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Understanding the burden of COVID-19 orphanhood and caregiver loss among children and adolescents living in South Africa

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ABSTRACT

Introduction: While caregiver loss is known to have significant repercussions for the wellbeing and developmental trajectories of children and adolescents, limited evidence has examined the impact of orphanhood due to COVID-19 on children and adolescents. To respond to this gap and support better planning for future crises, we examined the short-term impacts of COVID-19-related orphanhood on children's and adolescents' wellbeing through the Orphanhood and Caregiver Loss Among Adolescents and Youth (OCAY) study. No such studies exist globally and this provides a unique insight into this hidden group. We hypothesised that there would be multiple mental health impacts on children experiencing such loss.

Methods: We collected data from children and adolescents aged 9–18 years in peri-urban Khayelitsha, South Africa, including those who lost a parent/caregiver to COVID-19 and a community comparison group who did not. Trained research assistants administered questionnaires, utilising standardised inventories and validated scales, that explored young participants' mental health, wellbeing, and social circumstances. Data was analysed using descriptive statistics, and multivariate linear and logistic regression models in STATA18 and R.

Results: Our final sample included $n = 421$ children and adolescents ($n = 211$ experiencing parental/caregiver loss, $n = 210$ controls) with a mean age of 12.7 years ($SD = 2.3$), with no significant between-group differences. Males experiencing COVID-related orphanhood were more likely to report rule breaking behaviour compared to females experiencing orphanhood (4.3 vs. 2.7, Cliff's $d = 0.34$ [95 %CI: 0.07, 0.61], $p = 0.04$). Children experiencing the death of a primary caregiver were more likely to report a greater mental health burden compared to children experiencing the loss of a non-primary caregiver ($p=<0.05$). Multiple regression analyses showed that children and adolescents affected by COVID-related loss experienced significantly greater levels of food insecurity ($OR = 2.14$ [95 %CI: 1.04–4.40], $p = 0.038$), greater caregiving burdens in the household ($\beta = 1.08$ [95 %CI: 0.33–1.83], $p = 0.005$), poorer mental health and suicidality ($\beta = 0.18$ [95 %CI: 0.00–0.36], $p = 0.047$), and more social risk behaviours ($\beta = 0.75$ [95 %CI: 0.01–1.49], $p = 0.046$) than their control group counterparts, even after controlling for sociodemographic and household information. Children and adolescents experiencing higher levels of poverty and who had any disability were at particular disadvantage.

Conclusion: This paper presents new evidence on how caregiver loss—beyond the influence of factors such as sex, age, disability, and poverty—can increase children's vulnerability. Such vulnerability included food insecurity, additional domestic burdens of caregiving, elevated grief, suicidality, and the tendency to engage in social risk behaviours. This data illuminates the need for planning and provision to prevent and respond to such loss.

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1. Introduction

Parental loss has significant effects on children's social, emotional, economic, and developmental wellbeing (Mentec and Flahault, 2015). These effects can be long-lasting and profound, especially when loss occurs in the context of other vulnerabilities. Orphanhood or caregiver loss is typically considered an adverse childhood event (Aynsley-Green et al., 2012). Orphanhood is defined as the death of one or both biological parents, while caregiver loss is defined as the death of an individual with primary responsibility for looking after the child. Losing a parent or primary caregiver is a major life event, with immediate effects such as grief and bereavement, alternative care arrangements, and practical and emotional support needs (Sherr et al., 2014). Importantly, the experience of loss is also part of a longer-term, often dynamic, process. Timing and context may affect children's and adolescents' ability to cope, as can existing support networks in the aftermath of loss. Parental death routinely means the loss of income, economic instability, or relocation—resulting in changing schools and losing friendships and access to key social networks (Richter et al., 2009). Experiences of grief can reverberate within families and homes, with direct impact on children's wellbeing. A surviving parent may struggle to cope with the loss of their spouse or partner while at the same time providing comfort and stability for their child (Thurman et al., 2018). Mental health challenges may also stem from the context surrounding the parent's death—-whether it was sudden or expected, and whether children had experienced parental illness before death. In multi-generation households, caregiver loss may be more common, as grandparents or other family elders are part of caregiving dynamics.

While an early focus of the COVID-19 pandemic was on mortality indicators, the experiences of children and adolescents who lost parents and caregivers has been largely overlooked (Treglia et al., 2021). Recent global estimates indicate that over five million children and adolescents lost a caregiver during the pandemic (Unwin et al., 2022; Hillis et al., 2021). Monitoring of orphanhood experienced during COVID-19 was poor (Hillis et al., 2021), despite modelling estimates showing the widespread global orphanhood burden stemming from the pandemic (Unwin et al., 2022). Furthermore, despite a substantial existing knowledge base on children experiencing orphanhood from other global pandemics—such as HIV and Ebola—few of those lessons were incorporated in the COVID-19 response. With little cross-pandemic application of lessons in terms of response and longer-term prioritisation of this group, resources and support during the COVID-19 were siloed, disrupted, or shifted away from children entirely. There is also evidence that that children and adolescents who undergo parental and caregiver loss in the context of broader crises such as pandemics may experience more significant symptoms of loss, while also having specific service provision needs (Kidman, 2021).

Importantly, in many settings, the COVID-19 pandemic layered on existing vulnerabilities linked to poverty, intergenerational disadvantage, and tenuous living conditions. In South Africa in particular, multiple crises converged (Spaull, 2021). In peri-urban townships, residents were least able to lock down and pause work, with a large portion of informal workers as well as people with limited job security and joblessness. Orphanhood was thus experienced alongside restrictions to mobility and social services—which may have disrupted pathways to immediate supportive resources—significant job loss, food insecurity, misinformation, and a complex calculus of risks (Posel et al., 2021). Additionally, a high proportion of children in South Africa are cared for by someone other than their biological parent; recent data from the National Income Dynamics Survey shows that 20.3 % of children live with neither their mother nor father, with 61% of these children cared for by a grandmother (Hatch, 2024).

Interventions for children and adolescents experiencing parental and caregiver loss can respond to their immediate needs, as well as longer-term adjustment (Treglia et al., 2021). However, to develop and refine these kinds of intervention approaches—especially given the complex and individualistic nature of loss—we need a nuanced understanding of the specific health, social, and behavioural factors that are associated with these experiences. These efforts can support a better understanding of future needs and policy preparedness for effectively allocating resources both in crisis times and more routinely (Dubey et al., 2024). Previous studies researching the effect of COVID-19 on children and adolescents in low-resource settings focused on the pandemic's impacts on wellbeing, household stability, and income (Favara et al., 2022), but not specifically on how caregiver loss links to these outcomes. The general literature providing insight into grief and reactions to loss may guide the overall understanding, however some very specific conditions may affect such models. These include the suddenness of the loss with no time for preparation. Given the restrictions it also means that usual support services and provision may have been curtailed, closed or not available. The general background of isolation may have left children in a sudden situation where basic accommodation and nurturing needs were complex and difficult to organise. The lack of notification may have resulted in services being unaware of the children and their needs. The elevated death rate may have increased the numbers of such children while crisis services rarely had specific provision. The literature suggests that effective communication is important to support loss in childhood, with a recognition of different grieving manifestations (Kentor and Kaplow, 2020).

Given the limited in-depth exploration of the challenges facing children and adolescents who experienced parental and caregiver loss in the context of the COVID-19 pandemic, we explored these experiences in a South African sample, with a comparison group of same-age participants who did not experience loss. The aim of this study was to investigate the mental health and wellbeing, social risks, and household and family experiences of children and adolescents who experienced COVID-related caregiver loss. In comparing two groups—one that experienced loss and one did not—we hypothesized that children and adolescents who experienced orphanhood would have a greater combined risk profile compared to their peers who did not experience loss.

2. Methods

2.1. Setting

The study was conducted in Khayelitsha, a *peri*-urban area outside of Cape Town, South Africa. With an estimated population of 400,000–750,000 people (Super, 2015) and both formal and informal dwellings, Khayelitsha is one of the fastest-growing areas in the country. It is characterised by high levels of poverty, unemployment, and crime, alongside other risks to child development and wellbeing (Du Toit, 2023).

2.2. Participants and procedures

Children and adolescents were eligible for recruitment if they lived in the study catchment area, were between the ages of 9–18 years, and had experienced the loss of a primary caregiver due to COVID-19. These criteria were ascertained through participant screening questionnaires that were administered to all prospective participants. For each target child identified by the study, a child for the comparison group was recruited from the same source (these children and adolescents had not experienced orphanhood). Participants were recruited and interviewed by trained research assistants between July 2022 and April 2023 after the lifting of COVID-19 lockdown measures. Accordingly, data collection only commenced once schools and other service providers had resumed their normal operations. Participants were recruited through a multi-pronged strategy. Firstly, local schools were approached and communication with these schools allowed for identification of children to be invited to participate. Similarly, non-governmental organisations (NGOs) which provide child services were approached to refer children to the study. The data collection and recruitment teams also utilised a set of community door-to-door enquiries to invite participation and finally the study approached participants from existing studies to assess eligibility. We conducted information sessions with school leadership and NGOs to outline the study and inclusion criteria. Schools distributed screening forms to caregivers, while NGOs referred eligible participants to the study team. Completed screening forms were collected, and potential participants were contacted for screening. Informed consent and assent procedures were completed prior to study participation, with all children under age 18 requiring parental or guardian consent.

A diverse recruitment strategy facilitated broad participation, reaching out-of-school adolescents through door-to-door efforts and connecting with service-accessing children and adolescents via NGO partnerships. A total of 432 participants were approached, 2 withdrew consent, and we could not contact 9 participants after they had been screened due to change of phone numbers or addresses. The team was based within the locality and data collectors were drawn and trained from the local community.

For study participants who were aged 9–17 years, research assistants administered informed assent, with primary caregivers providing informed consent, both written. Data collection tools, previously piloted with children and adolescents, included a structured questionnaire, administered on a tablet in isiXhosa, English, or a combination thereof, based on participant preference. Questionnaires included items on sociodemographic characteristics; relationships; schooling and education; stigma and bullying; violence victimisation; health and well-being, including experiences of COVID-19, HIV/AIDS, and mental health; behavioural risk; and social support services.

2.3. Measures

Key measures used to examine risk and protective factors associated with caregiver loss can be grouped into 1) household and community factors, and 2) mental health and social risk.

Household and community factors: *Any disability* was measured utilising two items from the WHO international classification of functioning, disability and health, which included self-report items on memory and cognitive function as well as physical disability (Jiménez Buñuales and Martín Moreno, 2002). A binary variable was created and participants were classified as experiencing any disability if they reported any difficulty on the scale. *Food insecurity* was examined using the Household Food Insecurity Access Scale (HFIAS), which explores individuals' experience of food insecurity in the previous four weeks (Coates et al., 2007) and includes experiences of food uncertainty, insufficient quality, and insufficient intake. It has been used to assess household food insecurity among children and adolescents in South Africa (Mkhize et al., 2022). *Parenting practices* experienced by children and adolescents were explored using items from the Alabama Parenting Questionnaire (APQ) (Shelton et al., 1996), previously adapted for use in South Africa, focused on positive parenting and parental supervision using a 16-item adaptation of the original scale (Cluver et al., 2016). *Domestic burdens of caregiving* were assessed using the Young Carers Tasks and Outcomes Questionnaire (MACA-YC18) (Becker, 2009). We used a 23-item adaptation of the original scale to examine a range of caregiving tasks performed in the household by children and adolescents (Lane et al., 2015). *Child maltreatment* was explored using the Parent-Child Conflict Tactics Scale (PCCTS) (Straus and Hamby, 1997), with a 12-item adaptation measuring incidence of child and adolescent maltreatment in the home (Sherr et al., 2016). *Peer victimisation* was examined using the Multidimensional Peer Victimization Scale (MPVS), which considers direct and indirect forms of peer victimisation (Mynard and Joseph, 2000) experienced by study participants. A 12-item adaptation of the original scale, previously used in South Africa, was used to understand experiences of bullying in the six months prior (Sherr et al., 2017).

Mental health and social risk: *Grief* among children and adolescents who experienced the loss of a caregiver was explored using the grief subscale of the Core Bereavement Items (Burnett et al., 1997), used previously in South Africa (Thurman et al., 2017). *Anxiety symptomatology* was assessed using the Generalized Anxiety Disorders-7 (GAD-7) scale (Spitzer et al., 2006), and *depressive symptomatology* was measured using the Patient Health Questionnaire-9 (PHQ-9), both extensively used in South Africa and recently validated in this age group in the study site (Marlow et al., 2023). *Suicidality* was assessed using the Mini International Psychiatric Review for Children and Adolescent Suicidality (MINI-KID) (Sheehan et al., 2010), also used previously in South African settings (Cluver et al., 2015). *Self-esteem* was evaluated using the Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1965), with precedent in South Africa among children experiencing orphanhood (Sherr et al., 2017). *Behavioural risk* among children experiencing caregiver loss were examined using the Rule-Breaking Subscale of the Child Behaviour Checklist (CBCL) (Achenbach, 2001). We used a 17-item adaptation of the original subscale to explore these themes (Sherr et al., 2017).

2.4. Data analysis

The initial phase of data analysis involved crosstabulations to identify significant differences between the two groups across key study measures. Depending on the data type, statistical significance was determined using Student's *t*-test, Wilcoxon's rank sum test, Pearson's chi-squared test, or Fisher's exact test. Effect sizes were calculated to assess practical significance, utilising Cohen's *d*, Cohen's *h*, or Cliff's *d* as appropriate to the data characteristics. Data were additionally stratified according to biological sex, and typology of caregiver loss (loss of primary caregiver vs. non-primary caregiver). Supplementary correlational analyses, utilising the Spearman, phi, point biserial *r*, or rank biserial *r* correlation coefficients, explored relationships between key study indicators and confirmed the absence of high levels of multicollinearity in variables selected for subsequent regression models (see Supplementary Table S1).

The following phase involved refining the set of outcome indicators that showed significant group differences through multiple linear and logistic regression analyses. These analyses tested relationships between caregiver loss and selected outcome indicators robust to the inclusion of sociodemographic controls. The models helped clarify the direct and indirect associations between caregiver loss and selected outcomes, thereby deepening our understanding of how caregiver loss interacts with selected aspects of child well-being. Statistical significance was consistently established at $p < 0.05$. All analyses were performed using STATA 18 and R version 4.3.2 to ensure data integrity and reproducibility.

2.5. Ethical considerations

Because of the sensitive nature of the study themes, ethical considerations were a critical component of the research process. Research assistants were individuals with extensive experience working with children and adolescents exposed to multiple adversities, with approximately a decade or more research experience in the study site, which helped to promote ethical conduct of research with vulnerable participants. There was specific training for the study and a special section raising ethical issues and rehearsing referral, consent and support provision. Study procedures focused on creating a comfortable space for participants to undergo consent and assent as well as the interview, at a dedicated location within the local setting and with the provision of transport and refreshments. Research assistants were trained, supervised, and supported to identify children and adolescents requiring additional referrals. The study used a referral directory and protocol, with a dedicated social worker on site during all interviews to facilitate any referrals needed. Special care was taken to mitigate any potential stigma through participation in the study. If referrals were deemed necessary, the social worker supported with making appointments and arranging transport to the service provider. All participants received a grocery voucher as a thank-you for their time, inconvenience, and expense to participate. Stellenbosch University's Health Research Ethics Committee granted ethical approval for this study (N22/04/040).

3. Results

3.1. Sample characteristics

Our final sample consisted of 211 children and adolescents who experienced orphanhood or caregiver loss due to COVID-19 (referred to in this paper as experiencing COVID-related orphanhood), and 210 children and adolescents who did not experience COVID-related orphanhood or caregiver loss but had similar socioeconomic characteristics (comparison group). There were no statistically significant differences between the two groups across key sociodemographic characteristics (Table 1).

The mean age of the sample was 12.7 years (SD = 2.3), and nearly half of participants were female (49.4 %). The average household size was 5.2 individuals (SD = 2.8). Approximately 40.4 % of participants reported experiencing a disability, 40.4 % lived in informal housing, and most participants belonged to households receiving some form of cash grant (89.6 %). Almost all participants (99.1 %) were enrolled in school. Among those experiencing caregiver loss, three in five participants (61.6 %) had lost a primary caregiver. These primary caregivers included the child's co-resident grandmother (27.7 %), biological mother (19.2 %), grandfather (17.7 %) or biological father (15.4 %: see Fig. 1). Nearly 1 in 4 children and adolescents who had experienced loss (23.7 %) reported a subsequent change in their living arrangements. Among those children and adolescents who had not experienced loss, 40.0 % (n = 84) lived with a biological parent, 8.6 % (n = 18) lived with a grandparent, and 50.9 % lived with another caregiver (e.g. aunt, uncle, other extended family).

3.2. Covid-related orphanhood, biological sex and mental health and social risk

Sex differences in mental health and social characteristics are explored in Table 2. Among the group experiencing COVID-related orphanhood a trend was identified in which males reported higher depressive symptoms compared to females (6.8 vs. 5.5, Cliff's d = 0.24 [95 % CI −0.03, 0.51], p = 0.06). Males in this group were also more likely to report rule breaking behaviour compared to females (4.3 vs. 2.7, Cliff's d = 0.34 [95 %CI: 0.07, 0.61], p = 0.04). Among the comparison group a trend was identified in which makes reported high levels of depressive (5.9 vs. 4.7, Cliff's d = 0.27 [95 % CI: −0.01, 0.54] and anxiety (4.3 vs. 3.4, Cliff's d = 0.24 [95 % CI: −0.03, 0.51] symptoms compared to females. Severity of symptomology was similar according to biological sex on all other measures of mental health and wellbeing (see Table 2).

3.3. Typology of caregiver loss and mental health and social risk

Table 3 explores mental health and social characteristics according to whether children experienced the loss of a primary or non-primary caregiver (see Table 3). Compared to the loss of a non-primary caregiver, children experiencing the loss of a primary caregiver reported lower self-esteem scores (18.5 vs.19.5, Cliff's d = 0.29 [95 %CI: 0.01, 0.56], p=<0.05) higher symptoms of depressive (6.8 vs. 5.1, Cliff's d = -0.31 [95 %CI: −0.59, −0.03], p=<0.05) and, suicidality symptomology (0.53 vs. 0.15, Cliff's d = -0.34 [95 % CI: −0.62, −0.06], p=<0.05), and high levels of grief (10.0 vs. 8.4, Cliff's d = -0.40 [-0.70, −0.11], p=<0.01). Trends identifying higher levels of anxiety symptoms and rule breaking behaviour among those experiencing the loss of a primary caregiver compared to a non-primary caregiver are also reported (see Table 3).

Table 1
Descriptive Statistics (N = 421).

Baseline Characteristics	*Total Sample*		*Caregiver Loss Group*		*Comparison Group*			
	(N = 421)		*(N = 211)*		*(N = 210)*			
	N/M	*%/SD*	*N/M*	*%/SD*	*N/M*	*%/SD*	*t/z/X2*	*Effect Size [95 % CI]*
Child Characteristics								
Age	12.71	2.31	12.74	2.42	12.69	2.20	−0.24	0.02 [-0.17, 0.21] †
Gender (female)	208	49.4	110	52.1	98	46.7	1.26	0.11 [0.01, 0.20] ‡
Disability (Any)	170	40.4	84	39.8	86	41.2	0.07	0.01 [-0.06, 0.09] ‡
Household Characteristics								
Household size	6.19	2.82	6.41	3.05	5.97	2.57	−1.62	0.16 [-0.03, 0.35] ‖
Informal housing	170	40.4	82	38.9	88	41.9	0.40	−0.06 [-0.16, 0.03] ‡
Basic necessities score (0–8)	6.85	1.65	6.70	1.85	7.00	1.42	0.95	−0.05 [-0.16, 0.06] §
Household Food Insecurity Access Scale score (0–27)	9.14	5.67	9.74	5.59	8.54	5.70	−2.10*	0.12 [0.01, 0.23] §
Study Outcomes								
APQ Positive Parenting Subscale (0–24)	22.29	4.89	22.08	5.26	22.51	4.49	0.72	−0.04 [-0.16, 0.07] §
APQ Poor Supervision Subscale (0–40)	19.05	5.94	18.93	5.75	19.18	6.14	0.26	−0.01 [-0.13, 0.09] §
Parent-Child Conflict Tactics Scale (0–48)	4.26	5.90	4.37	5.88	4.16	5.92	−0.44	0.01 [-0.10, 0.12] §
Young Carers Tasks and Outcomes (0–23)	8.56	3.95	9.12	4.13	8.00	3.69	−2.90**	0.16 [0.05, 0.28] §
Peer Victimization Scale (0–36)	3.48	4.05	3.35	4.08	3.60	4.04	1.03	−0.06 [-0.16, 0.06] §
Rosenberg's Self-Esteem Scale (0–30)	19.26	3.60	18.90	3.61	19.62	3.57	2.16*	−0.12 [-0.23, −0.01] §
Patient Health Questionnaire (0–27)	5.74	5.10	6.12	5.50	5.36	4.65	−1.04	0.06 [-0.05, 0.16] §
Generalized Anxiety Disorder (0–21)	4.17	4.17	4.43	4.48	3.91	3.83	−0.59	0.03 [-0.08, 0.14] §
Mini International Psychiatric Interview for Children and Adolescent Suicidality (0–5)	0.28	0.96	0.38	1.15	0.18	0.71	−1.68	0.05 [-0.01, 0.11] §
Core Bereavement Items Grief Subscale (0–15)	4.96	5.52	8.96	4.36	0.94	3.12	−15.59**	0.83 [0.77, 0.88] §
CBCL Rule-Breaking Subscale (0–51)	3.03	4.05	3.44	4.77	2.62	3.11	−0.80	0.04 [-0.06, 0.15] §

Note. Scale indicators are based on scale item selection and response categories adapted to study objectives.
† Effect size following Student's *t*-test as Cohen's *d.* ‖ Effect size following Welch's *t*-test as Hedge's *g.* ‡ Effect size following Pearson's chi-squared test as Cohen's *h.* § Effect size following Wilcoxon's rank-sum test as Cliff's *d.*
** p < 0.01; * p 0.05.

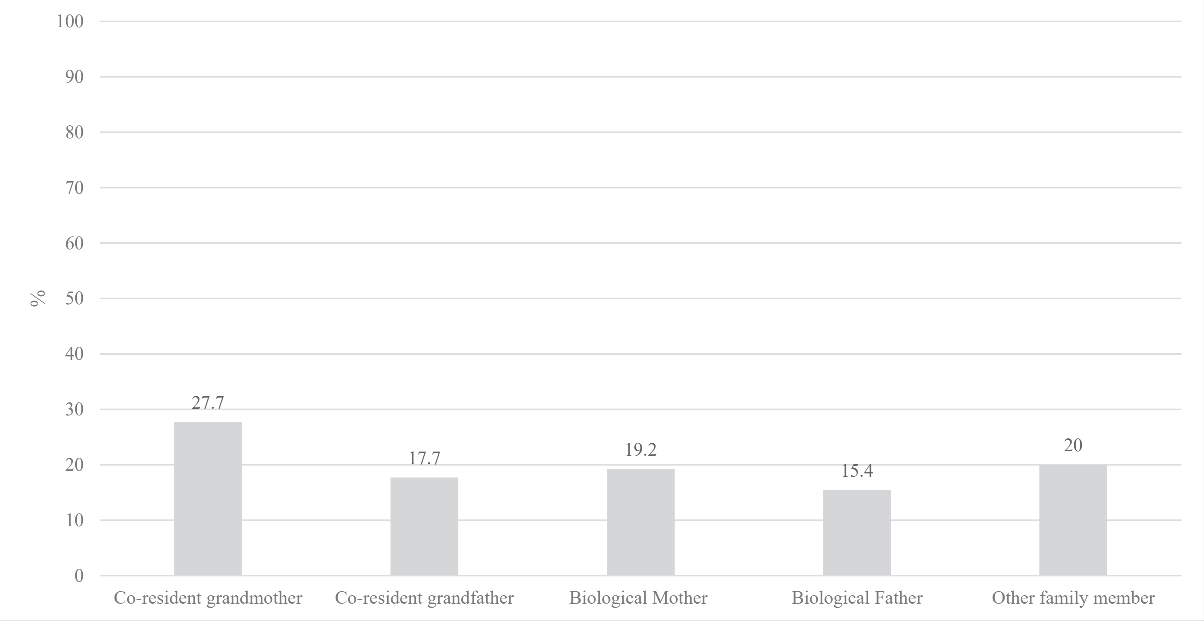

Fig. 1. Caregiver loss among children and adolescents experiencing primary caregiver loss (n = 130).

Table 2
Mental health characteristics at baseline stratified according to biological sex (n = 421).

Mental health characteristics	Caregiver Loss Group (n = 211)				Comparison Group (n = 210)			
	Female (n = 110) M (SD)	Male (n = 101) M (SD)	***t/z/ X2***	***Effect Size [95 % CI]***	Female (n = 98) M (SD)	Male (n = 112) M (SD)	***t/z/ X2***	***Effect Size [95 % CI]***
Rosenberg's Self-Esteem Scale (0–30)	18.8 (3.6)	19.0 (3.6)	0.42	0.06 [-0.21, 0.33] †	19.8(3.5)	19.4 (3.6)	−0.81	−0.11 [-0.38,0.16]
Patient Health Questionnaire (0–27)	5.5 (5.2)	6.8 (5.8)	1.75	0.24 [-0.03,0.51]	4.7 (3.8)	5.9 (5.2)	1.92	0.27 [-0.01, 0.54]
Generalized Anxiety Disorder (0–21)	4.3 (4.4)	4.5 (4.6)	0.27	0.04 [-0.23, 0.31]	3.4 (3.5)	4.3 (4.1)	1.95	0.24 [-0.03, 0.51]
Mini International Psychiatric Interview for Children and Adolescent Suicidality (0–5)	0.43 (1.2)	0.34 (1.1)	−0.57	−0.08 [-0.35, 0.19]	0.19 (0.7)	0.16 (0.7)	−0.03	−0.05 [-0.32, 0.22]
Core Bereavement Items Grief Subscale (0–15)	9.8 (3.9)	9.0 (4.0)	−1.33	−0.19 [-0.46, 0.09]	–	–	–	–
CBCL Rule-Breaking Subscale (0–51)	2.7 (3.3)	4.3 (5.9)	2.45*	0.34 [0.07, 0.61]	2.4 (2.9)	2.7 (3.2)	0.76	0.11 [-0.17, 0.38]

3.4. Covid-related orphanhood and household and community factors

The group experiencing COVID-related orphanhood showed significantly greater food insecurity and higher domestic burdens related to caregiving. Children and adolescents experiencing COVID-related orphanhood were more likely to report higher scores on the food insecurity scale (9.74 vs 8.54, Cliff's d = -0.12 [95 % CI: −0.23, −0.01], p = 0.036). They were also more likely than the comparison group to experience mild, moderate, or severe food insecurity (93.8 % vs 88.1 %, Cohen's h = 0.96 [95 % CI: 0.89–1.03], p = 0.040). Children and adolescents affected by COVID-related orphanhood also experienced greater burden of caregiving overall (9.12 vs 8.00, Cliff's d = -0.16 [95 % CI: −0.28, −0.06], p = 0.004), and were more likely to report higher scores on a short-form subscale examining the burden of sibling care (1.13 vs 1.04, Cliff's d = -0.20 [95 % CI: −0.30, −0.09], p = 0.000).

Table 4 summarises the results of exploratory regression models examining the association between caregiver loss and these household and community factors. After controlling for key sociodemographic factors, associations between orphanhood and food insecurity remained significant (OR = 2.14 [95 %CI: 1.04–4.40], p = 0.038). Notably, children with disabilities and children experiencing greater levels of poverty were more vulnerable to food insecurity. In these models, children and adolescents experiencing orphanhood had higher domestic burdens of caregiving generally (β = 1.08 [95 %CI: 0.33–1.83], p = 0.005) and sibling care specifically (β = 0.38 [95 %CI: 0.17–0.59], p = 0.000), with additional implications for children living in households with more family members.

3.5. Covid-related orphanhood and mental health and social risk

Children and adolescents experiencing COVID-related orphanhood were more likely to report a higher grief score (8.96 vs 0.94, Cliff's d = -0.83 [95 %CI: −0.88, −0.77], p = 0.000), moderate or severe anxiety symptoms (14.7 % vs 8.1 %, Cohen's h = -0.88 [95 %CI: −0.95, −0.82], p = 0.033), and endorsement of items related to suicidality (see Figs. 2 and Fig. 3). Suicidality items included considering themselves better off dead (MINI-KID, 0.19 vs 0.09, Cliff's d = -0.05 [95 %CI: −0.11, −7.08e-05], p = 0.0495), wishing themselves dead (MINI-KID, 9.0 % vs 3.8 %, Cohen's h = -1.06 [95 %CI: −1.13, 0.99] p = 0.030) or wanting to hurt themselves (MINI-KID, 9.5 % vs 3.8 %, Cohen's h = -1.05 [95 %CI: −1.12, −0.98], p = 0.020). Children and adolescents experiencing orphanhood were also more likely to report lower levels of self-esteem

Table 3
Mental health characteristics at baseline stratified according to caregiver loss (primary caregiver vs. non-primary caregiver (n = 211).

Mental health characteristics	Primary Caregiver (n = 130) M (SD)	Non-primary caregiver (n = 81) M (SD)	*t/z/X2*	*Effect Size [95 % CI]*
Rosenberg's Self-Esteem Scale (0–30)	18.5 (3.5)	19.5 (3.8)	2.02*	0.29 [0.01, 0.56]
Patient Health Questionnaire (0–27)	6.8 (5.8)	5.1 (4.9)	−2.18*	−0.31 [-0.59, −0.03]
Generalized Anxiety Disorder (0–21)	4.8 (4.6)	3.8 (4.2)	−1.60	−0.23 [-0.51, 0.05]
Mini International Psychiatric Interview for Children and Adolescent Suicidality (0–5)	0.53 (1.3)	0.15 (0.67)	−2.38*	−0.34 [-0.62, −0.06]
Core Bereavement Items Grief Subscale (0–15)	10.0 (3.7)	8.4 (4.2)	−2.74**	−0.40 [-0.70, −0.11]
CBCL Rule-Breaking Subscale (0–51)	3.1 (3.5)	4.2 (6.3)	1.77	0.25 [-0.03, 0.53]

(18.9 vs 19.6, Cliff's *d* = 0.12 [95 %CI: 0.00, 0.23], p = 0.031). Comparisons between the two groups on the rule-breaking subscale of the CBCL demonstrated statistically significant differences on selected scale items. Children and adolescents experiencing orphanhood were more likely to report using drugs (0.04 vs 0.00, Cliff's *d* = -0.02 [95 %CI: −0.05, −0.005], p = 0.025) as well as to experience no guilt while breaking rules (0.45 vs 0.26, Cliff's *d* = -0.10 [95 %CI: −0.17, −0.02], p = 0.021).

The regression models summarised in Table 5 show positive associations between COVID-related orphanhood and grief (β = 7.89 [95 %CI: 7.16–8.62], p = 0.000) as well as suicidality (β = 0.18 [95 %CI: 0.00–0.36], p = 0.047) when controlling for sociodemographic factors including age, sex, housing, household size, poverty, and disability. Additionally, these regressions show higher scores on the rule-breaking subscale of the CBCL for children and adolescents affected by COVID-related orphanhood (β = 0.75 [95 %CI: 0.01–1.49], p = 0.046) after controlling for covariates. Older children were likelier to report higher levels of grief, suicidality, and social risk. Children experiencing higher levels of poverty alongside loss were also likelier to exhibit higher levels of suicidality. Boys were also more likely to report rule-breaking behaviour. Self-esteem and anxiety were not significant in the full regression model.

4. Discussion

Our findings provide a first, comprehensive examination of the impact of COVID-19 orphanhood on children and adolescents. We documented widespread challenges related to poverty and household insecurity across both groups, with more stressors among the group experiencing COVID-related orphanhood. Household stressors included food insecurity and changes in parenting care and living arrangements, which have been identified in other studies examining orphanhood (Cluver et al., 2009). Consistent with evidence describing the household flux and shift in responsibilities that often accompany loss, especially in low-income settings (Evans, 2014), children and adolescents experiencing COVID-related orphanhood were also found to be more involved in sibling care, potentially as needs or responsibilities for them increased in the wake of family loss. Given the economic and social repercussions linked to the COVID-19 pandemic in South Africa, including multiple lockdowns, restrictions on in-person work, and school and creche closures (Spaull, 2021), it is possible that children and adolescents both

Table 4
Linear and logistic regression models exploring associations between caregiver loss and household and community factors.

Variables	*Food Insecurity Score (1)*		*Food Insecurity (Any) (2)*		*Inadequate Food Quality (3)*		*Burden of Caregiving Score (4)*		*Burden of Sibling Care Score (5)*		*Positive Parenting Score (6)*		*Poor Supervision Score (7)*	
	β (95 % CI)	*P*	*OR (95 % CI)*	*p*	*OR (95 % CI)*	*p*	*β (95 % CI)*	*p*	*β (95 % CI)*	*p*	*β (95 % CI)*	*p*	*β (95 % CI)*	*p*
Model A														
Caregiver Loss	1.20* (0.12–2.28)	**0.030**	2.06* (1.02–4.14)	**0.043**	2.09* (1.16–3.78)	**0.015**	1.12** (0.37–1.87)	**0.004**	0.40** (0.19–0.61)	**0.000**	−0.43 (−1.37–0.50)	**0.363**	−0.25 (−1.39–0.89)	**0.670**
Model B														
Caregiver Loss	0.80 (−0.20–1.79)	**0.116**	2.14* (1.04–4.40)	**0.038**	2.06* (1.12–3.79)	**0.020**	1.08** (0.33–1.83)	**0.005**	0.38** (0.17–0.59)	**0.000**	−0.31 (−1.21–0.58)	**0.493**	−0.26 (−1.32–0.81)	**0.635**
Sex (Female)	0.39 (−0.60–1.38)	**0.439**	1.02 (0.51–2.04)	**0.946**	1.02 (0.57–1.85)	**0.938**	−0.23 (−0.98–0.53)	**0.556**	0.15 (−0.06–0.36)	**0.168**	0.60 (−0.30–1.50)	**0.193**	−3.16** (−4.23 – −2.10)	**0.000**
Age	0.12 (−0.10–0.34)	**0.283**	0.93 (0.79–1.08)	**0.350**	1.07 (0.93–1.22)	**0.344**	0.13 (−0.04–0.29)	**0.132**	0.00 (−0.04–0.05)	**0.899**	−0.29** (−0.48 – −0.09)	**0.004**	0.34** (0.10–0.57)	**0.005**
Housing (Informal)	1.32* (0.27–2.37)	**0.014**	1.12 (0.53–2.33)	**0.771**	0.88 (0.47–1.63)	**0.681**	0.72 (−0.07–1.52)	**0.074**	0.09 (−0.13–0.31)	**0.418**	−0.85 (−1.80–0.10)	**0.078**	−0.83 (−1.95–0.30)	**0.149**
Household Size	0.06 (−0.12–0.24)	**0.512**	0.94 (0.83–1.07)	**0.347**	0.97 (0.87–1.09)	**0.644**	0.15* (0.01–0.29)	**0.034**	0.05** (0.02–0.09)	**0.006**	0.04 (−0.13–0.20)	**0.670**	−0.06 (−0.26–0.13)	**0.529**
Poverty	1.22** (0.90–1.54)	**0.000**	1.54* (1.05–2.24)	**0.026**	1.66** (1.17–2.35)	**0.004**	0.03 (−0.21–0.28)	**0.777**	−0.02 (−0.09–0.04)	**0.473**	−0.47** (−0.76 – −0.18)	**0.001**	0.42* (0.08–0.76)	**0.016**
Disability	0.65* (0.11–1.19)	**0.019**	1.93* (1.05–3.52)	**0.034**	1.52 (0.98–2.34)	**0.061**	−0.23 (−0.64–0.18)	**0.265**	−0.03 (−0.15–0.08)	**0.581**	−0.94** (−1.43 – −0.45)	**0.000**	1.07** (0.49–1.65)	**0.000**

Note. 95% confidence intervals are provided in parentheses.
** $p < 0.01$, * $p < 0.05$.

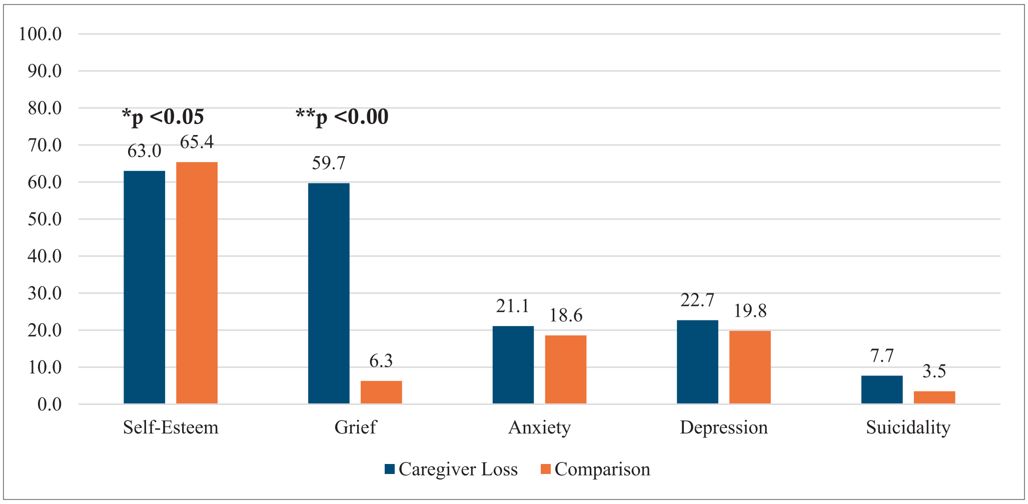

Fig. 2. Comparisons on standardised scale measures of mental health by the experience of caregiver loss (N = 421).

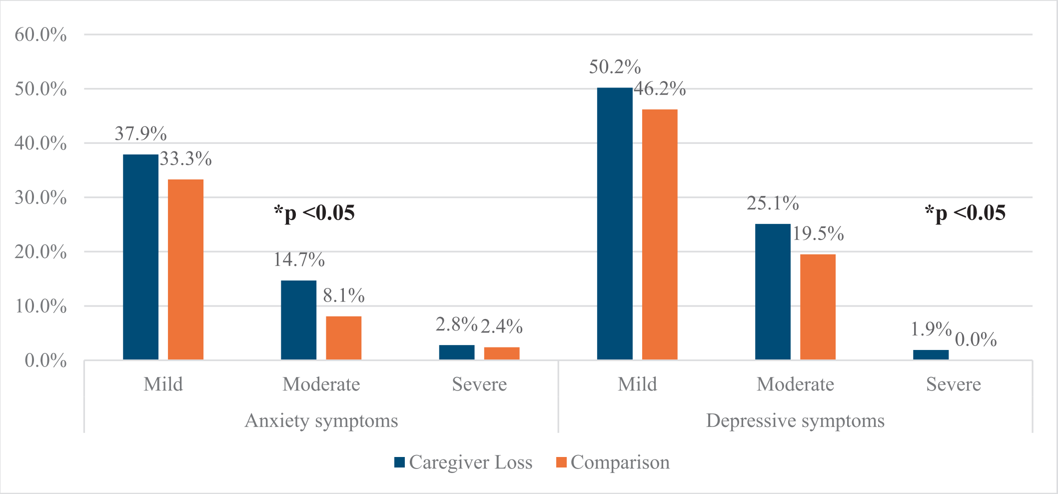

Fig. 3. Comparisons of mild, moderate, and severe cutoffs for anxiety and depressive symptomatology by experience of caregiver loss (N = 421).

bore the brunt of these additional household shifts in responsibility.

Unsurprisingly, children and adolescents experiencing orphanhood also reported poorer mental health, with higher scores linked to grief, but also elevated anxiety, depression, and suicidality and rule-breaking behaviour. After controlling for sociodemographic factors, grief, suicidality, and rule-breaking all remained significant, illuminating the complex emotions and behaviours that may accompany loss. These findings were more pronounced among older adolescents, as well as those experiencing disability and higher levels of poverty. These findings show the impact of acute crisis that may accompany caregiver loss as well as the longer-term effects that may stem from these often-traumatic experiences. Studies have noted that children and adolescents who experience parental loss show increased incidence of common mental health disorders over time, and also that children experiencing symptoms before a parent's death are at elevated risk (Pham et al., 2018). Because of the numerous socio-ecological risk factors that exacerbated COVID-19 mortality, it is possible that our sample experiencing orphanhood may have already been experiencing risks for their mental health; nonetheless, these differences were significant and measured across diverse domains of mental health and wellbeing. Importantly, in our socioeconomically disadvantaged sample, it seems that emotional distress may be tied to a child's loss of an important person in their life, rather than losing the earning potential that this person provides. To this end, evidence has found that the psychosocial effects of bereavement may have more significant impacts of children's wellbeing and life trajectories than do the effects of income loss associated with caregiver loss (Gertler et al., 2003). Nonetheless, our regression analyses also identified greater vulnerability among children experiencing higher levels of poverty—highlighting the importance of targeting support to the most vulnerable households to mitigate stress and disruption in the aftermath of loss.

Beyond helping us to understand the individual and household implications of loss in the context of a pandemic, these findings also emphasise the importance of rapid, targeted provision of social and community support following caregiver loss. Throughout the COVID-19 pandemic, service provision and support for children and adolescents who experienced loss was limited due to lockdowns and diversion of public health resources to COVID-19. Other studies have documented how shifts in resources and attention linked to COVID-19 led to negative, immediate health consequences for adolescents, including adolescents living with HIV and those seeking sexual and reproductive health services (Kelly et al., 2022). While it is not possible to know for certain, more robust responses to support children and adolescents experiencing parental/caregiver loss may have helped to mitigate both the social disruptions as well as the mental health consequences we identified in our sample. Longitudinal studies following children and families over

Table 5
Linear and logistic regression models exploring associations between caregiver loss and mental health and social risk.

Variables	*Grief Score (8)* [a]		*Self-Esteem Score (9)*		*Anxiety Score (10)* [a]		*Anxiety (Moderate or Greater) (11)*		*Depression Score (12)* [a]		*Suicidality Score (13)* [a]		*Social Risk Behaviour Score (14)*	
	β (95 % CI)	*p*	*β (95 % CI)*	*P*	*β (95 % CI)*	*p*	*OR (95 % CI)*	*p*	*β (95 % CI)*	*P*	*β (95 % CI)*	*p*	*β (95 % CI)*	*p*
Model A														
Caregiver Loss	8.01**	**0.000**	−0.72*	**0.039**	0.51	**0.208**	1.96*	**0.036**	0.77	**0.123**	0.21*	**0.026**	0.82*	**0.037**
	(7.29–8.74)		(−1.41 – −0.04)		(−0.29–1.31)		(1.05–3.65)		(−0.21–1.74)		(0.03–0.39)		(0.05–1.59)	
Model B														
Caregiver Loss	7.89**	**0.000**	−0.57	**0.088**	0.39	**0.298**	1.83	**0.068**	0.68	**0.137**	0.18*	**0.042**	0.75*	**0.046**
	(7.15–8.63)		(−1.23–0.09)		(−0.35–1.13)		(0.96–3.51)		(−0.22–1.57)		(0.01–0.36)		(0.01–1.49)	
Sex (Female)	0.52	**0.160**	−0.17	**0.616**	−0.26	**0.478**	0.98	**0.954**	−0.96*	**0.033**	0.09	**0.355**	−0.89*	**0.018**
	(−0.21–1.25)		(−0.83–0.49)		(−0.99–0.46)		(0.52–1.85)		(−1.83 – −0.08)		(−0.10–0.27)		(−1.63 – −0.16)	
Age	0.20*	**0.012**	−0.13	**0.067**	0.19*	**0.037**	0.99	**0.930**	0.25*	**0.022**	0.08**	**0.000**	0.35**	**0.000**
	(0.04–0.35)		(−0.28–0.01)		(0.01–0.36)		(0.87–1.14)		(0.04–0.46)		(0.04–0.12)		(0.19–0.51)	
Housing (Informal)	−0.20	**0.628**	−1.04**	**0.003**	−0.35	**0.389**	0.90	**0.756**	−0.32	**0.506**	0.05	**0.649**	−0.07	**0.869**
	(−1.00–0.60)		(−1.74 – −0.35)		(−1.14–0.44)		(0.46–1.77)		(−1.26–0.62)		(−0.15–0.24)		(−0.84–0.71)	
Household Size	0.01	**0.862**	−0.07	**0.278**	−0.03	**0.632**	1.02	**0.697**	−0.16	**0.032**	−0.01	**0.593**	−0.05	**0.438**
	(−0.11–0.14)		(−0.19–0.05)		(−0.16–0.09)		(0.91–1.14)		(−0.31 – −0.01)		(−0.04–0.02)		(−0.19–0.08)	
Poverty	0.23	**0.061**	−0.36**	**0.001**	0.22	**0.105**	1.08	**0.418**	0.41**	**0.016**	0.06	**0.142**	0.31*	**0.012**
	(−0.01–0.48)		(−0.57 – −0.14)		(−0.05–0.48)		(0.90–1.29)		(0.08–0.74)		(−0.02–0.15)		(0.07–0.54)	
Disability	0.10	**0.581**	−0.74**	**0.000**	1.61**	**0.000**	1.77**	**0.000**	1.74**	**0.000**	0.06	**0.245**	0.77**	**0.000**
	(−0.27–0.47)		(−1.10 – −0.38)		(1.14–2.09)		(1.34–2.34)		(1.22–2.27)		(−0.04–0.16)		(0.37–1.17)	

Note. 95% confidence intervals are provided in parentheses. a. Robust standard errors are used in Model B.
** $p < 0.01$, * $p < 0.05$.

time can be valuable in this regard. This is consistent with other literature on loss: for instance, social support activation in the aftermath of loss may help to buffer against negative psychosocial outcomes, including suicidal ideation, which we found to be statistically significantly higher in our sample of bereaved children and adolescents. One study found that such symptoms may be driven by a sense of thwarted belongingness—including loneliness and a sense of social isolation—among adolescents who experience bereavement (Hill et al., 2019).

Importantly, this gap relates to a larger social imperative to invest in crisis preparedness and critically reflect on mistakes made during the COVID-19 pandemic. Lessons from multiple pandemics and epidemics—HIV/AIDS, Ebola, as well as COVID-19—can and should be used to form the basis for more robust responses, whatever the future crisis. In addition to potential future pandemics, such crisis planning likely needs to include humanitarian conflicts and catastrophic climate events (Paudel et al., 2023). While current progress towards pandemic preparedness has stalled in the wake of the COVID-19 pandemic, policies are needed at country and regional level to direct affected families to rapid, necessary support, and ensure a streamlined way of collating and coordinating responses. Specific awareness of food security, poverty-related issues, household changes, and mental health needs should form the cornerstone of preparation. Complementary qualitative and longitudinal research could more clearly indicate avenues to deepen understanding and inform interventions. Furthermore, it is important to identify mechanisms to monitor children and adolescents experiencing these needs, as the literature has suggested that the influence of caregiver loss is long-term (Pham et al., 2018). From our data, it seems vital that such children should be identified early on; policies that record children on death certificates may be one way to improve such identification, and settings that have successfully done this should be studied to isolate key actions. Pandemic planning, whatever the crisis, should anticipate impacts on children and ensure that sound referral pathways are in place. Adaptation of child services to the needs of a given crisis should be included in standardized training. Budget planning should ensure that funding lines are available for such children who are currently very likely to be missed. Rapid responses are needed, and provisions should be long term.

Concrete responses to protect children and adolescents could thus include making additional resources available for social service organizations, including school- and community-based support, as well as supporting parenting interventions for families caring for bereaved children. Stronger governmental systems for monitoring and rapid response are similarly essential, especially in the aftermath of crises when gaps become more evident.

4.1. *Limitations*

Despite its robust design and implementation, this study has several limitations. All findings are linked to self-reported data from child and adolescent participants, which was the most appropriate choice for this study but may be subject to reporting or desirability bias, and lack qualitative insights to triangulate findings. There are certain indicators, such as household food security and poverty, which may have been bolstered by additional data from caregivers. Additionally, only a select number of indicators were controlled for in analyses and factors such as family structure were not explored. Future longitudinal studies would be well placed to explore such factors. All efforts were made to ensure comprehensibility and clarity of questions with a highly experienced field research team. While our study population reflects similar trends to other populations with adverse experiences of COVID-19 and caregiver loss, findings are not necessarily generalizable across a larger population, even within the South African setting. As this is cross-sectional data, the associations identified must be considered in this context, without assuming causality. Longitudinal patterns in this data, captured from a second wave of data collection, will be explored in subsequent publications.

5. Conclusion

This study provides early evidence on the experiences of COVID-19 related caregiver loss for children and adolescents, highlighting missed opportunities for provision, prevention and supportive interventions in the wake of the pandemic. Dedicated service provision for children and adolescents is a vital part of any crisis strategy, and guidance from previous crises should be adapted and adopted to ensure that lessons can be carried into the future.

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Declaration of competing interest

There are no competing interests by any author to declare.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.childyouth.2025.108516.

Data availability

Prospective users, policymakers/government agencies/researchers (internal/external) will be required to contact the study team to discuss and plan the use of data. Research data will be available on request subject to participant consent and having completed all necessary documentation. All data requests should be sent to the Principal Investigators.

References

Mentec, M., & Flahault, C. (2015). Parental death in childhood: The state of theoretical knowledge and clinical challenges in the future. *Bulletin du Cancer., 102*(3), 287–294.

Aynsley-Green, A., Penny, A., & Richardson, S. (2012). Bereavement in childhood: Risks, consequences and responses. *BMJ Supportive & Palliative Care., 2*(1), 2.

Sherr, L., Croome, N., Clucas, C., & Brown, E. (2014). Differential effects of single and double parental death on child emotional functioning and daily life in South Africa. *Child Welfare, 93*(1), 149–172.

Richter, L. M., Sherr, L., Adato, M., Belsey, M., Chandan, U., Desmond, C., et al. (2009). Strengthening families to support children affected by HIV and AIDS. *AIDS Care, 21* (sup1), 3–12.

Thurman, T. R., Taylor, T. M., Luckett, B., Spyrelis, A., & Nice, J. (2018). Complicated grief and caregiving correlates among bereaved adolescent girls in South Africa. *Journal of Adolescence., 62*, 82–86.

Treglia D, Cutuli JJ, Arasteh K, Bridgeland J, Edson G, Phillips S, et al. Hidden pain: Children who lost a parent or caregiver to COVID-19 and what the nation can do to help them. 2021.

Unwin, H. J. T., Hillis, S., Cluver, L., Flaxman, S., Goldman, P. S., Butchart, A., et al. (2022). Global, regional, and national minimum estimates of children affected by COVID-19-associated orphanhood and caregiver death, by age and family circumstance up to Oct 31, 2021: An updated modelling study. *The Lancet Child & Adolescent Health., 6*(4), 249–259.

Hillis, S. D., Unwin, H. J. T., Chen, Y., Cluver, L., Sherr, L., Goldman, P. S., et al. (2021). Global minimum estimates of children affected by COVID-19-associated orphanhood and deaths of caregivers: A modelling study. *The Lancet., 398*(10298), 391–402.

Kidman, R. (2021). Use HIV's lessons to help children orphaned by COVID-19. *Nature, 596*(7871), 185–188.

Spaull, N. (2021). *Synthesis Report: NIDS-CRAM Wave 5*. Cape Town, South Africa: University of Cape Town.

Posel, D., Oyenubi, A., & Kollamparambil, U. (2021). Job loss and mental health during the COVID-19 lockdown: Evidence from South Africa. *PLoS One1, 16*(3), Article e0249352.

Hatch, M. (2024). An unbalancing act: Gender and parental division in childcare in South Africa. *Families, Relationships and Societies., 13*(1), 86–104.

Dubey, R., Bryde, D. J., & Foropon, C. (2024). Design and management of humanitarian supply chains for pandemics: Lessons from COVID-19. *Springer*, 1–14.

Favara, M., Freund, R., Porter, C., Sanchez, A., & Scott, D. (2022). Young lives, Interrupted: Short-Term Effects of the COVID-19 Pandemic on Adolescents in Low- and Middle-Income Countries. *The Journal of Development Studies., 58*(6), 1063–1080.

Kentor, R. A., & Kaplow, J. B. (2020). Supporting children and adolescents following parental bereavement: Guidance for health-care professionals. *The Lancet Child & Adolescent Health., 4*(12), 889–898.

Super, G. (2015). Violence and democracy in Khayelitsha, governing crime through the 'community'. *Stability: International Journal of Security and Development., 4*(1).

Du Toit, S. (2023). *Adolescent Mental Health in the Context of Adversity: Evidence from a longitudinal intervention study in Khayelitsha, South Africa*. Tygeberg, South Africa: Stellenbosch University.

Jiménez Buñuales, M. T. G. D., & Martín Moreno, J. M. (2002). International classification of functioning, disability and health (ICF). *Revista Espaola de Salud Pblica, 76*, 271–279.

Coates J, Swindale A, Bilinsky P. Household Food Insecurity Access Scale (HFIAS) for measurement of food access: indicator guide: version 3. 2007.

Mkhize, S., Libhaber, E., Sewpaul, R., Reddy, P., & Baldwin-Ragaven, L. (2022). Child and adolescent food insecurity in South Africa: A household-level analysis of hunger. *PLoS One1, 17*(12), Article e0278191.

Shelton, K. K., Frick, P. J., & Wootton, J. (1996). Assessment of parenting practices in families of elementary school-age children. *Journal of clinical child psychology., 25*(3), 317–329.

Cluver, L., Meinck, F., Shenderovich, Y., Ward, C. L., Romero, R. H., Redfern, A., et al. (2016). A parenting programme to prevent abuse of adolescents in South Africa: Study protocol for a randomised controlled trial. *Trials, 17*, 1–10.

Becker, S. (2009). Young carers tasks and outcomes questionnaire. *Retrieved May., 7*, 2009.

Lane, T., Cluver, L., & Operario, D. (2015). Young carers in South Africa: Tasks undertaken by children in households affected by HIV infection and other illness. *Vulnerable Children and Youth Studies., 10*(1), 55–66.

Straus, M. A., & Hamby, S. L. (1997). Measuring Physical & Psychological Maltreatment of Children with the. *Conflict Tactics Scales.*

Sherr, L., Skeen, S., Hensels, I. S., Tomlinson, M., & Macedo, A. (2016). The effects of caregiver and household HIV on child development: A community-based longitudinal study of young children. *The ChildCare, health and development., 42*(6), 890–899.

Mynard, H., & Joseph, S. (2000). Development of the multidimensional peer-victimization scale. *Aggressive Behavior: Official Journal of the International Society for Research on Aggression., 26*(2), 169–178.

Sherr, L., Roberts, K. J., & Gandhi, N. (2017). Child violence experiences in institutionalised/orphanage care. *Psychology, Health & Medicine., 22*(sup1), 31–57.

Burnett, P., Middleton, W., Raphael, B., & Martinek, N. (1997). Measuring core bereavement phenomena. *Psychological medicine., 27*(1), 49–57.

Thurman, T. R., Nice, J., Taylor, T. M., & Luckett, B. (2017). Mitigating depression among orphaned and vulnerable adolescents: A randomized controlled trial of interpersonal psychotherapy for groups in South Africa. *Child and Adolescent Mental Health., 22*(4), 224–231.

Spitzer, R. L., Kroenke, K., Williams, J. B., & Lowe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of internal medicine., 166* (10), 1092–1097.

Marlow, M., Skeen, S., Grieve, C. M., Carvajal-Velez, L., Åhs, J. W., Kohrt, B. A., et al. (2023). Detecting Depression and anxiety among Adolescents in South Africa: Validity of the isiXhosa Patient Health Questionnaire-9 and Generalized anxiety Disorder-7. *Journal of Adolescent Health., 72*, Article S52.

Sheehan, D. V., Shytle, D., Milo, K., Janavs, J., & Lecrubier, Y. (2010). Mini international neuropsychiatric interview for children and adolescents (MINI-KID). *The Journal of Clinical Psychiatry, 71*(3), 313–326.

Cluver, L., Orkin, M., Boyes, M. E., & Sherr, L. (2015). Child and Adolescent Suicide attempts, Suicidal Behavior, and adverse Childhood Experiences in South Africa: A prospective Study. *Journal of Adolescent Health., 57*(1), 52–59.

Rosenberg, M. (1965). Rosenberg self-esteem scale (RSE). *Acceptance and commitment therapy Measures package., 61*(52), 18.

Achenbach, T. M. (2001). *Manual for ASEBA School-Age Forms & Profiles*. Youth & Families: University of Vermont, Research Center for Children.

Cluver, L., Gardner, F., & Operario, D. (2009). Poverty and psychological health among AIDS-orphaned children in Cape Town. *South Africa. AIDS Care., 21*(6), 732–741.

Evans, R. (2014). Parental death as a vital conjuncture? Intergenerational care and responsibility following bereavement in Senegal. *Social & Cultural Geography., 15*(5), 547–570.

Pham, S., Porta, G., Biernesser, C., Walker Payne, M., Iyengar, S., Melhem, N., et al. (2018). The Burden of Bereavement: Early-Onset Depression and Impairment in

Youths Bereaved by Sudden Parental death in a 7-Year prospective Study. *American Journal of Psychiatry., 175*(9), 887–896.

Gertler, P., Martinez, S., Levine, D., & Losing, B. S. (2003). *the presence and presents of parents: How parental death and disability affects children*. Unpublished manuscript Haas School of Business, University of California at Berkeley.

Kelly, J., Gittings, L., Laurenzi, C., Glinski, C. D., Mangqalaza, H., Ralayo, N., et al. (2022). HIV and SRH healthcare delivery experiences of south african healthcare workers and adolescents and young people during COVID-19. *Psychology, Health & Medicine., 27*(sup1), 155–166.

Hill, R. M., Kaplow, J. B., Oosterhoff, B., & Layne, C. M. (2019). Understanding grief reactions, thwarted belongingness, and suicide ideation in bereaved adolescents: Toward a unifying theory. *Journal of Clinical Psychology., 75*(4), 780–793.

Paudel, D., Neupane, R. C., Sigdel, S., Poudel, P., & Khanal, A. R. (2023). COVID-19 pandemic, climate change, and conflicts on agriculture: A trio of challenges to global food security. *Sustainability, 15*(10), 8280.