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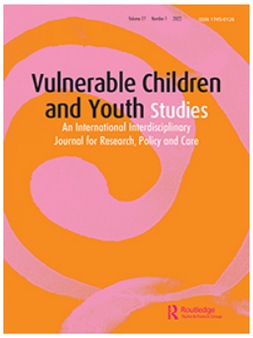

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Mental health effects on adolescent parents of young children: reflections on outcomes of an adolescent parenting programme in South Africa

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ABSTRACT

At-risk families and caregivers from low-and middle-income countries have been shown to benefit from parenting interventions. But there is limited evidence on the impact of interventions on adolescent parents. This paper considers the effects of a parenting programme targeting adolescent parents in South Africa, emphasising parenting and adolescent well-being outcomes. Secondly, it explores whether such an intervention can influence adolescent depression and parenting behaviours. Using a quasi-experimental, longitudinal design, data was collected over 2015–2017 from 113 adolescent parents (aged 12–22 years) who attended three secondary schools in Cape Town. Adolescents (biological and non-biological parents) were assigned to intervention (parenting programme participation) and control groups. They completed assessments on parenting, adolescent well-being, and social context at three time-points. Inter-group, and time-period differences were examined, and analyses on whether depression moderates programme effects on outcomes were conducted. At the ten-month follow-up, positive parenting and resilience improved for biological and non-biological parents and in both study groups. For the non-biological intervention group parents, depression rates increased over time. Intervention adolescents with high depression risk showed smaller improvements in supportive parenting than their control group counterparts. Although adolescents increased in positive parenting and resilience, it is unclear whether and how the intervention contributed to these results. As the intervention group included more adolescents at high risk of depression at follow-up, this study highlights the

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importance of including mental health support in interventions targeting adolescents in LMIC contexts. The study is limited by a small sample size and reliance on self-reported data.

Introduction

South African society is characterised by multiple family forms and diverse caregiving relationships. Caregiving by non-biological parents is common in South Africa (Cluver et al., 2016); the term 'parent' henceforth refers to biological and non-biological primary caregivers of children. Adolescent parenting is a recognised occurrence, due to factors such as migration and abandonment. Primary causes of adolescent parenting are teenage pregnancy, and the social impact of the HIV epidemic that led to adolescents assuming parental responsibilities for their sibling or relatives (social parenting). Although declining, teenage pregnancy rates are still estimated at 16% (National Department of Health (n.d.oH), Statistics South Africa (Stats SA), South African Medical Research Council (SAMRC), Inner City Fund (ICF), 2019; Willan, 2013).

Children of adolescents have an increased risk of multiple adverse outcomes (Barlow et al., 2011). They are more likely to have poor neonatal and nutritional outcomes, and subsequent compromised education (Willan, 2013). In high-income countries (HIC), young children of adolescents are more prone to behaviour problems and poorly developed socio-emotional skills (Sellers et al., 2011), and are less likely to be school-ready (Fagan & Lee, 2013). For teenagers themselves, parenting increases health and developmental risks (Borkowski et al., 2016; Turner & Honikman, 2016; Willan, 2013), and poor educational experiences and outcomes (Ardington et al., 2012; Willan, 2013).

There are multiple influences on adolescents' parenting, regardless of their biological or social parenting status. While South Africa is a middle-income country, it is characterized by large income disparities (United Nations Development Programme (UNDP), 2019). Adolescents in resource-poor settings are at increased risk of compromised well-being (Cheng et al., 2014; Woollett et al., 2017). Several studies documented the challenges associated with caregiving in adversity (Casale et al., 2015; Murphy et al., 2010; Musil et al., 2009). Parenting tasks can be experienced as arduous and stressful, increasing the risks associated with abuse (Bartlett et al., 2014).

Adolescents strive for independence and individuation yet continue to require nurturing environments. Certain risks are associated with adolescent parenting, including limited emotional maturity leading to less sensitive parenting (Sellers et al., 2011; Shaw et al., 2006), increased neglect (Bartlett et al., 2014), and poor knowledge of child development (Gordon et al., 2004). In African cultures particularly, adolescents seldom parent alone and are often nested within extended family networks, with the maternal grandmother playing a pivotal role in child rearing (Chohan & Langa, 2011; Jewkes et al., 2009). While there are several strengths associated with these networks, they can generate conflict and undermine autonomy, particularly when the adolescent's mother is the co-parent (Sellers et al., 2011). Complexities can result from pursuing the tasks of adolescence while simultaneously fulfilling parenting tasks, leading to additional life stress (Sellers et al., 2011).

Positive parenting manifested through parental warmth and consistency can enable long-term beneficial child outcomes including physical health, resilience, emotional regulation, and reduced effects of stressful events including socio-economic diversity (Herrenkohl et al., 2013; Schofield et al., 2016). Parenting interventions can improve parenting skills and reduce risky behaviours in children and parents (Knerr et al., 2013), and have the potential to promote early development and reduce children's exposure to violence (Birkeland et al., 2005). At-risk caregivers from low-and middle-income countries (LMIC) have been shown to benefit from parenting interventions, including improved parent-child interactions and child development knowledge, and reduced harsh parenting, with some outcomes sustained long-term (Birkeland et al., 2005). While considerable evidence exists on parenting programme effects on adult parents, limited evidence exists on its effects on adolescent parents, particularly non-biological adolescent parents. The current study's primary aim was to evaluate a parenting programme targeting adolescent parents in South Africa, considering its effects on parenting and adolescent well-being outcomes.

Depression is a source of risk (Shaw et al., 2006), as depressed parents are likely to have impaired attachment with their young children (Turner & Honikman, 2016). Evidence suggests that parental mental health risks are amplified for adolescent mothers (Shaw et al., 2006; Turner & Honikman, 2016) and that heightened stress and poor social support are contributors (Logsdon et al., 2008). A HIC study found low parenting efficacy and increased social isolation predicted adolescent mothers' depression (Birkeland et al., 2005). Depressed adolescent mothers and caregivers demonstrated more authoritarian, disengaged parenting behaviours than their non-depressed peers (Pelaez et al., 2008), and child maltreatment (Bartlett et al., 2014). Young women's depression rates in South Africa range from 21% to 45% (Cheng et al., 2014; Nduna et al., 2010). A second aim of this study was to explore whether a parenting intervention can influence the parenting practices of depressed adolescent parents.

Methods and materials

Study design

This study employed a quasi-experimental study design. The intervention and control groups completed assessments three times between 2015 and 2017: before the intervention, then three months and ten months post-intervention. Ethical approval was obtained from the University of Cape Town's Health Sciences Faculty human research ethics committee (reference number 412/2015).

Self-reporting, standardised instruments were administered by researchers to adolescents. Triangulated data was collected from selected educators and family members; however, this data will not be discussed here. Data collection instruments were translated into the local language and pilot-tested for applicability to the local setting.

Study procedures

The study occurred in three purposively selected secondary schools located in the peri-urban settlements of Gugulethu, Khayelitsha and Nyanga near Cape Town metropole. The sites have similar characteristics including high rates of poverty, unemployment, and

crime. They are characterized by several social problems, inadequate housing infrastructure and associated poor access to basic amenities. Adolescent risky behaviours such as substance abuse and high-risk sexual activity are commonplace (Jewkes & Abrahams, 2002). The intervention was offered in these secondary schools.

Adolescents eligible for participation included those with parental responsibility for at least one child; substantial time spent on parenting duties; and self-selection into the parenting programme. Grade 12 learners (final year of secondary school) were excluded. Programme facilitators, employed by a local non-profit organisation (NPO), determined the composition of the intervention group as adolescents were routinely recruited into the programme. Once the quota for the number of programme participants was reached for year one, the remaining adolescents were wait-listed and participated as the control group; they did not receive any interventions during the study.

The programme facilitators introduced the study to participants. If adolescents agreed to be contacted by researchers, trained research assistants proceeded to obtain informed consent. For minor adolescents, contact was made with their parents for consent. Adolescents received compensation for travel costs and were provided with a food voucher. After obtaining informed consent, research assistants conducted a structured interview with the adolescents in private venues on school premises.

Prior to the intervention, 113 adolescents (61 intervention and 52 control) completed the baseline assessment. Only adolescents who completed the intervention were interviewed at the post-intervention and follow-up assessments. Intervention and control group participants were followed up at the same time intervals. The original sample consisted of 20 biological and 93 non-biological adolescent parents (see Figure 1). The 20 biological adolescent parents were all in the intervention group. Non-biological adolescent parents who completed at least one follow-up assessment are included in this

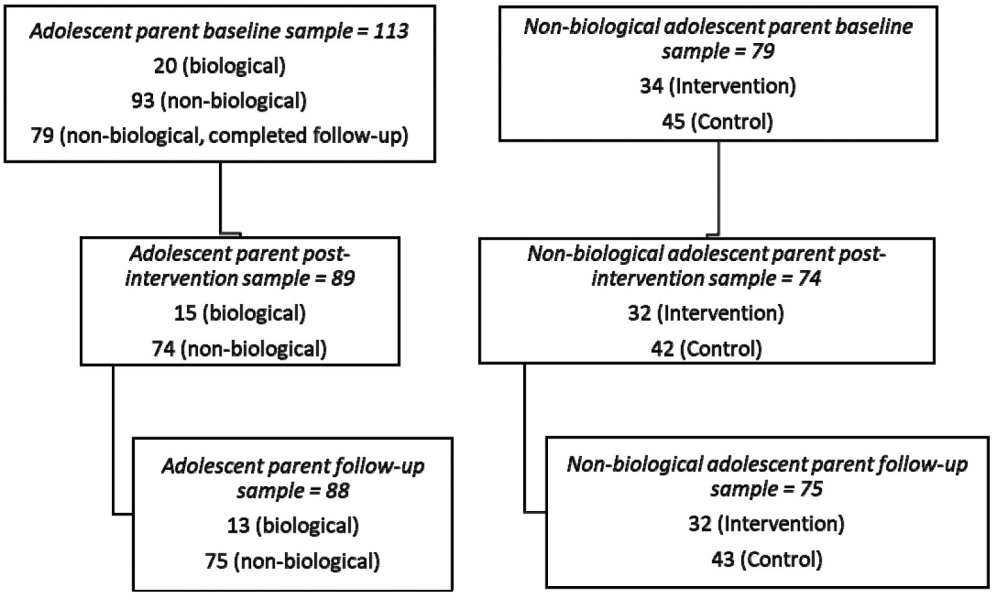

Figure 1. Flow-chart of adolescent parent study sample from baseline to follow-up.

analysis, leading to 79 non-biological adolescent parents retained in the sample (34 intervention, 45 control). Data on the non-biological adolescent parents are described separately from the biological parents, as comparison with a control group was only possible for the non-biological parents.

Overall, the study attrition rate was 20% between baseline and follow-up assessments. The majority (68%) of the adolescents lost to follow-up were those not continuing with school, or not completing the intervention. There was no significant difference between the study groups at follow-up when comparing the demographic characteristics of retained adolescents with those lost to follow-up.

The adolescent parenting programme

The evaluation was conducted in partnership with an established NPO providing parenting support services in Western Cape, South Africa. The organization uses a group-based programme approach and developed an intervention for adolescents who have parental responsibilities. The programme participants are either biological or non-biological caregivers. The programme aims to disrupt the cycle of teenage pregnancy and prevent child abuse. During the 20-week programme, participants received weekly facilitated, interactive sessions, with group sizes of approximately 20 participants per school. The NPO facilitators worked closely with the Life Orientation teachers at participating schools to identify and invite learners who met the inclusion criteria. A careful recruitment process was followed. The after-school programme operates during school terms for school-going youth. It has two foci: developing positive parenting skills and supporting adolescent development for responsible adulthood. Parenting skills include understanding children's behaviour, listening and responding to their emotions, and positive discipline. Adolescent development skills include HIV/AIDS literacy, financial management, and developing assertiveness. The programme approach emphasises experiential learning and the development of a supportive facilitator-adolescent relationship as the bedrock for personal development. The sessions include role-plays and small group discussions. Adolescents are encouraged to implement 'homework' by applying and integrating new skills. Essentially, the programme aims to equip adolescent caregivers to cope with the duality of parenthood and adolescence. The organization had several years of experience in programme implementation in disadvantaged Cape Town communities.

Study measures

Demographic information was collected on the adolescent participants, their children, and households. This included adolescent age, gender, caregiving status and relationship to child; child age, gender, and school enrolment; and household employment, income sources and food insecurity. Table 1 describes the measures used to assess the study outcomes.

Table 1. Description of outcome measures

Outcome measure	Number of items	Domain	Measure type and design	Reliability	Scoring
Primary parenting outcomes					
Parenting Young Children Scale (PARYC) (McEachern et al., 2012) Sub-scales: Supportive positive parenting Limit setting	14 items	Positive and supportive parenting	Frequency was reported on a Likert scale (0 = never; 6 = always)	Supportive positive parenting items Cronbach's α = .78 Limit setting items Cronbach's α = .79 (McEachern et al., 2012) Cape Town-based study: internal consistency for sub-scales α = .81 (Ilifa Labantwana, 2014)	Item scores were summed to generate sub-scale and total scores for positive parenting. Higher scores demonstrate positive parenting proficiency.
Parent-Child Conflict Tactics Scale (CTSPC) (Straus et al., 1998) Sub-scales: Non-violent discipline Psychological aggression Physical assault	22 items	Maladaptive/ harsh parenting	Frequency was reported on a Likert scale (0 = this has never happened, 1 = once in the past month, 7 = not in the past month, but it happened before).	Non-violent discipline items Cronbach's α = .70 Psychological aggression items Cronbach's α = .60 Physical assault items Cronbach's α = .55 (Straus et al., 1998)	Item scores were summed to generate three sub-scale scores. Higher scores on the psychological aggression and physical assault sub-scales indicate harsh discipline practices.
Adolescent outcomes					
The Social and Health Assessment Scale (SAHA): Academic motivation scale (Ruchkin et al., 2004)	6 items	Perceived importance of academic achievements and academic motivation	Respondents reported how true each statement was for them on a Likert scale ranging from: 'definitely not true' (1) to 'definitely true' (4)	Cronbach's alpha = .65 for the SAHA and higher for each sub-scale (Ruchkin et al., 2004)	Some items were reverse scored. Individual scores were summed. Higher scores indicate more motivation.
Kutcher Adolescent Depression Scale (KADS) (LeBlanc et al., 2004)	6 items	Depression in adolescents	Frequency of different behaviours and feelings over the past week was reported on a Likert scale ranging from: 'Hardly ever' (0) to 'All of the time' (3)	Sensitivity = .81 and specificity = .86 in a school-based population (LeBlanc et al., 2004)	Responses were summed. A cut-off of 6 is used, indicating high risk of depression

(*Continued*)

Table 1. (Continued).

Outcome measure	Number of items	Domain	Measure type and design	Reliability	Scoring
Child and Youth Resilience Measure-28 (CYRM-28) (Ungar & Liebenberg, 2011) Sub-scales: Individual resilience – individual, social skills and peer support Relational resilience – physical and psychological caregiving Contextual resilience – spiritual, educational, and cultural context	28 items	Resilience in children and adolescents	Respondents reported on the extent to which statements describe them on a Likert scale ranging from: 'Not at All' (1) to 'A Lot' (5) (Resilience Research Centre (RRC), 2013)	Good content-reliability across cultural settings is reported. (Ungar & Liebenberg, 2011)	Individual scores were summed. Higher scores indicate high resilience.
Family and social context					
The Social and Health Assessment Scale (SAHA): parental warmth scale (Ruchkin et al., 2004)	5 items	Adolescent perceptions of parental warmth	Frequency of parent/caregiver actions was reported on a Likert scale ranging from: 'Never' (1) to 'Often' (4)	Cronbach's alpha = .65 for the SAHA and higher for each sub-scale (Ruchkin et al., 2004)	Individual scores were summed. Higher scores indicate adolescents' perceptions of parental warmth.
The Social and Health Assessment Scale (SAHA): inconsistent parenting scale (Ruchkin et al., 2004)	5 items	Adolescent perceptions of inconsistent parenting	Frequency of parent/caregiver actions was reported on a Likert scale ranging from: 'Never' (1) to 'Often' (4)	Cronbach's alpha = .65 for the SAHA and higher for each sub-scale (Ruchkin et al., 2004)	Individual scores were summed. Higher scores indicate adolescents' perceptions of inconsistent parenting.
The Social and Health Assessment Scale (SAHA): parental involvement scale (Ruchkin et al., 2004)	6 items	Adolescent perceptions of parental involvement	Frequency of parent/caregiver actions was reported on a Likert scale ranging from: 'Never' (1) to 'Often' (4)	Cronbach's alpha = .65 for the SAHA and higher for each sub-scale (Ruchkin et al., 2004)	Individual scores were summed. Higher scores indicate adolescents' perceptions of parental involvement.
The Social and Health Assessment Scale (SAHA): victimisation by community violence scale (Ruchkin et al., 2004)	7 items	Victimisation to violence	Frequency of falling victim to specific violent acts in the past year was reported on a Likert scale ranging from: 'None' to 'Ten or more times'	Cronbach's alpha = .65 for the SAHA and higher for each sub-scale (Ruchkin et al., 2004)	Adolescents who experienced at least one violent act were categorised as victims.

Data analysis

The data were analysed using STATA version 13. Descriptive statistics for the demographic data and outcome variables for the three time points were computed. Relevant t-tests and chi-square tests were conducted to assess differences within each study group, over time.

Regression analyses were conducted to examine differences in the outcome variables between the study groups while controlling for the significant baseline differences and each variables' baseline value. Thereafter, further regression analyses were conducted to examine whether depression moderates programme effects on parenting and other outcomes; separate regression analyses were conducted for adolescents with and without high depression scores, comparing the study groups.

Results

Baseline characteristics

Table 2 displays the characteristics of the biological and non-biological adolescent parent sample. The biological parents were 18 years old on average; 60% self-identified as primary caregivers. The children of the biological parents were between 0–2 years old; 70% lived in a household with at least one employed member; 20% received social grants.

The non-biological parents were 16 years old on average; the control group was significantly younger (p = .032). They were predominantly female, with the majority taking care of multiple children and perceiving themselves as primary caregivers. About half were the older siblings of the child(ren) in their care. These children ranged in age from 0 to 13 years, with a mean age of 5.05 (2.97). About half (52%) of the children were female and most were enrolled in a learning institution. Most adolescents lived in households with at least one employed member; 76% in the intervention versus 96% in the control group (p < .05). Salaries or wages was the primary household income source. All adolescents reported that at least one adult in their household assisted with childcare.

Changes over time for biological parents

All biological adolescents received the intervention. Table 3 shows the changes over time in parenting behaviour. Positive (p = .008) and supportive parenting (p = .022), and limit setting (p = .018) increased significantly between baseline and follow-up. Non-violent discipline, psychological aggression and physical assault showed non-significant increases over time. The percentage of biological parents with high depression risk remained static. Academic motivation (p = .085) decreased somewhat; individual resilience significantly increased at post-intervention (p = .008) and follow-up (p = .034) assessments.

Changes over time for non-biological parents and study group differences

Positive parenting practices

In Table 4, mean scores indicate significant increases in supportive parenting for both groups by follow-up (intervention: paired t-test = −3.95, p = .001; control: t-test = −5.11;

Table 2. Adolescent parent and child sample and household characteristics at baseline

	Biological adolescent	Non-biological adolescent		
	Intervention N = 20	Intervention N = 34	Comparison N = 45	Intervention vs Comparison *p*-value
Age adolescent (in years)				
Mean (SD)	18.00 (1.26)	16.38 (1.48)	15.56 (1.83)	**.034**
12–15 (%)	0	29	53	-
16–19 (%)	85	68	42	-
20–22 (%)	15	3	4	-
Gender adolescent				
Female (%)	100	82	82	.988
Male (%)		18	18	.988
Caregiving				
One child only (%)	100	24	40	.123
More than one child (%)		76	60	.123
Perceives self as primary caregiver (%)	60	91	76	.081
Relationship to child				
Sibling (%)		53	44	.454
Aunt/uncle (%)		18	18	.988
Cousin (%)		15	20	.542
Foster (%)		-	4	.503
Other (%)		15	13	.556
Age child (in years)				
Mean (SD)	0.85 (0.75)	5.48 (2.92)	4.73 (3.00)	.208
0–2 years (%)	100	12	24	-
3–5 years (%)		45	44	-
6–8 years (%)		21	16	-
9–15 years (%)		21	16	-
Gender child				
Female (%)	45	59	42	.142
Male (%)	55	38	58	-
ECD programme participation				
Child enrolled in ECD setting (%)	35	91	89	.739
Household employment and income sources				
Any household member employed (%)	70	76	96	**.016**
Salaries (%)	70	76	91	.241
Social grants (%)	20	12	7	-
Product sales/self-employed (%)	5	6	-	-
Other (%)	5	6	2	-

Bolded highlights indicate significant group difference at p < .05.

$p < .001$), although the intervention group showed a statistically significant smaller increase than the control group. For limit setting, the intervention group makes statistically significant gains over time (paired t-test = −3.68, $p = .001$), but the difference between the groups was non-significant. Overall, both groups increased in positive parenting (intervention: paired t-test = −4.50, $p < .001$; control: t-test = −3.27; $p = .002$), with no statistically significant inter-group difference.

Harsh discipline practices

The control group showed a statistically higher frequency of non-violent discipline by follow-up (t-test = −2.54, $p = .015$), and increased significantly in its frequency of using physical assault between baseline and follow-up (t-test = −2.39, $p = .022$). Inter-group differences were not significant.

Table 3. Intervention (biological adolescents only) differences over time

Outcome	Baseline N = 20	Difference between Baseline and Post-intervention N = 15			Difference between Baseline and Follow-up N = 13		
	M (SD) unless otherwise indicated	Baseline M (SD)	Post-intervention M (SD)	Paired T-test	Baseline M (SD)	Follow-up M (SD)	Paired T-test
Parenting behaviour outcomes							
-Supportive parenting	26.00 (7.48)	26.47 (6.33)	28.8 (8.61)	.299	25.85 (6.61)	30.77 (6.44)	**.022**
-Limit setting	20.95 (13.24)	20.33 (13.67)	23.33 (12.73)	.422	20.31 (13.70)	29.77 (7.03)	**.018**
Positive parenting (Total)	46.95 (18.75)	48.40 (17.93)	55.40 (17.33)	.226	46.15 (18.27)	61.92 (11.94)	**.008**
Non-violent discipline	4.50 (7.56)	5.40 (8.51)	7.00 (10.11)	.559	3.69 (3.92)	12.39 (20.27)	.139
Psychological aggression	4.50 (7.56)	5.40 (8.51)	5.47 (7.10)	.956	3.69 (3.92)	13.69 (18.13)	.074
Physical assault	2.55 (3.73)	3.07 (4.11)	4.40 (6.08)	.522	2.92 (4.11)	7.08 (11.34)	.285
Adolescent outcomes, family and social context							
Depression	25%	13%	13%	1.000	23%	23%	1.000
Academic motivation	22.50 (1.15)	22.40 (1.24)	21.6 (1.72)	.285	22.31 (1.18)	20.67 (2.46)	.085
-Individual resilience	46 (4.53)	45.93 (4.11)	49.53 (4.16)	**.008**	45.38 (4.15)	47.62 (4.91)	**.034**
-Relational resilience	30.45 (4.22)	30.53 (2.98)	32.00 (2.98)	.111	30.08 (4.46)	30.62 (4.66)	.634
-Contextual resilience	44.50 (4.05)	44.00 (4.52)	45.53 (3.80)	.241	43.31 (4.42)	44.00 (4.87)	.688
Resilience (Total)	119.30 (9.67)	119.40 (10.03)	125.60 (10.72)	.107	118.31 (10.12)	121.42 (12.07)	.259
Inconsistent parenting	11.00 (2.49)	10.87 (2.72)	10.8 (2.86)	.940	11.00 (2.77)	10.42 (1.98)	.441
Parental involvement	19.00 (4.62)	19.53 (4.14)	19.73 (5.34)	.899	19.23 (4.02)	19.42 (4.94)	.638
Parental warmth	17.65 (2.93)	17.80 (2.31)	17.73 (2.82)	.935	17.85 (2.41)	17.85 (3.46)	1.000
Victim to violence	40%	47%	27%	.180	39%	8%	.083

Bolded highlights indicate significant time difference at $p < .05$.

Adolescent outcomes

The intervention group's high depression risk rate increased substantially, from 12% to 34%, as seen in Table 4 (post-intervention $p = .016$; follow-up $p = .065$): there were no significant inter-group differences. Academic motivation did not change notably over time or between groups. For individual resilience, the intervention group significantly improved between baseline and follow-up (t-test = −2.16; $p = .039$). Inter-group differences in resilience were non-significant.

Family and social context

The adolescents perceptions of their caregivers' inconsistent parenting styles decreased, while parental involvement and warmth increased marginally for both groups. Differences over time and between groups were not statistically significant. Overall, about 50% of the sample reported violence victimisation over time. The intervention group showed a decline in victimisation by follow-up, but it was not statistically different from the control group.

Table 4. Intervention effects on study outcomes in non-biological parents

Outcome	Baseline Mean (SD) unless otherwise indicated		Post-intervention Mean (SD) unless otherwise indicated				Follow-up Mean (SD) unless otherwise indicated			
	Intervention N = 34	Control N = 45	Intervention N = 32	Control N = 42	Intervention vs Control B or OR (95% CI)	*p*-value	Intervention N = 32	Control N = 43	Intervention vs Control B or OR (95% CI)	*p*-value
Parenting behaviour outcomes										
-Supportive parenting	27.29 (4.72)	28.00 (3.99)	31.48 (3.19)	30.81 (5.03)	.53 (−1.58, 2.64)	.615	30.97 (4.21)	32.19 (4.13)	**−2.12 (−3.99, −0.24)**	**.028**
-Limit setting	27.74 (7.12)	30.75 (5.44)	32.4 (4.75)	30.88 (5.70)	.76 (−1.98, 3.49)	.582	33.17 (5.29)	31.91 (5.46)	.59 (−2.53, 3.71)	.708
Positive parenting (Total)	54.97 (10.71)	58.07 (9.67)	62.94 (10.26)	61.69 (9.18)	1.50 (−3.01, 6.01)	.508	63.97 (9.20)	63.35 (9.08)	−.19 (−4.53, 4.14)	.927
Non-violent discipline	11.18 (7.36)	10.95 (12.61)	18.45 (16.64)	12.05 (15.57)	7.78 (−1.18, 14.74)	.090	15.35 (16.20)	17.56 (18.01)	−3.51 (−11.98, 4.96)	.411
Psychological aggression	15.84 (16.96)	10.70 (8.98)	15.26 (20.32)	11.79 (17.51)	2.28 (−7.12, 11.69)	.630	11.58 (13.18)	13.00 (16.12)	−1.01 (−8.58, 6.56)	.791
Physical assault	12.38 (14.47)	7.00 (6.26)	14.00 (22.94)	11.93 (20.94)	−0.73 (−11.78, 10.32)	.896	9.23 (12.16)	12.26 (17.73)	−4.67 (−12.64 3.29)	.246
Adolescent outcomes										
Depression	12%	18%	35%	21%	2.73 (0.81, 9.14)	.104	34%	14%	2.34 (0.67, 8.12)	.182
Academic motivation	22.18 (2.04)	22.62 (1.85)	21.22 (2.57)	21.90 (2.29)	−.75 (−1.95, 0.45)	.217	22.25 (1.63)	21.95 (1.54)	.37 (−0.39, 1.13)	.331
-Individual resilience	46.47 (4.72)	46.62 (5.04)	48.06 (4.35)	47.76 (4.16)	.56 (−1.26, 2.39)	.540	48.97 (4.83)	47.91 (4.19)	.86 (−1.42, 3.13)	.455
-Relational resilience	27.79 (5.74)	31.31 (2.99)	29.52 (4.75)	31.5 (3.38)	−.06 (−1.68, 1.56)	.944	29.65 (4.39)	31.37 (3.31)	−.46 (−2.12, 1.19)	.581
-Contextual resilience	43.56 (4.79)	44.49 (4.38)	44.39 (4.34)	45.31 (3.49)	−1.05 (−2.99, 0.88)	.282	44.29 (3.89)	44.30 (3.94)	−.22 (−2.03, 1.60)	.814
Resilience (Total)	118.76 (12.34)	122.49 (10.52)	122.41 (9.55)	124.57 (8.49)	−2.04 (−6.58, 2.51)	.374	123 (9.93)	123.58 (8.65)	−0.51 (−4.71, 3.69)	.809
Family and social context										
Inconsistent parenting	12.56 (2.15)	12.27 (2.72)	11.31 (3.18)	11.74 (2.88)	−.77 (−2.31, 0.78)	.325	11.66 (2.36)	12.00 (2.84)	−.25 (−1.48, 0.98)	.691
Parental involvement	17.62 (3.61)	20.53 (2.51)	19.09 (4.18)	20.48 (2.76)	.43 (−1.15, 1.99)	.591	18.75 (4.19)	20.74 (2.74)	−.09 (−1.53, 1.35)	.898
Parental warmth	16.71 (3.29)	18.2 (2.87)	17.09 (2.81)	18.17 (2.62)	−.14 (−1.29, 1.00)	.805	16.91 (2.80)	18.33 (2.13)	−.56 (−1.42, 0.31)	.206
Victim to violence	50%	51%	52%	52%	1.28 (0.41, 3.96)	.669	44%	51%	.80 (0.28, 2.29)	.680

Bolded highlights indicate significant group difference at $p < .05$.

Intervention effects by depression status at follow-up

In Table 5, at follow-up, intervention effects are reflected by depressive symptoms. The intervention group adolescents with high depression risk showed a statistically significant smaller increase in supportive parenting ($p < .05$), than those with high depression risk in the control group.

Discussion

This study examined the effects of a teen parenting programme on adolescent caregivers and assessed whether depression influenced parenting outcomes. Overall, adolescents showed important improvements in positive parenting and resilience. These improvements were present for both biological and non-biological parents, and in both study groups, suggesting that the changes over time were not only caused by the programme. However, outcomes for the small biological parent sample should be viewed cautiously. For the non-biological intervention group parents, the depression risk rate was higher at follow-up than at baseline. Intervention group adolescents at high risk of depression showed smaller improvements in supportive parenting than their control group counterparts.

Positive parenting improvements for both study groups might be explained through contamination, as adolescents attended the same schools (and potentially the same classes). Nevertheless, this outcome may also indicate that the intervention possibly influenced positive parenting (directly or indirectly) and individual resilience over time.

The findings highlight the influence of depression on adolescent parenting. Intervention group adolescents at high risk of depression at follow-up, showed a nominal increase in supportive parenting when compared to control group adolescents. Studies have noted the negative association between depressed mothers and supportive parenting, indicating poor reciprocity in mother-infant interactions (Birkeland et al., 2005), less positive parenting with toddlers (Fagan & Lee, 2013), and mothers' increased use of physical aggression (Lee, 2009). The adolescents at high risk of depression in the current study also showed more negative discipline styles; however, this did not differ between study groups.

Why did the non-biological parents in the intervention group, at high risk of depression, display less improvement in supportive parenting than the control group? One explanation might relate to the family context of the adolescents at high risk of depression. All adolescent caregivers lived with family members who contributed to parenting tasks, which can create conflict. Adolescents participating in the intervention were expected to implement new parenting concepts and adjust their parenting behaviours within their family contexts. They were also expected to share their newfound knowledge and skills to influence their caregiver(s) involved in co-parenting. Our findings, however, indicate little improvement in adolescents' perceptions of caregiver warmth, involvement, or support. Interviews with the adolescents' caregivers confirm an absence of supportive adolescent-caregiver relationships (Berry et al., 2020). Non-supportive family relationships might lead to conflicting beliefs and behaviours, resulting in feelings of powerlessness and depression (Milan et al., 2007). Further, the intervention is likely to have increased adolescents' consciousness of their behaviour, especially harsh parenting,

Table 5. Intervention effects on parenting, adolescent and contextual outcomes at follow-up, by depression status for non-biological parents

		Control Low depressive symptoms N = 37 High depressive symptoms N = 6		Intervention Low depressive symptoms N = 21 High depressive symptoms N = 11		Low depressive symptoms Intervention vs control N = 58		High depressive symptoms Intervention vs control N = 17	
Outcome	DS	Baseline	Follow-up	Baseline	Follow-up	B (95% CI)	*p*-value	B (95% CI)	*p*-value
-Supportive parenting	Low	28.19 (4.36)	**32.11 (4.22)*** **	27.30 (5.18)	**30.95 (4.41)****	−1.54 (−3.69, 0.63)	.159	**−4.91 (−8.72, −1.09)**	**.018**
	High	28.00 (1.90)	**32.67 (3.83)***	26.73 (4.36)	**31.00 (4.03)***				
-Limit setting	Low	31.28 (5.38)	32.17 (5.81)	27.30 (7.51)	**32.90 (6.20)***	0.79 (−3.02, 4.61)	.673	−0.46 (−6.64, 5.72)	.869
	High	28.50 (6.25)	31.00 (3.16)	27.90 (7.33)	**33.70 (2.98)***				
Positive parenting (Total)	Low	58.54 (10.18)	**63.30 (9.24)***	56.00 (11.66)	**63.52 (9.84)***	−0.19 (−5.26, 4.87)	.938	−3.58 (−15.42, 8.26)	.486
	High	56.50 (8.02)	**63.67 (5.35)***	51.64 (8.49)	**64.82 (6.13)****				
Non-violent discipline	Low	9.24 (10.68)	**15.70 (16.42)***	12.32 (8.43)	11.74 (10.75)	−4.59 (−12.39, 3.23)	.241	−1.32 (−32.73, 30.09)	.924
	High	17.00 (21.28)	29.00 (24.49)	9.55 (6.44)	22.45 (22.14)				
Psychological aggression	Low	9.97 (8.42)	9.89 (13.39)	16.05 (19.22)	**6.26 (7.47)***	−4.85 (−10.21, 0.52)	.075	−16.31 (−42.11, 9.49)	.186
	High	14.33 (12.85)	**32.17 (19.43)***	14.73 (14.49)	**18.18 (15.43)****				
Physical assault	Low	5.78 (6.09)	8.35 (11.58)	14.53 (16.97)	**4.11 (5.50)***	−5.16 (−10.73, 0.42)	.068	−11.99 (−40.12, 16.12)	.349
	High	9.67 (7.92)	36.33 (29.41)	6.09 (7.46)	18.73 (15.32)				
Academic motivation	Low	22.73 (1.79)	21.97 (1.62)	22.33 (1.68)	22.24 (1.90)	0.39 (−1.17, 1.94)	.617	−1.01 (−2.53, 0.52)	.168
	High	21.67 (2.34)	21.83 (0.98)	21.73 (2.72)	22.27 (1.01)				
-Individual resilience	Low	46.35 (5.46)	48.08 (4.43)	47.20 (3.75)	**49.25 (5.34)***	0.35 (−3.01, 3.71)	.835	1.21 (−3.05, 5.47)	.535
	High	47.33 (1.51)	46.83 (2.14)	45.27 (6.50)	48.45 (3.91)				
-Relational resilience	Low	31.22 (2.90)	31.70 (3.37)	28.80 (5.86)	30.80 (3.93)	0.64 (−1.19, 2.47)	.479	−1.16 (−6.50, 4.18)	.618
	High	31.50 (3.94)	29.33 (2.07)	27.64 (4.65)	27.55 (4.59)				
-Contextual resilience	Low	44.81 (4.40)	44.89 (3.81)	43.95 (4.64)	44.15 (4.33)	−0.39 (−2.83, 2.05)	.748	0.98 (−3.45, 5.40)	.621
	High	42.67 (4.76)	40.67 (2.73)	42.27 (5.22)	44.55 (3.11)				
Resilience (Total)	Low	121.92 (10.69)	124.68 (8.72)	118.24 (12.50)	**124.48 (10.91)***	−45 (−6.03, 6.93)	.889	4.31 (−11.56, 20.17)	.551
	High	129.83 (4.12)	**116.83 (4.17)*** **	119.82 (13.64)	120.18 (7.37)				
Parental involvement	Low	20.51 (2.67)	20.86 (2.84)	18.38 (3.67)	19.57 (3.96)	−0.01 (−1.63, 1.61)	.988	−0.01 (−4.88, 4.87)	.997
	High	20.67 (1.97)	20.00 (2.10)	17.27 (2.61)	17.18 (4.36)				
Parental warmth	Low	18.38 (2.88)	18.62 (1.85)	17.33 (3.07)	17.57 (2.18)	−0.53 (1.54, 0.48)	.292	−0.53 (−4.06, 2.99)	.738
	High	17.67 (3.33)	16.50 (3.02)	16.73 (2.28)	15.64 (3.47)				
Inconsistent parenting	Low	12.11 (2.77)	11.76 (2.68)	12.38 (2.27)	11.38 (2.40)	−0.60 (−2.25, 1.05)	.465	−1.41 (−6.81, 3.99)	.561
	High	13.17 (2.79)	13.50 (3.56)	12.64 (1.63)	12.18 (2.32)				

[a]DS is an abbreviation for depressive symptoms.
[b]* and bolded highlights indicate significant changes over time: * p < .05, ** p < .01, *** p < .001.
[c]Bolded highlights only indicate significant group differences at p < .05.

possibly leading to increased depression. Further research on factors likely to increase depression among adolescent parents would be beneficial.

This study has several limitations, including a small sample size, reliance on self-reported data in the absence of supportive data, and baseline study group differences. A selection bias is possibly present in the assignment of adolescents to the study groups, as those who received the intervention in year one were likely a higher priority group. This also diminished the study group comparability, with the intervention adolescents being at greater risk, evident in their higher harsh discipline baseline scores. The use of the CTS-PC may have further contributed to study limitations: the completion of the CTS-PC may not be accurate, as the sensitive content on abusive behaviour may tend to socially desirable responses. Nevertheless, the study adds value in the field of parenting interventions, specifically those targeting vulnerable populations such as adolescents.

In South Africa, adolescent and maternal mental health are growing public health concerns. About half of this study's adolescent participants had experienced violence; resided in low socio-economic communities; and experienced exposure to multiple determinants of compromised well-being. Such social adversities are known risk factors for poor mental health (Lund, 2012; Woollett et al., 2017). This study's findings can be used to strengthen parenting interventions targeting at-risk adolescents. Adolescent mental health should be carefully considered as a component for parenting interventions. Adolescent caregivers are likely to benefit from family involvement in interventions aimed at supporting them, recognising the significance of adolescents' relationships and socio-ecological contexts, for the well-being of both the adolescent and their children. Policies should emphasise mental health risk mitigation, and the identification of vulnerable parents, with attention to mental health support through multi-layered interventions.

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