Coping strategies and mental health of adolescents impacted by parental HIV and AIDS in rural South Africa

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Objective: The study explored whether orphanhood status as well as coping strategies predicted mental health outcomes in orphans and vulnerable adolescents who participated in an NGO-supported programme in rural South Africa. **Method:** Participants included 175 adolescents (aged 11–18 years) from a low-resource community, and consisted of non-orphans (n = 57), orphans due to AIDS (n = 62), and orphans due to other causes (n = 56). All participants rated themselves on age-appropriate Youth Self-Report (YSR), and 95 completed The Children's Coping Strategies Checklist (CCSC). Little's MCAR test revealed that the CCSC missing data did not display a specific pattern. **Results:** Active coping negatively predicted internalising, externalising, and general psychological problems, while avoidant coping predicted the latter. Orphanhood group status, gender, and age did not predict coping strategies used. A higher proportion of orphans by AIDS had elevated scores on internalising problems, and all participants on somatic complaints. **Conclusions:** Active coping strategies minimize the risk for emotional and behavioural problems among the participants. Our findings suggest that agencies and non-governmental organizations (NGOs) that provide services to vulnerable adolescents can facilitate active coping skills to enhance their psychological wellbeing.

Keywords: orphans, low-resource community, psychological well-being, vulnerable youth

Introduction

The most apparent psychological reality of orphanhood is that parental loss is stressful (Stroebe & Schut, 1999; Thornton, Asanbe, & Denton, 2019). As explained by attachment theory, the loss of a primary attachment figure who is a base of security can result in anxiety and distress (Bowlby, 1980; Dorsey et al., 2015) that may have lasting impact on a child. Accumulating research indicates that orphans and vulnerable children and youth (OVCY) whose parents died of AIDS are at increased risk of experiencing mental health issues, including emotional and behavioural problems (Asanbe et al., 2016; Chi & Li, 2013; Cluver & Gardner, 2007a; Cluver et al, 2012). With specific reference to sub-Saharan Africa, the majority of the studies conducted on the OVCY in Ethiopia (Bhargava, 2005), South Africa (Asanbe et al., 2016; Cluver et al., 2012; Onuoha & Munakata, 2010), and Guinea (Delva, et al., 2009) have found that children and adolescents orphaned by AIDS demonstrated increased vulnerability to emotional problems such as depression, anxiety, and PTSD compared to non-AIDS orphans. Studies conducted outside of Africa have also found similar outcomes for adolescents orphaned by AIDS in New York City (Rotheram-Borus et al, 2005) and in a New Orleans sample (Pelton & Forehand, 2005). As we continue to fill the information gap in the literature on the mental health of orphans and vulnerable adolescents in the context of parental death due to AIDS, a pertinent area that has received minimal focus is on how these adolescents cope, especially, those who live in rural, low-resource communities. It is imperative to better understand what constitutes adaptive coping strategies in order to encourage these strategies, with the overarching goal of improving mental health outcomes (Skovdal & Daniel, 2012).

Within the context of developing a comprehensive knowledge of what constitutes adaptive coping strategies for adolescents orphaned by AIDS, an understanding of if and how

gender differences influence coping strategies is pertinent. Empirical data continue to inform us of the extent to which gender influences mental health problems experienced by adolescents orphaned by AIDS in sub-Saharan Africa (Cluver et al., 2012; Wild et al., 2013). Recently, Maepa et al (2019) added to the literature and reported gender differences in the mental health of this population in rural South Africa, with girls experiencing more somatic complaints, anxiety, depression, and insomnia, compared to their male counterparts. Exploring whether gender influences the type of coping strategies used by vulnerable adolescents may provide for a tangible opening through which to target services that can improve the mental health outcomes for these adolescents.

It is relevant to note that in South Africa, the majority of available data on the mental health of orphans and vulnerable adolescents in the context of parental death due to AIDS, have been obtained from urban and peri-urban settings (Cluver et al., 2007, 2012; Wild, Flisher, & Robertson, 2013). The rural population is understudied and the literature is still sparse, due in part to the difficulties in accessing participants from these geographically more isolated communities (Asanbe et al., 2016). Oftentimes, information learned from urban settings may not translate well to rural communities because of the dichotomy between rural and urban settings. For example, when compared to the urban population, the rural demographic is characterized by endemic poverty, including the lack of basic amenities like clean water and consistent electricity, as well as poor sanitation, and minimal social services (Hall & Wright 2011). Additionally, there are qualitative studies that suggest a high incidence of stigma and social exclusions associated with HIV/AIDS infected and affected people (Campbell et al., 2008; Madiba & Mokgatle, 2017; Naidoo et al., 2007). This lends credence to why findings regarding the mental health outcomes of vulnerable adolescents from urban settings may not extrapolate to those in rural communities.

Altogether, these rural communities form a substantial population, with approximately 42% of South African children and adolescents living within them (Hall & Wright, 2011). Therefore, there is a need to add quantitative data to the literature on mental health of vulnerable adolescents from rural and understudied areas.

Against this background, it is further harrowing that an estimated two thirds of children in South Africa, or 3.3 million young people, have lost one or both parents to AIDS (UNICEF, 2016), with the projection that this number will continue to increase for generations to come (Betancourt et al., 2013). With this in mind, the goals of this study are to add to the sparse literature on coping strategies utilised by adolescents orphaned by AIDS living in a rural community, identify coping strategies that can predict at-risk to serious mental health problems, and add quantitative data on the mental health outcomes of an understudied population.

For the purpose of this study, mental health outcomes refer to emotional (internalising), acting out behaviours (externalising), and general psychological health (total) issues, as measured by the youth self-report scales (YSR/11-18; Achenbach, 2001). Serious mental health problems are self-reported behaviours that are considered to be age-inappropriate and are based on elevated T-scores that exceed borderline and clinical cut-off points on the YSR. Building a wealth of knowledge about this subject can inform evidence-based interventions that utilise strength-based capabilities to encourage and facilitate the psychological wellbeing of the population. Our participants consisted of three groups of vulnerable adolescents from a rural South African community: non-orphans (OVCY1), adolescents orphaned by AIDS (OVCY2), and non-AIDS orphans (OVCY3). We consider participants in all three groups to be vulnerable because of their low social economic status, and the fact that those in two of the groups are orphans (see further information about participants under the method section). While our

research interest is the orphan groups, primarily, those orphaned by AIDS, we included non-orphans with similar demographic characteristics in our sample as a comparison group, in order to interpret the data from the orphan groups within the context of age-appropriate behaviours. The merit of including non-AIDS orphans is to be able to sort out grief-related issues that are common to orphanhood from those that may be unique to AIDS orphanhood.

Coping strategies and vulnerable adolescents

Children and adolescents impacted by parental HIV/AIDS undergo chronic stress that may be a risk factor for mental health problems (Chi & Li, 2013). Skovdal and Daniel (2012) remarked that these children and adolescents can utilise multiple coping strategies depending on their social environment and interactions with their communities. In exploring the impact of coping strategies on mental health, Compas and colleagues (2017) conducted a comprehensive meta-analytic review of 212 coping studies involving children and adolescents. The researchers found that the approach-oriented coping strategies whereby individuals approach the source of their stress have been associated with a lower risk for mental health symptoms because those individuals tend to take active roles in dealing with their circumstances. Conversely, using avoidance-oriented coping strategies have been linked to psychological maladjustments that include increased distress and mental health symptoms. Roubinov and Luecken (2013) suggested that maladaptive coping such as avoidant strategies do not require a lot of cognitive resources and are easier to adopt when an individual is undergoing the stressor. Compas et al. (2017) added that avoidance coping can be helpful in situations in which the individual perceives little to no control. Expanding on this point, Edlynn et al. (2008) examined coping patterns among African American adolescents living in a low-income urban environment. The

researchers did not find consistent positive effects for the use of active coping strategies; instead, they reported that avoidant coping strategies had a protective stabilizing impact on anxiety, especially, for those who were experiencing community violence. They explained that because the young people encounter potentially dangerous situations on a daily basis, they used more avoidant coping strategies in order to adapt to their unique situations. The conclusion seems to be that active coping that is effective under optimal conditions, can be less effective or even maladaptive in the context of severe and chronic conditions, and avoidance can be protective (Edlynn et al., 2008; Wadsworth, 2015).

Ayers et al. (1996) proposed a 4-factor alternative model of coping (Active, Distraction, Avoidant, and Support Seeking) that resulted in the development of the Children's Coping Strategies Checklist (CCSC). In the 4-factor model, Active and Support Seeking strategies would align more with the approach-oriented (active coping) framework, and Avoidance and Distraction strategies with avoidance-oriented coping. The CCSC is a global measure of dispositional coping that involves general everyday stressors. This measure is reported to be sensitive to intervention effects in research that involves parental divorce (Ayers et al., 1996), and child bereavement due to parental death (Sandler et al., 2003).

With regard to the influence of gender on how adolescents in general respond to stressful situations, there is conflicting information in the literature. Some data suggest that adolescent girls are more likely to seek social support (Hampel & Petermann, 2005), while others report that girls use more active coping strategies compared to boys (Griffith, Dubow, & Ippolito, 2000). Additionally, there are some data that suggest boys are more likely to utilise avoidance coping strategies (Eschenbeck, Kohlmann, & Lohaus, 2007; Hampel & Petermann, 2005), and others suggest the contrary (Griffith et al., 2000). Adding to the lack of clarity on this, Hampel &

Petermann (2005) found that girls in the early adolescent years tend to use less distraction strategies than boys, but Compas, Malcarne, and Fondacaro (1988) reported greater use. With inconsistent literature, it is important to explore what influence gender may have on coping in our sample of vulnerable adolescents from a rural, understudied community. Coping strategies are especially critical for young people dealing with traumatic and stressful life events because maladaptive and ineffective coping can be detrimental to health. Without utilising appropriate coping strategies, vulnerable adolescents could engage in unhealthy and maladaptive behaviours with negative mental health consequences (Boxer et al. 2012). With this background information, our study was interested in finding out the coping strategies black South African orphans and vulnerable adolescents in a rural community would utilise, whether there are gender differences in the type of coping, and whether AIDS orphanhood would influence the severity of specific mental health indicators (internalising, externalising, and total problems).

Study objective

The main objective of this study was to assess the coping strategies and mental health outcomes of adolescents orphaned by AIDS in a rural South African community, in an effort to answer the following research questions:

(RQ1) To what extent are group characteristics (orphanhood group status, gender, age) predictive of coping strategies?

(RQ2) Do coping strategies used by orphaned adolescents predict their mental health outcomes (internalising, externalising, and total problems), controlling for group characteristics?

(RQ3) To what extent is orphanhood status a predictor of borderline to serious mental health outcomes (internalising, externalising, and total problems) for this population?

Given the limited literature available, especially, on how this population copes, we posed research questions instead of proposing hypotheses; and utilised the Youth Self Report (*YSR/11-18*; Achenbach, 2001) and the Children's Coping Strategies Checklist (CCSC; Ayers, Sandler, West, & Roosa, 1996) to assess mental health and coping strategies respectively.

Method

Participants

The participants were recruited from Lefika, an NGO-supported programme located in a resource-poor, rural community with endemic poverty, about 90 minutes outside of Pretoria, South Africa. It is estimated that most families live below the food poverty line, which is less than R321 (about $32) per capita per month (Statistics South Africa, 2014). Lefika serves over 500 orphans and vulnerable children and adolescents (OVCY) by offering social support services. Lefika had information about each child/adolescent's health status, their living situation, and whether or not at least one parent died of AIDS. The programme had no reliable record about whether an adolescent lost one or both parents to AIDS and the cause of parental death of the non-AIDS orphans.

Study design and eligibility criteria

This single-site study design with a selective sample consisted of 175 black South African adolescents (87 males and 88 females) between the ages of 11 and 18 ($\bar{x}$ = 13.8). We recruited participants into three groups according to their orphanhood status namely; non-orphans (OVCY1) (n = 57), orphans by AIDS (OVCY2) (n = 62), and non-AIDS orphans (OVCY3) (n = 56). The

inclusion criteria for the orphan groups were as follows: (1) the adolescent is a participant in Lefika's programme, (2) parental death was due to AIDS or other causes, (3) the adolescent is living with a family member, and (4) parental death occurred at least six months prior to the study, in order to minimise acute bereavement symptoms. The non-orphan group (OVCY1) had to (1) be a participant in the Lefika programme and (2) live with biological parent(s). They were from poor families from the same neighbourhood, and this accounts for their vulnerability. Adolescents who had been diagnosed as HIV-infected were excluded to minimise a major confounding variable of medical health status. Adolescents living with HIV-infected parents were also excluded because they were too few in Lefika programme to constitute a group. In line with current OVCY literature and the United Nations' (UN) expanded definition of an orphan, we included adolescents who have lost one or both parents before their 17th birthday. An *a priori* power analysis was conducted using G*Power version 3.1.9 to determine the minimum sample size required to achieve significance, with a desired level of power set at .80, an α-level at .05, eight predictors assumed for a multiple linear regression statistical test, and a moderate effect size of .15 (f2) or .361 (β). Accordingly, a minimum of 109 participants were required to ensure adequate power for the multiple linear regression analyses to answer the research questions.

Assessment measures

The Youth Self Report (YSR/11-18; Achenbach, 2001) is a questionnaire that was derived from the Child Behaviour Checklist (CBCL). YRS/11-18 is a self-administered 112-item questionnaire, validated to assess indicators of psychological health of children and adolescents world-wide. Participants rate the items on a 3-point response scale of *Not True*, *Sometimes or Somewhat True*, and *Very or Often True*. The test produces composite scores for broadband

scales of Externalising (rule-breaking, aggressive behaviour) and Internalising (anxious depressed, withdrawn depressed, somatic complaints) problems, as well as narrowband scales. The YSR yields overall scores for the Total problems scale that indicates general behavioural and emotional issues, in addition to a scale that assesses desirable (positive) qualities of the rater. The Achenbach System of Empirically Based Assessments (ASEBA) manual reports that the mean test-retest reliabilities is 0.82 for the 8 empirically based scales (Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule Breaking Behaviour, Aggressive Behaviour), 0.79 for 6 DSM-oriented scales (Depressive, Anxiety, Somatic, Attention Deficit/Hyperactivity, Oppositional Defiant, and Conduct Problems), and 0.88 for the competence scales. The internal consistencies Cronbach's co-efficient alphas ranged from 0.67 to 0.95. (See Table 5 for the list of all YSR scales). The broadband scales correlate fairly well with corresponding scales on the Behavioural Assessment Systems for Children (BASC; Reynolds & Kamphaus, 1998). We administered the entire questionnaire to obtain comprehensive information on each participant and scored responses using the Assessment Data Manager software (ADM version 9.1) to convert raw scores into standardised T-scores. Each scale score is interpreted based on the T score and percentile score that ranged from <65 (<95th percentile), considered to be normal, 65–69 (95th - 98th percentile), considered borderline, and ≥ 70 (>98th percentile), considered clinical. Although South Africa is outside of the normed sample for various versions of the CBCL, including the YSR/11-18, the CBCL has previously been used with South African samples. Allen and colleagues (2014) reported high alpha coefficients in a sample of 361 South African participants (internalising α = 0.852 and externalising α = 0.915). At the time of our study, Ethiopia was the only country in

sub-Saharan Africa with CBCL normative data. We used their normative data because we considered the population to be the most culturally relevant to our participants.

The Children's Coping Strategies Checklist (CCSC; Ayers et al., 1996) is a self-report measure of coping strategies in which children and adolescents use a 4-point Likert scale: never (1), sometimes (2), often (3), and always (4) to rate their coping responses to a general situation prompt. The CCSC assesses four primary coping strategies that are computed from relevant subscales: Active (Cognitive Decision Making, Direct Problems Solving, Seeking Understanding, and Positive Cognitive Restructuring), Distraction (Physical Release of Emotion, Distraction Actions), Avoidance (Avoidant Actions, Cognitive Avoidance), and Support-Seeking (Problem Focused Support, Emotion Focused Support). The range of possible scores on the scales depends on the way that the subscale is created. For example, for a 4-item scale (with 4-point Likert answer), if the scale was created by taking the sum of the items, the possible range should be 4-16. Alternatively, if the scale was created by taking the mean of the items, the possible range will be 1-4. The aggregate mean of the subscale scores compose each of the four primary strategies, with higher scores indicating more usage of the specific strategy. Across many studies, the CCSC has acceptable internal consistency (Cronbach's alpha = .72 to .88), and test-retest reliability is acceptable (r = .64 to .80). This measure is suitable for this study because it is sensitive to intervention effects in research that involves child bereavement after the death of a parent (Sandler et al., 2003). The CCSC is one of three coping measures that meets the criteria as a top-down, theory-driven measure (Compas et al., 2017; Skinner et al., 2003).

Although the CCSC was normed for youth aged between 9 and 13, our research team included older adolescents (aged between 11 and 18) in our sample and tested for differences between the different age groups. We split the sample into two age ranges, the normed group (11–

13 years, n = 92) and the un-normed group (14–18 years, n = 83), and calculated independent sample t-tests on the mean scores of the coping scales and the subscales to determine if there were significant differences between the groups. We found that none of the measures differed significantly by age group (all $p > .05$). Thus, there was no reason to suspect that these two age groups were different in terms of the underlying age group structure in their responses to the CCSC.

Procedure

Our research team approached the leaderships of Lefika to invite them to participate. With their support, the director identified the adolescents who met the study inclusion criteria. Our team met the parents/legal guardians and caretakers of the adolescents during one of Lefika's scheduled activities, explained the purpose and nature of the study, answered their questions, and solicited their participation. Prior to data collection, we obtained signed informed consent from the parents/legal guardians and from each adolescent. We collected data on weekends so as not to disrupt their school schedules. Two members of our team who are native Sepedi speakers helped to explain the rating instructions to participants in Sepedi, the local language, as needed. The team conducted individual interviews with the adolescents during the administration of section 1 of the YSR/11-18 and administered section 2 and CCSC questionnaires in a group format. The adolescents completed both measures. There was no financial compensation for participants; however we provided lunch during the data collection exercise. The principal investigator, who has research and clinical expertise in child psychopathology, supervised the data collection. The study protocol was approved by the Research Ethics Committee of the Faculty of Humanities, University of Pretoria, South Africa.

Method for data analysis

Using the SPSS-23 software programme, we entered participants' YSR/11-18 and CCSC responses, calculated descriptive statistics to summarise demographic variables and frequencies as well as percentages for categorical variables, and stratified by group status. We conducted cross-tabulations by group status with p-values for statistical tests of the bivariate relationship. We calculated means and standard deviations for continuous variables and stratified by group status and did parametric tests by group status with p-values for statistical tests of the bivariate relationship. In addition, we conducted MANOVA analyses to compare the three groups on the YSR/11-18 scales. We also calculated Pearson's product-moment correlations among study variables to establish the bivariate relationships between all the continuous variables.

Next, we conducted primary analyses to address the research questions. For RQ1, we carried out a multiple regression analysis to predict coping strategies; for RQ2, we did a multiple logistic regression analysis to predict vulnerable adolescent mental health outcomes, and tested the thresholds of mental health outcomes that identified vulnerable adolescents, controlling for coping strategies; and for RQ3, we compared the number of adolescents in each group with elevated scores in the borderline (T-score of 65–69) to clinical cut-off (T-score of $\geq$ 70) range for each YSR/11-18 scale to determine the proportion of adolescents with at-risk to serious mental health problems. Thereafter, we conducted a multiple regression analysis to predict mental health outcomes of the concerned to the problematic levels.

Missing value analysis

We found that out of 173 variables, 58 variables contained missing data (33.53%). A large proportion of the missing data was due to unforeseen difficulties encountered that prevented the

research team from being able to administer the coping measure (CCSC) to some adolescents on the last day of data collection. This resulted in 80 participants not having coping scores. To assess whether the pattern of missing values was completely at random, Little's MCAR (1988) test was conducted. Using an expectation-maximization algorithm, the MCAR test estimates the univariate means and correlations for each of the variables. The results revealed that the pattern of missing values in the data was MCAR $\chi 2$ (1450) = 1336.79, p = 0.984. Thus, the missing data did not display a specific pattern. In addition, due to the proportion of missing data values and in an attempt to retain greater statistical power, a missing replacement analysis was conducted using a multiple imputation procedure A total of $m = 10$ imputed datasets were generated using a fully conditional specification Markov chain Monte Carlo (MCMC) method. The regression analyses that were run applied Rubin's rules to average the imputed datasets' estimates and pool their standard errors (Rubin, 1987). The results of the analysis using the multiple imputed datasets did not differ substantially from the results without replacement. Because of this and the MCAR distribution of the missing data, listwise deletion was used for the results of this analysis. For the analyses related to coping strategies, we used data from the smaller sample of 95 participants (who completed the CCSC), and the full sample of 175 (who completed the YSR/11-18) for mental health outcomes. Table 1 shows the descriptive information with minimum and maximum ranges for the observed values of the study variables.

Table 1

Means and Standard Deviations of Study Variables

Variables	*N*	*M*	*SD*	*Min*	*Max*
Age of participants	175	14.02	2.03	11	18
Grade level	175	7.69	1.76	5	12
Active coping strategies	95	41.92	12.09	17	68
Distraction coping strategies	95	23.11	7.02	10	40
Avoidant coping strategies	95	19.55	5.42	8	32
Support seeking coping behavior	95	19.02	5.92	8	32
Internalizing problems	175	60.51	11.81	29	92
Externalizing problems	175	53.87	13.20	26	84
Total problems	175	57.70	12.76	26	85

Note. N not equalling 175 indicates missing data.

Results

A Multiple Regression Analysis was done to test RQ1: *To what extent are group characteristics (orphanhood group status, gender, age) predictive of coping strategies?* The model for group status was not significant for any of the four coping strategies: active coping (N = 94, F(4, 89) = 1.01, p = .407); distraction coping (N = 94, F(4, 89) = .68, p = .609); avoidant coping (N = 94, F(4, 89) = .12, p = .975); and support-seeking coping (N = 94, F(4, 89) = .33, p = .854). These findings

indicate that preference for a specific coping strategy is not related to orphanhood group status, and there is no significant difference across age and gender for using specific coping strategy.

For RQ2: Does coping strategies used by orphaned adolescents predict their mental health outcomes, (internalising, externalising, and total problems) controlling for group characteristics? The results of a multivariate regression analysis predicting internalising, externalising, and total problems are shown in Tables 2 and 3. Controlling for age, sex, and orphanhood status, the model for internalising ($N = 94$, $F(8, 85) = 1.23$, $p = 0.293$), externalising ($N = 94$, $F(8, 85) = 1.57$, $p = 0.147$), and overall total problems ($N = 94$, $F(8, 85) = 1.46$, $p = 0.185$) were not significant. Active coping was the only significant negative predictor for internalising behaviours ($\beta = -0.33$, $\beta = -0.382$, $p = 0.044$), externalising behaviours ($\beta = -0.42$, $\beta = -0.397$, $p = 0.034$), and for total problems ($\beta = -0.40$, $\beta = -0.415$, $p = 0.027$). Avoidant coping strategy was a (positive) predictor of total problems ($\beta = 0.81$, $\beta = 0.379$, $p = 0.036$). In addition, female status was a strong negative predictor of externalising problems ($\beta = -5.65$, $\beta = -0.226$, $p = 0.035$). For this research question, the data reveal that engaging in higher instances of active coping was concurrently associated with lower risk for internalising, externalising, and total behavior problems. Female sex was also associated with a decrease in acting out behaviours relative to males.

Table 2

Summary of Multiple Regression Analysis for Predicting Internalizing and Externalizing Mental Health Outcomes

	Internalizing Problems					Externalizing Problems				
		95% CIs					95% CIs			
Predictors	β	LL	UL	Std. β	*p*	β	LL	UL	Std. β	*P*
Active coping strategies	-.33	-.65	-.01	-.382	.044*	-.42	-.80	-.03	-.397	.034*
Distraction coping strategies	.09	-.28	.46	.062	.630	.07	-.38	.52	.040	.751
Avoidant coping strategies	.54	-.14	1.21	.283	.118	.59	-.22	1.40	.256	.152
Support seeking coping behavior	.22	-.30	.73	.125	.403	.16	-.46	.77	.073	.620
Age of participants	-.15	-1.26	.95	-.029	.786	-.64	-1.97	.69	-.101	.340
Female [a]	-2.93	-7.29	1.43	-.143	.185	-5.65	-10.89	-.42	-.226	.035*
Orphan due to HIV/AIDS [b]	3.07	-2.01	8.15	.142	.232	3.25	-2.85	9.34	.123	.293
Orphan due to another cause [b]	2.31	-2.99	7.60	.099	.389	5.37	-.99	11.72	.190	.097
Constant	61.99	42.94	81.03		< .001	66.66	43.79	89.53		< .001

Note. [a] Compared to male. [b] Compared to non-orphan.

*Data showing significant difference ($p < .05$)

Table 3

Summary of Multiple Regression Analysis for Predicting Total Mental Health Outcomes

	Total Problems				
		95% CIs			
Predictors	β	LL	UL	Std. β	*p*
Active coping strategies	-.40	-.76	-.05	-.415	.027*
Distraction coping strategies	-.03	-.45	.39	-.018	.886
Avoidant coping strategies	.81	.06	1.57	.379	.036*
Support seeking coping behavior	.21	-.36	.79	.109	.464
Age of participants	-.37	-1.61	.86	-.063	.551
Female [a]	-4.46	-9.33	.42	-.192	.073
Orphan due to HIV/AIDS [b]	2.63	-3.05	8.30	.108	.361
Orphan due to another cause [b]	3.13	-2.79	9.05	.120	.296
Constant	63.60	42.30	84.89		< .001

Note. [a] Compared to male. [b] Compared to non-orphan.

*Data showing significant difference ($p < .05$)

Regarding *(RQ3): To what extent are orphanhood status predictors of borderline to serious mental health outcomes for this population,* Table 4 reveals the result of an analysis that used the borderline cut-off score (> 65) of the YSR/11-18 scales to predict being at risk of having mental

health issues that can range in severity from concerned to serious problems. Based on group status, there is a greater percentage of adolescents orphaned by AIDS with elevated scores in the borderline cut-off range (40.3%) compared to the non-AIDS orphans (17.9%), while 66.7% of non-orphans (OVCY1), 59.7% of AIDS orphans (OVCY2), and 82.1% of non-AIDS (OVCY3) have (age-appropriate) scores in the normal range. Further breakdown of the data by scale (see Table 5) revealed that for internalising problems, 27.4% of AIDS orphans, compared to 19% of non-orphans, and 10.7% of non-AIDS orphans exceeded the borderline cut-off point. About a quarter of the non-orphan participants had elevated scores on somatic problems, and between 12.5% and 28% in all (three) groups, had elevated scores on somatic complaints. In addition, over a quarter of AIDS orphans had scores that exceeded the borderline cut-off range on somatic complaints, somatic problems, and internalising problems, and about one in five from this group had scores in this range on withdrawn/depressed (24.2%), conduct problems (22.6%), externalising problems (21%), and total problems (21%). Table 6 also shows that AIDS orphans from AIDS had significant mean scores on internalising problems compared to orphans from other causes.

Table 4

Frequencies and Percentages for Categorical Study Variables by Group

Variables by group	OVCY1: Non-orphans		OVCY2: Orphans due to HIV/AIDS		OVCY3: Orphans due to other causes		χ^2	*p*
	n	*%*	*n*	*%*	*n*	*%*		
Gender							.93	.682
Male	29	50.9 [a]	37	59.7 [a]	31	55.4 [a]		
Female	28	49.1 [a]	25	40.3 [a]	25	44.6 [a]		
Mental Health Outcome							7.20	.027*
Age-Appropriate	38	66.7 [a, b]	37	59.7 [b]	46	82.1 [a]		
Borderline/At-risk	19	33.3 [a, b]	25	40.3 [b]	10	17.9 [a]		

Note. Within each row category when comparing column percentages, if column percentages differed significantly ($p < .05$), they will have different superscripts [ab] in comparison and if column percentages did not differ significantly ($p > .05$), they had the same superscript [aa] or [bb]. At-risk group has total YSR/11-18 T-scores greater than 65.

*Data showing significant difference ($p < .05$).

Table 5

YSR Scale Percentage of Cases Exceeding Borderline Cut-off by Group

	Clinical Cases *N* (%)		
Scale	OVCY1	OVCY2	OVCY3
Anxious/Depressed	7.0	14.5	7.1
Withdrawn/Depressed	8.8	24.2	5.4
Somatic Complaints	22.8	25.8	15.4
Social Problems	14.0	17.7	8.9
Thought Problems	8.8	11.3	3.6
Attention Problems	5.3	3.2	5.4
Rule-Breaking Behaviour	8.8	16.1	1.8
Aggressive Behaviour	5.3	14.5	5.4
Affective Problems	14.0	17.7	8.9
Anxiety Problems	7.0	8.1	1.8
Somatic Problems	28.1	27.4	12.5
Attention Deficit Hyperactivity Problems	.0	3.2	1.8
Oppositional Defiant Behaviour Problems	7.0	1.6	.0
Conduct Problems	17.5	22.6	12.5
Obsessive-Compulsive Behaviour Problems	7.0	8.1	1.8
Post-traumatic Stress Behaviour Problems	5.3	12.9	3.6
Positive Qualities	8.8	4.2	5.4
Internalising Problems	19.3	27.4	10.7
Externalising Problems	7.0	21.0	8.9
Total Problems	19.3	21.0	10.7

Table 6

Means and Standard Deviations for Continuous Study Variables by Group

Variables by group	*n*	*M*		*SD*	*F*	*P*
Age of participants					.25	.776
OVCY1: Non-orphan	57	13.98	[a]	2.00		
OVCY2: Orphan due to HIV/AIDS	61	13.92	[a]	1.93		
OVCY3: Orphans due to other causes	56	14.18	[a]	2.20		
Grade level					.08	.927
OVCY1: Non-orphan	57	7.75	[a]	1.62		
OVCY2: Orphan due to HIV/AIDS	62	7.63	[a]	1.83		
OVCY3: Orphans due to other causes	56	7.68	[a]	1.83		
Active coping strategies					1.29	.281
OVCY1: Non-orphan	37	42.97	[a]	11.06		
OVCY2: Orphan due to HIV/AIDS	33	39.24	[a]	12.30		
OVCY3: Orphans due to other causes	25	43.88	[a]	13.09		
Distraction coping strategies					.29	.751
OVCY1: Non-orphan	37	23.30	[a]	7.21		
OVCY2: Orphan due to HIV/AIDS	33	22.39	[a]	6.10		
OVCY3: Orphans due to other causes	25	23.76	[a]	8.02		
Avoidant coping strategies					.13	.879
OVCY1: Non-orphan	37	19.49	[a]	5.00		
OVCY2: Orphan due to HIV/AIDS	33	19.27	[a]	5.55		
OVCY3: Orphans due to other causes	25	20.00	[a]	6.00		
Support seeking coping behavior					.09	.916
OVCY1: Non-orphan	37	18.70	[a]	5.75		
OVCY2: Orphan due to HIV/AIDS	33	19.18	[a]	6.12		
OVCY3: Orphans due to other causes	25	19.28	[a]	6.13		
Internalizing problems					3.49	.033*
OVCY1: Non-orphan	57	60.86	[a,b]	11.41		
OVCY2: Orphan due to HIV/AIDS	62	63.02	[a]	12.08		
OVCY3: Orphans due to other causes	56	57.38	[b]	11.40		
Externalizing problems					2.07	.130
OVCY1: Non-orphan	57	54.12	[a]	13.34		
OVCY2: Orphan due to HIV/AIDS	62	56.08	[a]	13.90		
OVCY3: Orphans due to other causes	56	51.18	[a]	11.97		
Total problems					2.58	.078
OVCY1: Non-orphan	57	58.12	[a]	12.62		
OVCY2: Orphan due to HIV/AIDS	62	59.98	[a]	13.39		
OVCY3: Orphans due to other causes	56	54.73	[a]	11.80		

Note. When comparing group means, means with different superscripts [ab] differ significantly ($p < .05$) and means with similar superscripts [aa] or [bb] do not differ significantly ($p > .05$).

*Data showing significant difference ($p < .05$).

Discussion

Group status as a predictor of coping strategies

Our first research question seeks information on the extent to which group characteristics (orphanhood group status, gender) predict coping strategies. Our findings indicate that orphanhood status was not related to the use of specific coping strategies, as we could not identify the specific coping strategies of an adolescent based on their group membership. Our participants used varied coping strategies, and this finding seems to support Skovdal and Daniel (2012) that HIV/AIDS-affected young people in sub-Saharan Africa utilised multiple coping strategies to deal with their stress, depending on factors within their social environment. We also found that gender was not predictive of coping strategy. Perhaps, these findings are in part related to our assessment measure for coping strategies. The CCSC instrument was normed on American samples and the items reflect and capture western conceptualization. It is plausible that the CCSC missed important cultural factors relevant to a low-resource, rural South African community that differ in meaningful ways from those in middle-income to high-income American contexts.

Coping strategies as predictor of mental health outcomes for adolescent orphans

With regards to the second research question, we could not predict the mental health of the two orphan groups based on specific coping strategies. However, we found that among all our participants, engaging in higher instances of active coping is concurrently associated with lower risk for internalising and externalising problems, whereas those who used avoidant coping strategies were more likely to experience general psychological problems. As suggested in the

literature, active coping strategies tend to moderate psychological problems (Compas et al., 2017). The premise seems to be that individuals who use these strategies tend to approach the source of their stress, are likely to expend some amount of cognitive resources, and they tend to take active roles in dealing with their circumstances. This implies that adolescents who directly respond to their situations (such as planning or thinking about ways to solve problems) fare better psychologically than those who use avoidant coping strategies, as predicted in previous research (Compas et al., 2017). In addition, using avoidance-oriented coping strategies have been linked to psychological maladjustment, with some evidence that avoidance coping does not often require a lot of cognitive resources (Roubinov & Luecken, 2013). The Lefika programme provided a safe social environment for the adolescents in our sample. It is possible that participation in Lefika also provided support services that served as a resource gain to offset the stressors created by parental loss and associated adjustment experiences to situations in their home life (Hobfoll, 2011), and in the process, facilitate the use of active coping strategies. According to Rutter (1985), people can be helped to develop adaptive qualities, to some extent. This implies that these adolescents can be guided to think through their situations, weigh their options, engage in finding solutions depending on their capabilities, know when to seek help, and they can be helped to recognise emotional reactions that are maladaptive. These are potentially valuable information that welfare agencies can incorporate into their programmes to improve their services to these young people.

Orphanhood status as predictor of mental health outcomes

In response to the third research question, the data suggests that orphanhood status predicted borderline to serious mental health outcomes in our sample. Specifically, adolescents orphaned by AIDS showed disproportionately elevated scores compared to their non-AIDS orphan peers on

internalising problems. In addition, we found that a higher proportion of orphans due to AIDS reported elevated scores that signal concern (exceeded borderline cut-off) on emotional problems such as withdrawn/depressed and on the behavioural scale of conduct problems. Comparatively, a lower percentage of non-AIDS orphans reported emotional and behaviour problems at the concerned range, suggesting that they fare better psychologically than those orphaned by AIDS. These findings are relatively consistent with those reported in earlier studies conducted by Cluver et al. (2007) as well as studies involving younger children (Asanbe et al., 2016). As stated previously, the psychological reality of orphanhood is that parental loss is stressful (Stroebe & Schut, 1999), and orphaned adolescents experience higher rates of internalising, and sometimes, social problems (Thornton, Asanbe, & Denton, 2019). But in addition to that, previous studies indicate that orphanhood by AIDS has a uniquely traumatic impact, as AIDS is a dreaded disease, with further distress resulting from adolescents watching their parents endure a slow, prolonged, and painful death. The rural setting of our study may also contribute to the increased risk for mental health problems for adolescents orphaned by AIDS as stigmatization, which compounds the unique traumas associated with orphanhood by AIDS is reported to be more pronounced in rural communities compared to urban settings (Campbell et al., 2008; Madiba & Mokgatle, 2017). Although, we did not explore the role of stigmatisation in this study, based on reports from previous studies, we can speculate that the difference in the data between orphans due to AIDS and their non-AIDS orphan peers may be due in part to parental HIV/AIDS associated stigma. The combination of these factors offers a plausible explanation for the increased risk for emotional difficulties found among adolescents orphaned by AIDS in a rural community.

In addition, we found that a high proportion of our participants expressed emotional discomfort through physical symptoms. Consistent with other studies, somatisation in children and

adolescents often co-occurs with other emotional symptoms, and the rate of the occurrence of somatic complaints often correlates positively with the severity of anxiety and depression symptoms (Bursch et al., 2008). There are cultural factors that offer plausible explanations, as mood and anxiety problems tend to manifest as somatic complaints in many non-Western cultures (Rohleder, 2012). In addition, many of the items on the somatisation scale tend to overlap with common issues that are associated with living in poor communities with few economic resources (Palin et al., 2009). An unexpected finding in our sample is that adolescents orphaned due to AIDS are more similar to non-orphans on a number of psychological health indicators than they are to non-AIDS orphans. In general, orphanhood places a child/adolescent at risk for emotional issues (Kaplow et al., 2010) as it means losing the affection and security that a parent usually provides. The fact that non-orphans are comparatively more at risk than non-AIDS orphans on a number of psychological indicators such as somatic complaints, internalising problems and general psychological (total) problems needs further investigation. We suggest that future researchers identify the personal and familial factors that might lead to a better understanding of this unexpected finding.

Conclusion

Given that quantitative data on vulnerable adolescents in rural sub-Saharan Africa are limited, our study contributes to the literature by providing evidence that active coping could be beneficial for this population. Another relevant finding is that adolescents orphaned due to AIDS are disproportionately vulnerable to mental health issues that can range in severity from concerned, to potentially, serious. Although similar findings have been reported for orphan and vulnerable children and adolescents (OVCY) in urban areas (Cluver et al., 2007; Cluver et al., 2012), it is

valuable to obtain data on a unique and understudied rural population that support existing findings. We suggest that future replications use multisite samples to obtain information on how coping strategies mediate the mental health outcomes of this vulnerable population. We also suggest that more studies investigate the role of HIV stigma in the mental health of orphans and vulnerable adolescents in rural and understudied communities. In summary, some of our findings can inform programme development by welfare agencies and civil societies such as NGOs, to include targeted training and role plays into the services they provide to young people to promote the use of active coping strategies. This can help vulnerable adolescents in low-resource, rural communities to foster adaptive responses to their daily life experiences.

Limitations

The participants in this study were part of Lefika NGO-supported social services programme, and the selective nature and cross-sectional design are potential limitations to a generalisation beyond the sample. There is also the possibility of misclassification of participants into the three groups since we could not completely validate the accuracy of Lefika records. In addition, we recognise the issue with missing data and the extended age inclusion on the CCSC questionnaire, but we believe we addressed these appropriately under assessment measure and data analysis. While it would have been preferable to rectify the missing data problem during the data collection process, it was not practical to do so because of the geographical location of the participants, as well as the nature and sensitivity of the subject matter which makes it difficult to sample this population. Finally, the dearth of well-standardised scales to assess African children is a major issue that needs to be addressed, and we are making a strong case to psychological test publishers to invest in appropriately normed instruments for non-Western populations. The above limitations

notwithstanding, some of our findings are consistent with the literature, suggesting that they are valid and the clinical information is meaningful.

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