies indicated that family support programmes informed by an ecological framework are effective at promoting healthy parenting behaviour in families that live in poverty and that face chronic financial hardship (Lakind & Atkins, 2018).

The PLH programme included economic components, such as encouraging saving and teaching fundamental financial skills like budgeting, designed to improve families' financial conditions. As stated above, the findings of the trial indicated an improvement in the families' socio-economic status following the PLH intervention (Cluver et al., 2018). Therefore, we expected that improvements in family economic conditions would be associated with a reduction in parenting stress at follow-up.

## 1.1 | Study aims and hypotheses

To the best of our knowledge, no study has investigated mediation pathways on parenting stress reduction among parents of adolescents in LMICs. Therefore, the current study aims to investigate the mechanism of change in a parenting programme (PLH) on reducing parenting stress among parents and primary caregivers of adolescents in South Africa through three potential mediators: parent-child relationships, parental mental health and family financial conditions. Based on the model shown in Figure 1, we expect that (1) improved parent-child relationships, (2) improved parental mental health (reduced depressive symptoms) and (3) improved family financial conditions at follow-up would mediate the association between the PLH intervention and parenting stress reduction.

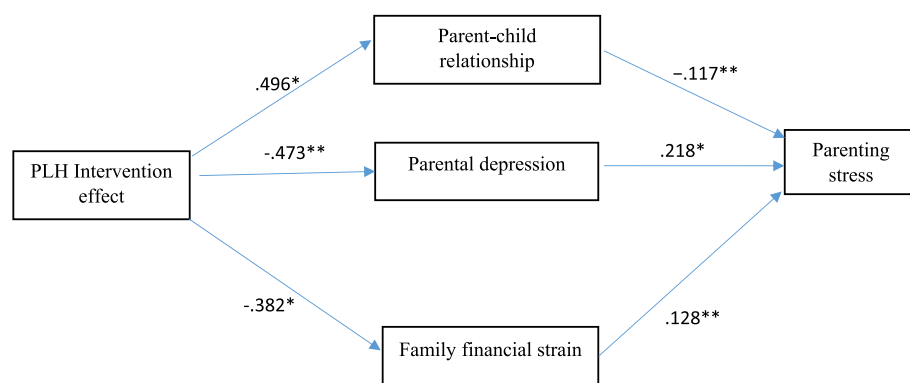
## 2 | METHODOLOGY

### 2.1 | Study design and sampling

In this quantitative study, a pragmatic cluster randomized controlled trial stratified by urban/rural location was conducted. The total sample comprised 552 parents and primary caregivers of adolescents (aged, mean  $[M] = 49.37$ ; standard deviation  $[SD] = 14.69$ ). The sample was recruited from 40 communities (32 rural villages and 8 large peri-urban townships) within a 1-hour drive of a rural town (the research team's base) in South Africa's Eastern Cape Province. All the areas included in the study suffer high rates of unemployment, poor infrastructure and a high HIV/AIDS prevalence (Department of Health, 2012).

### 2.2 | Inclusion criteria

Primary caregivers of adolescents (aged 10–18) were recruited from rural and peri-urban settlements in the Eastern Cape province of South Africa. Parents and caregivers of adolescents were referred by a range of social services, schools and local chieftains and were also able to self-refer as struggling with an adolescent. All participants



\* $P < .000$ , \*\* $P < .05$

**FIGURE 1** Mediation pathways for reducing parenting stress

completed a brief screening questionnaire to ascertain if there were regular arguments at home with their adolescent child.

### 2.3 | Exclusion criteria

Following pragmatic trial principles, there were no exclusion criteria for parents or primary caregivers. However, if a participant had learning disabilities which hindered their ability to consent, they were not included in the study for ethical reasons. There were no requirements for a biological relationship between caregiver and adolescent, but the participant had to be the primary caregiver of the child, and the child had to live in their home for at least three nights per week. Approval from local traditional or political leaders (chieftains and ward councillors) was sought prior to entry into the community, and communities were estimated to be safe enough (during daylight hours and with local support) to hold parenting group meetings without serious risk to the participants.

Randomization was stratified by rural/urban location and conducted after baseline by using random numbers generated by an independent, blinded statistician (CL). Complete randomization within strata used a 1:1 intervention to control ratio. Allocation to intervention and control groups was conducted randomly.

The sample included 270 parents and primary caregivers in the intervention arm and 282 parents and primary caregivers in the control arm ( $M = 14$  parents/primary caregivers per cluster,  $SD = 1.9$ ). Blinding of participants and programme providers was not feasible for the parenting programme.

Ethical approval was granted by the University of Oxford (SSD/CUREC2/11-40), the University of Cape Town (PSY2014-001) and the South African Eastern Cape Provincial Departments of Social Development and Education.

### 2.4 | Procedure and data collection

Participants (parents and primary caregivers) completed structured self-report questionnaires at two points of time over the course of the study: pre-test (baseline) and then at follow-up 5–9 months after the intervention. The final data collection stage was originally intended to take place at 12 months post-intervention, but because of political violence and funding constraints, it began at 5 months post-intervention and took 5 months to complete due to the study sample size and the spread across both rural and urban sites. This is the reason for the wide range of the post-intervention assessments. The analyses included here are based on the baseline and final follow-up test assessment data. All variables of the study (including mediators and outcome) were measured at baseline and follow-up.

### 2.5 | Intervention group

Participants in the intervention group received 14 sessions of the PLH programme locally called 'Sinovuyo Teen' (we have joy in IsiXhosa).

Each session lasted for 1–1.5 hours per week. All sessions took place in public and community places e.g. churches, community halls, schools or under the shade of trees. Eighteen groups participated in the programme composed of 10–15 parents/caregivers per group. The groups were organized by village in order to ensure the sessions could be easily reached by participants. Participants in the intervention arm attended an average of 50% of all sessions. Nine per cent of participants attended no sessions.

Based on social learning theory (Bandura & Walters, 1977), the programme was built from a set of 14 psychosocial sessions designed to improve the parent–child relationship, family cohesion and harmony, to promote non-violent discipline and to encourage family members to spend quality time together. In addition to the parent–child relationship, the programme also emphasized certain parenting principles as important to maintaining healthy family relationships. These included complimenting each other, engaging in joint problem-solving, implementing rules and routines, responding to crises together, establishing clear communication strategies and employing mindfulness practices to reduce stress and anger levels. All sessions used collaborative problem-solving techniques (not didactic methods), traditional stories, role play, modelling and stress-reduction activities. In addition to its psychosocial elements, the programme also included three core economic components designed to improve families' financial conditions. These focused on (1) encouraging families to save some of their earnings by presenting a short play addressing common financial challenges, (2) teaching fundamental financial skills such as budgeting and saving through visual budgeting exercises and (3) motivating mental commitment to saving by clearly defining family saving goals and by making a practical family financial plan.

Participants were encouraged to practice what they had learned in each psychosocial session at home during the intervals between meetings. Those who were unable to attend the sessions due to illness or disability were provided the content that they missed in brief catch-up sessions held at their home or at the hospital. At the beginning of each session, each participant was offered a small meal, because many participants had difficulty concentrating due to hunger. The programme was delivered by local community members who were trained by the local non-governmental organization (NGO), Clowns without Borders South Africa, and supported through weekly supervision.

### 2.6 | Control group

Participants in the control group received one session of a hygiene programme called 'SinoSoap', delivered by Clowns without Borders South Africa. The control condition involved drama-based skill building, delivered through performances and activities, about conserving safe water and children's handwashing. Thus, the control condition was not related to parenting practice; instead, it addressed hygiene and handwashing activities to increase the likelihood of retention in the control group. This control activity was unlikely to influence any primary or secondary outcomes.

## 2.7 | Measurements

Participants completed self-report questionnaires at baseline and 5–9 months post-intervention. All of the study variables were assessed by valid and reliable measures for the South African population. All questionnaires were pre-piloted with local parents of adolescents. All measures were translated from English to IsiXhosa and then back-translated to ensure that the translations were accurate and to limit the potential for misinterpretation.

### 2.7.1 | Parenting stress

Parenting stress was measured by 18 items of the Parental Stress Scale (Berry & Jones, 1995) ( $\alpha = 0.77$ —e.g. ‘I feel overwhelmed by the responsibility of being a parent; Caring for my children sometimes takes more time and energy than I have to give’). Items were measured on a modified 4-point Likert scale ranging from 0 (*strongly disagree*) to 4 (*strongly agree*). One overall score was derived by computing the sum of the items.

### 2.7.2 | Parent–child relationship

This variable was assessed using four items ( $\alpha = 0.71$ —e.g. ‘Do you have time to listen when your teen wants to tell you something detailed? Can you always tell how your teen is feeling?’) from the Parent–Child Communication scale (Loeber et al., 1998). Parents were asked to indicate to what extent they agree with each one of the items, describing their interaction with their adolescent child over the past month. Items were measured on a modified four-point Likert scale ranging from 0 (*almost never*) to 4 (*almost always*). One overall score was derived by computing the sum of the items.

### 2.7.3 | Parental depression

This variable was measured using the Centre for Epidemiological Studies Depression Scale (CES-D, 20 items;  $\alpha = 0.87$ ) (Radloff, 1977). The questionnaire included items such as, ‘I felt very sad even with help from my family and friends; I did not feel like eating; my appetite was poor’. Responses ranged from 0 (*not at all*) to 4 (*nearly every day*). One overall score was derived by computing the sum of the items. The CES-DS has been used previously in multiple South African populations (Pretorius, 1991).

### 2.7.4 | Family financial strain

Family financial strain was measured based on the consistency of the family's access to basic necessities (The Basic Necessities Scale) such as food, electricity, communication and transport (Morduch, 1995). This variable was assessed by using eight items ( $\alpha = 0.71$ —e.g. ‘Afford

3 meals a day; afford the costs of the school; afford enough warm clothes’). The measurement items were based on the top most important necessities for children as identified by the Centre for South African Social Policy in its Findings from the Indicators of Poverty and Social Exclusion Project that were further endorsed by over 80% of the South African population in a nationally representative survey (Noble et al., 2007; Pillay et al., 2006). Responses were 0 = no and 1 = yes. One overall score was derived by computing the sum of the items; higher scores indicate lower levels of family financial strain.

## 2.8 | Covariates

Participants were asked to provide information about their age, gender and rural or urban location. In addition, all analyses were controlled for baseline values of parenting stress and all hypothesized mediators (child–parent relationship, parental depression and family poverty).

## 2.9 | Data analyses

Intention-to-treat (ITT) analyses were used for all clusters and families, irrespective of intervention uptake, and included families who were no longer living together at follow-up ( $n = 53$ ). ITT is a strategy for the analysis of randomized controlled trials that compares participants in the groups to which they were originally randomly assigned. This is generally interpreted as including all participants, regardless of whether they actually satisfied the inclusion criteria, received the intervention and/or withdrew or deviated from the protocol. Intervention effectiveness may be overestimated if an ITT analysis is not done (Hollis & Campbell, 1999).

At first, an independent sample *t* test was conducted to compare the means of outcomes and mediators based on the differences in the respective values between the intervention and control groups at baseline and follow-up (Table 2).

Second, a PROCESS mediation analysis was performed using SPSS 21 (PROCESS-Model #4, developed by Preacher & Hayes, 2008), which simultaneously explores several mediation pathways to test the roles of the parent–child relationship, parental depression and family financial strain as potential mediators in explaining the mechanism of parenting stress reduction among parents and primary caregivers who participated in the PLH intervention. All analyses were controlled for baseline measures of all mediators and outcomes, in addition to the participants' age, gender and rural or urban location.

The 95% confidence interval obtained with 1000 bootstrap resamples was used (Preacher & Hayes, 2008). Once a bootstrap sample of the original data is generated, the regression coefficients for the statistical model are estimated. A confidence interval that does not straddle zero leads to the inference that the indirect effect of the mediator is not zero, indicating that it has a significant effect.

### 3 | RESULTS

#### 3.1 | Descriptive statistics

Basic sociodemographic characteristics of intervention and control groups are shown in Table 1.

*t* test results for baseline and follow-up outcomes and mediating variables (intervention and control groups) are shown in Table 2. In summary, parents in the intervention group reported reduced parenting stress, improved parent–child relationships, improved parental mental health (reduced depressive symptoms) and improved household economic welfare at follow-up (5–9 months post-intervention evaluation).

#### 3.2 | Direct and indirect effects (mediation analyses)

We examined the impact of the PLH intervention on the reduction of parenting stress through three potential mediators—the parent–child relationship, parental depression and family financial strain—at follow-up (5–9 months post-intervention evaluation). Table 3 shows the total, direct and indirect effect of each mediator on the outcome of the study.

The results of the study show that the PLH intervention had a significant direct effect on reducing parenting stress ( $\beta = -0.353$ ,  $SE = 0.088$ ,  $P < 0.001$ ). In addition, the results presented in Figure 1 indicate that there was an indirect effect on parenting stress reduction through improved parent–child relationship ( $\beta = 0.058$ ,  $SE = 0.204$ ,  $P < 0.000$ ; CI  $[-0.113, -0.016]$ ), improved parental mental health (reduced parental depression) ( $\beta = -0.103$ ,  $SE = 0.029$ ,  $P < 0.000$ ; CI  $[-0.179, -0.055]$ ) and improved household economic welfare (reduced family financial strain) ( $\beta = -0.049$ ,  $SE = 0.020$ ,  $P < 0.000$ ; CI  $[-0.094, -0.012]$ ).

**TABLE 1** Basic sociodemographic characteristics of intervention and control groups

	Control (N = 282)	Treatment (N = 270)
Age (mean, SD)	49.94 (14.20)	48.79 (15.20)
Female, <i>n</i> (%)	261 (92.5)	263 (97.0)
Married, <i>n</i> (%)	100 (35.5)	98 (36.3)
High school education and higher, <i>n</i> (%)	100 (35.6)	102 (37.8)
Currently employed, <i>n</i> (%)	19 (6.7)	14 (5.2)
Household size (mean, SD)	4.99 (2.06)	5.36 (2.29)
Household electricity access, <i>n</i> (%)	257 (91.1)	255 (94.4)
Number of days of hunger per 7 days (mean, SD)	2.88 (2.18)	2.82 (2.54)

### 4 | DISCUSSION

This study explored a mechanism of parenting stress reduction among parents and primary caregivers of adolescents in South Africa. In order to fully understand the parenting stress-reduction process, the study was largely guided by a socioecological frame that takes into consideration the social context in which the family is embedded, in addition to other factors related to the child, the individual parent and their influence on parenting outcomes (Belsky, 1984; Bronfenbrenner, 1979). The study is among the first to investigate the mechanism of parenting stress reduction among parents of adolescents in LMICs through three potential mediation pathways related to the child, the parent and the social context, by investigating the role of parent–child relationship, parental mental health and the family financial conditions. The results of the study show that improvement in parent–child relationship, parental depression and family financial strain serve as mediators between the effect of the PLH intervention and parenting stress reduction at follow-up.

At the level of the child, the results indicate that the PLH intervention improved the relationship between the parents and their adolescent children and that this was associated with a reduction in parenting stress. This finding is consistent with previous findings that positive parent–child relationships contribute to lower parenting stress (Costa et al., 2020). The closeness of the parent–child relationship strengthens interpersonal bonds and promotes a healthy family environment that can contribute to positive parental perceptions of their children and of their role as parents. Adolescence, which can be a distressing period for both parents and children due to developmental changes, can endanger the stability of the parent–child relationship and increase parent–child conflicts (Suleiman & Dahl, 2019). The findings of the current study, however, emphasize the importance of a healthy parent–child relationship during adolescence, its positive association with parents' outcomes and also, by extension, those of their children. The better the relationship parents have with their children, the more the parents enjoy their parental role and perceive this role as positive and less stressful. Given the importance of the family environment during adolescence, interventions that can reduce parent stress during adolescence can alleviate the burden of families in dire economic conditions.

Furthermore, at the level of the parent, the findings show that parental depression mediated the parenting stress-reduction process. The PLH intervention contributed positively to parents' mental health by providing emotional and instrumental support as part of the intervention (such as stress-reduction activities that included deep-breath awareness activities and body relaxation exercises in which participants gave attention to each part of their body). In addition, being part of a group where parents can listen to others' experiences and share their own experiences creates informal networks and a source of social support that contribute to improved mental health.

The study results indicate that improvements in parents' mental health (a reduction in depressive symptoms) at follow-up were associated with lower levels of parenting stress. In other words, the better the parents' mental health (less depression), the less likely they are to

Variable	Baseline mean (SD)		Follow-up mean (SD)	
	Treatment	Control	Treatment	Control
Parenting stress	33.13 (8.68)	33.39 (8.18)	23.75* (8.24)	27.05 (7.32)
Parental depression	23.13 (11.79)	24.90 (12.08)	11.30* (9.78)	16.82 (11.13)
Parent-child relationship	5.44 (2.21)	5.68 (2.51)	6.07* (1.81)	5.06 (2.01)
Family financial strain	0.04 (1.68)	-0.004 (1.64)	0.29 (1.60)*	-0.28 (1.49)
N	270	282	264	278

\*Statistically significant differences in means between the treatment and control groups at  $P < 0.05$ .

**TABLE 2** Baseline and follow-up characteristics for intervention and control groups

**TABLE 3** Regression model summary of mediator prediction of reduced parenting stress ( $N = 506$ )

Mediators	Total effect			Direct effect			Indirect effect			
	$\beta$	SE	t	$\beta$	SE	t	$\beta$	SE	LLCI 95%	ULCI 95%
Parent-child relationship	-0.406*	0.08	-3.88	-0.348*	0.08	-3.88	-0.058*	0.02	-0.114	-0.016
Parental depression	0.399*	0.08	4.55	0.296	0.08	3.35	0.103*	0.03	-0.179	-0.055
Family financial strain	0.402*	0.09	4.59	0.353	0.09	3.98	0.049*	0.02	-0.094	-0.012

\* $P < 0.05$ .

feel strained and stressed by their parenting experience or by their relationship with their children. These findings are consistent with previous results indicating that poor parental mental health is a strong driver of parenting stress (Arteche et al., 2011; Chang & Fine, 2007; Guo et al., 2014). Parents with mental health problems find it more difficult to be responsive to their children's needs (Arteche et al., 2011), and they may even be unable to spend enjoyable time with their children. Taken together, the effects of parental depression can elicit intense frustration in the parent, lead to dysfunctional familial relationships and increase overall parenting stress, especially in vulnerable populations.

Lastly, at the level of the social context, the findings of the study indicate that improving family financial conditions was associated with parenting stress reduction at follow-up. Based on the family stress model (Conger et al., 1995), which is confirmed by the results of previous studies (Barnett, 2008; Rodriguez-JenKins & Marcenko, 2014), family financial strain is a significant risk factor that contributes to psychological distress in parenting and ultimately impacts parents' and children's outcomes. Financially disadvantaged families are subjected to chronic levels of stress due to financial strain. This chronic stress diminishes the resources they have to manage the trials of daily life (Taylor et al., 2004) and may help create conflictual family relationships. Reducing family financial strain, in contrast, better equips parents to adeptly manage their daily challenges and to fulfil their children's needs, thereby imbuing the parents with the confidence they need to assume their responsibilities as parents and reducing the potential for parenting stress.

Improving the financial well-being of South African families is therefore vital due to high levels of poverty, unemployment and daily financial challenges (Statistics South Africa, 2016; Steinert et al., 2020). This improvement in the capacity of parents to secure

their household necessities could contribute positively to their parenting functioning and the perception of their parental role. The findings of the study indicate that the PLH parenting intervention can effectively reduce parenting stress by addressing certain factors related to the parents themselves and to their immediate environment. The results of the study emphasize the importance of applying an ecological perspective to address parental dysfunction in a broad framework that describes parenting stress as an interplay of several factors, rather than focusing on one factor as the 'cause' of parenting stress. The PLH intervention supports this theoretical framework by including psychosocial and economic components that target not only parents and their behaviours but also the social context in which the family exists. The results of the study emphasize that parenting interventions may benefit from additional attention to other factors that affect the functioning of families, such as parental mental health and financial well-being, which contribute to better parenting outcomes. For example, in addition to focusing on teaching parenting principles for managing relationships with children, parenting interventions may benefit from integrating stress-reduction activities that address the emotional needs of parents, particularly in families prone to chronic stress due to environmental factors. Furthermore, given the significant impact of economic factors on the family functioning (Cassells & Evans, 2017), incorporating economic support approaches into parenting programmes would contribute to better family financial well-being (Steinert et al., 2020) and reduce familial conflicts over financial issues, particularly within low- and middle-income settings such as South Africa.

One of the significant strengths of the study is its high external and internal validity by using robust methods of pragmatic randomized controlled trial. The external validity of the study is reflecting real-world service delivery in LMIC, particularly in Africa, by using

recruitment methods typical of NGO and government services and intervention implementation by a local NGO in community settings. These methods increase the generalizability of the findings of the study and their applicability to programming in high-risk settings. However, it is important to test the impact of the intervention in different cultural contexts (for further information, see Cluver et al., 2018). However, there are a few limitations to this study that must be acknowledged. First, mediation analyses were conducted at only one point in time (at the 5–9 month follow-up). Extending the follow-up to include multiple post-intervention assessments would have enabled us to more thoroughly examine the potential effects of the PLH intervention. Future studies should therefore conduct mediation analyses at more than one point in time to measure the effects of mediation over time. This would enable the hypothesized mediators to be measured before the outcome. In addition, because the study was conducted by the developer of the PLH programme, we recommend that independent studies also be conducted.

Third, the findings of the study do not lend themselves to causal inferences about the components of the intervention. Although the results show that the strengthening of the parent–child relationship, improvements in certain parental factors and reduction of family poverty can all mediate parenting stress, we cannot distinguish between the effects of the different intervention components to determine which are responsible for the observed mediation effect. Therefore, future studies should use other methods to identify the essential components and possibly provide further insight into the core elements to be included in parenting programmes. Such methods should include randomized microtrials on the efficacy of discrete parenting techniques (Leijten et al., 2015) and factorial experiment trials to test and contrast different components (Collins et al., 2005).

In addition, regarding the measurements of the study, it was limited to very few validated measures of the South African population. However, the measurements used were pre-piloted with local parents and primary caregivers of adolescents. Another limitation regarding the sample of the study related to the fact that the sample of the current study is limited to South African families in adversity with a range of family-level challenges. The sample tells us about this specific context only and our understanding regarding other countries and urban environments is limited. Therefore, the findings of the study may not lend themselves to generalization and further studies to explore pathways to parenting stress reduction in different sociocultural contexts are needed.

This study contributes to the literature on the effectiveness of the PLH parenting programme in reducing parenting stress while using an ecological perspective by addressing the contribution of different factors. Many South African families experience severe family-level challenges, including high rates of poverty, unemployment and chronic illness among caregivers (such as AIDS and HIV) that appear to contribute to family dysfunction and negative parenting outcomes (Lachman et al., 2014; Meinck et al., 2017). Therefore, and in light of the study findings, it is vital to develop interventions that combine emotional and parenting support in addition to economic support.

Despite the fact that the study provides insight for evidence-based practices that target negative parenting outcomes among families in low- and middle-income settings, future research is needed to test the effectiveness of this approach in other settings.

## DATA AVAILABILITY STATEMENT

Data are available upon request.

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