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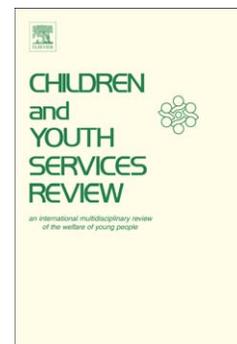
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Reach, psychosocial correlates, and potential mechanisms

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Community-based organizations for vulnerable children in South Africa: Reach, psychosocial correlates, and potential mechanisms

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Abstract

Community-based organizations (CBOs) have the potential to provide high quality services for orphaned and vulnerable children in resource-limited settings. However, evidence is lacking as to whether CBOs are reaching those who are most vulnerable, whether attending these organizations is associated with greater psychosocial wellbeing, and how they might work. This study addressed these three questions using cross-sectional data from 1848 South African children aged 9-13. Data were obtained from the Young Carers and Child Community Care studies, which both investigated child wellbeing in South Africa using standardized self-report measures. Children from the Child Community Care study were all CBO attenders, whereas children from Young Carers were not receiving any CBO services, thereby serving as a comparison group. Multivariable regression analyses were used to test whether children attending CBOs were more deprived on socio-demographic variables (e.g., housing), and whether CBO attendance was in turn associated with better psychosocial outcomes (e.g., child depression). Mediation analysis was conducted to test whether more positive home environments mediated the association between CBO attendance and significantly higher psychological wellbeing. Overall, children attending CBOs did show greater vulnerability on most socio-demographic variables. For example, compared to children not attending any CBO, CBO-attending children tended to live in more crowded households (OR 1.22) and have been exposed to more community violence (OR 2.06). Despite their heightened vulnerability, however, children attending CBOs tended to perform better on psychosocial measures: for instance, showing fewer depressive symptoms ($B=-0.33$) and lower odds of experiencing physical (OR 0.07) or emotional abuse (OR 0.22). Indirect effects of CBO attendance on significantly better child psychological wellbeing (lower depressive symptoms) was observed via lower rates of child abuse ($B=-0.07$) and domestic conflict/violence ($B=-0.03$) and higher rates of parental praise ($B=-0.03$). Null associations were observed between CBO attendance and severe psychopathology (e.g., suicidality). These cross-sectional results provide promising evidence regarding the potential success of CBO reach and impact but also highlight areas for improvement.

Keywords: children; community-based organizations; South Africa; HIV/AIDS

1. Introduction

The response to HIV/AIDS in resource-limited settings has included a call for the support of community-based organizations (CBOs) (e.g., Campbell & Mzaidume, 2002). These grassroots, local organizations are well-placed to reach children and families experiencing many day-to-day challenges (Foster, 2007). Yet the evidence-base for the effectiveness of CBOs has been scant (King, De Silva, Stein, & Patel, 2009) and the new environment of ‘evidence-based’ provision (Sherr & Zoll, 2011) presents significant challenges to CBOs in terms of objective and thorough evaluation (Bee et al., 2014).

In theory, strong community provision is associated with a comprehensive response to community needs and improved psychological adaptation amongst community members. Campbell and colleagues (2007) have theorized that communities can be considered to be ‘AIDS competent’ when community members can access health and social services and work together to reduce HIV stigma, decrease risk behaviour, and support people with HIV/AIDS. In reality, CBOs can take many forms. In many cases in South Africa, CBOs are locally inspired and a reaction to challenges concomitant with HIV/AIDS. In other cases, CBOs are driven by international organizations and donors. Their services may include visits, parenting or early child education, social support, counselling services, financial assistance, and healthcare provision (Richter et al., 2009). Yet what many of these organizations have in common is the community location, direct local availability, and a focus on child and family provision. Nevertheless, evaluation of CBO input is challenging. Programmes are often small and situated in communities with limited research capacity, which is further compounded by the logistical difficulties of conducting research in vulnerable communities and the resulting high costs (King et al., 2009). Moreover, historically international funding for such evaluative research has been limited. For instance, the first phase of the United States President’s Emergency Plan for AIDS Relief (2003-2007) was largely focused on implementing programming as opposed to evaluation (PEPFAR, 2005; Sherr & Zoll, 2011). In addition, CBOs are typically not set up in a systematic way amenable to evaluation and random allocation to services is often seen as unethical.

The first essential step in assessing the effectiveness of CBOs is to identify whether they are reaching the most vulnerable children. In an increasingly resource-constrained environment of funding, targeting has been highlighted as a priority. However, to date, no known studies have examined whether CBOs focused on orphaned and vulnerable children in low- or middle-income countries are actually reaching the children who most need their services. The next essential step is to identify whether CBO attendance is associated with improved psychosocial outcomes. In a systematic review, King and colleagues (2009) could not identify a single evaluation of a community-based programme to improve psychosocial wellbeing for children affected by HIV/AIDS that met quality standards for inclusion. Other early reviews of community-based interventions found limited evidence and concluded that many of the evaluations that had taken place were not of sufficient scientific rigour (JLICA, 2009; Schenk, 2009). The final step in evaluating CBOs is to determine, where positive outcomes have been found, what mechanisms potentially underlie them. Without considering such mechanisms of change, complex interventions like CBOs remain as ‘black boxes’, where it is unclear which components were successful and should thus be repeated in future programming (Fraser et al., 2009). One way that has been proposed for how CBOs may positively impact AIDS-affected children is family

strengthening (Richter et al., 2009). That is, by creating more positive home environments for children (e.g., supporting better parenting and less family abuse and violence) CBOs may lead to improvements in child outcomes such as mental health. This is hope to be achieved by CBOs providing social support or parental education, improving service access, and/or alleviating stress.

While more recently there have been evaluation studies of improved quality, many of the community-based interventions being evaluated were set up for research purposes only. In a recent review, only two evaluations were identified that were of existing and ongoing programmes for children affected by HIV/AIDS (Skeen et al., 2014). Mueller and colleagues (2011) conducted a post-hoc evaluation of an art therapy programme in South Africa and found that participation in the programme increased self-efficacy amongst 8-18 year-olds as compared to a control group of children who did not attend. Similarly, Thurman et al. (2012) used a post-intervention design with a matched control group and found that caregiver social support groups were associated with more prosocial behaviours and less problematic behaviours amongst children of attending caregivers in Kenya. While both these studies suggest promising effects, their scope was limited, with only one community investigated in each and no investigation of programme reach or potential mechanisms of change.

This study was set up to address the inadequate evidence-base on how CBOs work in practice. We had three main objectives in order to better understand CBO provision in South Africa. First, to compare the socio-demographic background of children attending and not attending CBO programming to establish whether CBOs are reaching the most vulnerable children. Second, to identify whether children and families being reached by CBOs have better psychosocial wellbeing compared to those not being reached. Third, to investigate whether family-level factors mediate the association between CBO attendance and improved child psychological outcomes, so as to better understand *how* CBOs may positively affect children and their families.

2. Method

2.1. Participants and procedure

We analyzed data obtained from two large studies: one which exclusively recruited CBO attenders (the Child Community Care Study or CCC), and the other, a national random sample (the Young Carers Study or YC) which was utilized to generate a comparison group with no CBO contact at all. These two prospective observational studies were designed in close collaboration and made use of similar measures. Children in CCC were specifically recruited as CBO attenders, whereas those drawn from YC were included based on the fact that they explicitly had no regular access to CBOs or CBO-type services, allowing for analysis of the differences between children attending and not attending CBOs. The focus of this paper is to analyze these cross-sectional data obtained at baseline.

2.1.1. Young Carers Study

This analysis includes 1402 South African children aged 9-13 years who participated in YC, drawn from the total sample of 6002 children interviewed in 2009-2010. Participants were randomly selected from four urban and rural health districts with over 30% antenatal HIV

prevalence in Mpumalanga and the Western Cape. Sampling involved randomly selecting census enumeration areas from the four health districts, visiting every household in the selected areas, and randomly selecting one child from every household with a resident aged 9-17. Refusal rate at baseline was less than 2.5%. Participants completed a 60-minute face-to-face interview in the language of their choice. Interviewers were trained and experienced in working with vulnerable children and questionnaires were translated and back-translated in Xhosa, Zulu, Sotho, and Shangaan.

2.2.2. Child Community Care Study

This analysis includes 446 South African children in the age range of 9-13 years from CCC, which had a total sample of 989 children aged 4-13 who were all CBO attenders. The CBOs were recruited by creating a list of all funded programmes from 11 partner organizations. A total of 28 CBOs (24 in South Africa and 4 in Malawi) were randomly selected from the complete list of 588, stratified by funder and geographical region. In this study, only data from South Africa are used. Consecutive children were interviewed from each CBO (approximately 35 children per CBO) from 2011-2012 with a refusal rate of less than 1%. Interviews were conducted by trained data collectors using mobile phone technology (Tomlinson et al., 2009). Questionnaires were translated and back-translated into Zulu and Xhosa.

2.2.3. Ethical procedures

YC ethical protocols received approval from the Universities of Oxford, Cape Town, and KwaZulu-Natal and provincial Health and Education Departments. CCC ethical protocols received approval from University College London (reference number 1478/002) and Stellenbosch University (reference number N10/04/112) and the funding agencies supporting the sampled CBOs. In both studies, participating children and their caregivers provided voluntary informed consent and received no incentives apart from refreshments, food, and certificates of participation. Confidentiality was maintained in both studies, except when participants were at risk of significant harm or requested assistance. In such cases, immediate referrals were made to social and health services (YC) or partnering CBOs and/or services (CCC).

2.2. Measures

2.2.1. Socio-demographics

Age and gender in both studies were measured using national census items (Statistics South Africa, 2001). Informal/formal housing was measured by having participants indicate which of different types of houses (i.e. house/flat, a shack, on the street) they live in. To measure household size and employment, participants counted how many people lived in their house and were asked if they lived with anyone who has a job. In both studies, school enrolment was indicated by child self-report regarding whether the child attends school. In YC, this was corroborated using school registers; in CCC, this was corroborated using caregiver report. In both studies, participants were asked two binary questions about common events of community violence, adapted from the Child Exposure to Community Violence Checklist (Richters & Martinez, 1993): having ever (a) seen someone be attacked and (b) personally been attacked outside the home. In YC, participants' provision of care to younger children and sick people in the home were measured using a checklist adapted from the Multidimensional Assessment of Caring Activities questionnaire (Joseph et al., 2009) based on qualitative research and piloting

with South African children in the sampled communities. Caring for younger children in the home included any of: walking the child to school, washing the child, or feeding the child. Caring for sick people in the home included any of: administering medication, dressing, toileting or bathing, helping with mobility, massaging the chest for respiratory relief, or cleaning up bodily fluids. In CCC, positive responses to the yes/no questions ‘Do you help look after younger kids in your home?’ and ‘Have you ever helped unwell people in your home?’ indicated participants’ provision of care. In YC, the HIV status of the participant’s caregiver was determined using the youth-report Verbal Autopsy (Lopman et al., 2006), which has shown 89% sensitivity and 93% specificity in South Africa (Kahn et al., 2000). In CCC, caregiver HIV status was determined by caregiver self-report. Finally, the HIV status of the child was measured. In CCC, this item was measured by caregiver report. In YC, this item was measured by child report and only at follow-up, however, due to the young age and sexual inactivity of the current sample, HIV transmission was assumed to be largely vertical. Therefore, values at follow-up were considered to be proxies for baseline and used as such in the current analyses.

2.2.2. Outcomes

In both studies, psychological distress was measured with standardized scales used previously with South African children. Depressive symptoms were measured using a short-form of the Child Depression Inventory (CDI) (Kovacs, 1992). For each item, participants chose one statement that best reflected their feelings in the past two weeks (scored 0-2). These items were consequently summed for both studies to compute a total depressive score, where higher scores indicate greater depressive symptoms ($\alpha=.67$). In both studies, suicidal ideation was determined by a positive response to a question about whether participants had thought about killing themselves, given high rates of suicidal ideation and attempts found previously in YC (Cluver et al., 2015). Post-traumatic symptoms were measured using different scales in each of YC and CCC. However, as both scales measure the same construct, the total scores were standardized and combined into a single continuous scale where higher scores indicated greater traumatic symptoms. In YC, the 28-item Child PTSD Checklist (Amaya-Jackson et al., 1995) was used, which rates the presence (in the past month) of 17 post-traumatic symptoms based on the DSM-IV and has been validated in South Africa (Boyes et al., 2012) (current $\alpha=.67$). CCC used the 10-item Trauma Symptom Checklist for Children (Briere, 1996) (current $\alpha=.74$).

Child abuse and domestic conflict and violence were measured in both studies using UNICEF items for sub-Saharan Africa (Snider & Dawes, 2006). In both studies, child abuse items were each measured on 4-point scales (0=never, 1=at least once this year, 2=monthly, 3=weekly). Physical abuse was defined as child report of carers using a stick or belt to hit the child or slapping or punching the child at least weekly. Emotional abuse was defined as carers threatening to send the child away, invoking ghosts or harm upon the child, or insulting the child at least weekly. In CCC, emotional abuse was measured by carer report and in YC it was measured by child report. In both studies, domestic conflict was measured as adults shouting at each other in the home and domestic violence was measured as adults hitting each other in the home; however, the two studies had different answer options. In YC, the number of occurrences of domestic conflict and violence were measured in the past week, whereas CCC participants indicated how often domestic conflict and violence occurred in their home (0=never, 1=at least once this year, 2=monthly, 3=weekly). Consequently, YC participants who indicated that domestic conflict or violence occurred at least once in the past week and CCC participants who indicated that domestic conflict or violence occurred at least weekly were both defined as having

experienced weekly domestic conflict or violence, respectively. Parental praise was measured in both studies as whether the child received praise for behaving or doing something well. The response values between CCC and YC were slightly different and consequently defined as: regular praise (YC: always or often, CCC: often) or irregular praise (YC: sometimes, almost never, or never; CCC: rarely or never).

2.3. Analyses

A four-stage analysis strategy was carried out in IBM SPSS 21.0 and Stata 13.2. First, the total sample was described on all variables. Second, the question of whether CBOs are reaching the most vulnerable children was examined in three steps. In Step A, differences between participants attending and not attending CBOs were tested using chi-square (for categorical variables) and t-tests (for continuous variables). In Step B, these univariable differences were further tested in a multivariable binary logistical regression model: CBO attendance was regressed simultaneously onto all socio-demographic variables (gender, age, housing, household employment, orphanhood, school non-enrolment, HIV- positive carer, seen someone being attacked, caring for children, caring for sick people, and household size). In Step C, to test whether CBOs are reaching children with the most *cumulative* vulnerabilities, a vulnerability score (scored 0-7) was created by summing the following seven binary socio-demographic variables: orphanhood, HIV-positive carer, HIV-positive child, child cares for other children, child cares for sick people, child has seen someone being attacked, and child lives in an overcrowded household (3 or more people). This score was based on similar cumulative risk indices used in prior research with AIDS-affected children in South Africa (Cluver et al., 2015) as well as general populations (Dube et al., 2001). CBO attendance was then regressed onto this cumulative vulnerabilities score, controlling for age and gender. The third analysis stage involved testing whether CBO attendance is associated with better psychosocial outcomes. Separate multiple logistic (for binary outcomes) and linear (for continuous outcomes) regression analyses were conducted for each outcome, with CBO attendance as the independent variable and all socio-demographic variables as covariates. In this stage, we also tested whether there were any gender differences in outcome variables using chi-square (for categorical variables) and t-tests (for continuous variables). In the fourth and final analysis stage, we tested whether statistically significant family-level variables from Step 3 mediated the relationship between CBO attendance and significantly better child-level psychological outcomes. All eligible family-level mediators were entered simultaneously into a multiple mediation model in Stata, controlling for all socio-demographic variables.

3. Results

3.1. Sample characteristics

Table 1 describes the overall sample characteristics. Participants were on average 11.5 years-old (SD=1.2), over half of whom were girls. Most participants lived in formal homes and most had their biological mother or father as their primary caregiver. Roughly a quarter of participants cared for young children or sick people in the home, lived with an HIV-positive carer, or experienced weekly domestic conflict. Over two-thirds of participants received regular praise from adults in their home.

Table 1. Sample characteristics

	N (%) or M (SD)
N	1848
Female gender	1011 (54.7%)
Age	11.5 (1.2)
School non-enrolment	12 (0.6%)
Grade	5.3 (1.5)
Housing:	
Informal	485 (26.2%)
Formal	1363 (73.8%)
Age of primary carer	42.3 (12.5)
Relationship with primary carer	
Biological mother/father	1234 (66.8%)
Foster/step mother/father	54 (2.9%)
Grandparent	300 (16.2%)
Aunt/Uncle	151 (8.2%)
Other relative	76 (4.1%)
Other	32 (1.7%)
Household employment	1318 (71.4%)
Orphan (at least 1 deceased parent)	564 (30.7%)
Household size	5.5 (2.4)
Weekly emotional abuse	142 (7.7%)
Weekly physical abuse	97 (5.2%)
Depressive symptoms	1.1 (1.8)
Suicidal ideation	71 (3.8%)
Cares for younger children	477 (25.9%)
Cares for unwell people in the home	537 (29.1%)
Weekly domestic conflict	460 (24.9%)
Weekly domestic violence	79 (4.3%)
Child is HIV-positive	65 (3.8%)
Carer is HIV-positive	379 (20.5%)
Carer praises child for doing something well regularly	1289 (69.8%)
Been attacked outside home	162 (8.8%)
Seen someone attacked outside home	658 (35.6%)

3.2. Are CBOs reaching the most vulnerable children?

Table 2 shows the differences between participants attending and not attending CBOs on all socio-demographic variables, including chi-square and t-values for binary and continuous variables, respectively, and p-values for each comparison. Participants attending at least one CBO, compared to those not attending any, tended to more often: be living in a household without any employed people (44.2% versus 23.7%), be orphans (22.6% double orphaned versus 2.1%), to have seen or experienced community violence (42.7% versus 33.4% and 11.9% versus 7.8%, respectively), be caring for other children (47.3% versus 19.0%) or sick people (37.7% versus 26.4%), and be living in larger households (mean 6.6 people versus 5.2). In contrast,

fewer participants attending CBOs were living in informal housing (13.5% versus 30.3%) or with HIV-positive caregivers (15.0% versus 22.3%) compared to those not attending any CBO.

Table 2. Socio-demographic differences between children attending and not attending CBOs

	With CBO contact, N=446	Without CBO contact, N=1402	Difference statistic (p-value)
Housing:			
Informal	60 (13.5%)	425 (30.3%)	49.70 (<.001)
Formal	386 (86.5%)	977 (69.7%)	
Household employment:			
Yes	249 (55.8%)	1069 (76.3%)	69.38 (<.001)
No	197 (44.2%)	332 (23.7%)	
Mother died:			
Yes	85 (19.4%)	75 (5.3%)	83.06 (<.001)
No	353 (80.6%)	1327 (94.7%)	
Father died:			
Yes	85 (19.4%)	191 (13.6%)	8.75 (.003)
No	353 (80.6%)	1211 (86.4%)	
Double orphan:			
Yes	99 (22.6%)	29 (2.1%)	217.41 (<.001)
No	339 (77.4%)	1373 (97.9%)	
School non-enrolment:			
Yes	3 (0.7%)	9 (0.6%)	0.01 (.944)
No	443 (99.3%)	1393 (99.4%)	
HIV-positive carer:			
Yes	67 (15.0%)	312 (22.3%)	10.85 (.001)
No	379 (85.0%)	1090 (77.7%)	
Been attacked:			
Yes	53 (11.9%)	109 (7.8%)	7.22 (.007)
No	392 (88.1%)	1293 (92.2%)	
Seen someone be attacked:			
Yes	190 (42.7%)	468 (33.4%)	12.78 (<.001)
No	255 (57.3%)	934 (66.6%)	
Care for children:			
Yes	211 (47.3%)	266 (19.0%)	141.25 (<.001)
No	235 (52.7%)	1133 (81.0%)	
Care for sick people:			
Yes	168 (37.7%)	369 (26.4%)	20.90 (<.001)
No	278 (62.3%)	1030 (73.6%)	
Household size	6.6 (2.9)	5.2 (2.1)	11.10 (<.001)

Note. Data are mean (SD) or N (%). Difference statistic is chi-square or t-value.

Multiple logistic regression analysis indicated that the above socio-demographic variables were each simultaneously associated with CBO attendance (see Table 3 for odds ratios with 95%

confidence intervals and p-values). That is, participants living in informal housing (OR 0.46), living with at least one employed person (OR 0.32), and who had an HIV-positive caregiver (OR 0.58) had lower odds of having attended a CBO, whereas those with at least one deceased parent (OR 6.24), who had seen someone be attacked (OR 2.06), who cared for younger children (OR 3.70), and who lived with more people (OR 1.22) had higher odds of having attended a CBO. Female and younger participants also had lower odds of having attended CBOs (OR 0.67 and 0.53, respectively).

Table 3. Simultaneous associations between socio-demographic variables and CBO attendance

	Odds Ratio (95% CI)	p-value
Female gender	0.674 (0.514 – 0.884)	.004
Age	0.532 (0.471 – 0.599)	<.001
Informal housing	0.461 (0.321 – 0.662)	<.001
Household employment	0.321 (0.241 – 0.429)	<.001
Any orphanhood	6.243 (4.719 – 8.259)	<.001
School non-enrolment	1.545 (0.299 – 7.992)	.604
HIV-positive caregiver	0.576 (0.404 – 0.823)	.002
Seen someone attacked ever	2.061 (1.553 – 2.736)	<.001
Care for younger children	3.704 (2.776 – 4.943)	<.001
Household size	1.216 (1.149 – 1.287)	<.001

Note. Analysis is a multivariable binary logistic regression with CBO attendance as the outcome.

In addition to the unique associations between socio-demographic variables and CBO attendance, we also found that participants with *cumulative* vulnerabilities had greater odds of having attended a CBO. That is, for every additional vulnerability experienced (i.e., at least one parent being deceased, being HIV-positive, having an HIV-positive carer, caring for other children, caring for sick people, having seen someone be attacked, and living in an overcrowded household), participants had on average 2.114 times greater odds of having attended a CBO compared to those with less vulnerabilities (95% CI 1.906-2.345, $p < .001$).

3.3. Is CBO attendance associated with more positive psychosocial outcomes?

Multivariable regression analyses controlling for all socio-demographic variables revealed that CBO attendance (as a predictor variable) was associated with several positive psychosocial outcomes (see Table 4 for odds ratios and B-coefficients, with 95% confidence intervals, and p-values). Specifically, CBO attendance was associated with less weekly physical abuse (OR 0.07), less weekly emotional abuse (OR 0.22), more regular parental praise (OR 2.36), less weekly domestic conflict (OR 0.12), less weekly domestic violence (OR 0.16), and fewer depressive symptoms ($B = -0.33$). Null associations were observed between CBO attendance and each of suicidal ideation and post-traumatic symptoms.

Table 4. Associations between CBO attendance and outcome variables

Binary outcome variable	Odds Ratio (95% CI)	p-value
Weekly physical abuse	0.065 (0.015 – 0.276)	<.001
Weekly emotional abuse	0.223 (0.109 – 0.459)	<.001
Regular parental praise	2.363 (1.733 – 3.221)	<.001
Suicidal ideation	0.764 (0.373 – 1.564)	.461
Weekly domestic conflict	0.124 (0.077 – 0.199)	<.001
Weekly domestic violence	0.161 (0.048 – 0.545)	.003
Continuous outcome variable	B (unstandardized) coefficient (95% CI)	p-value
Depressive symptoms	-0.325 (-0.554, -0.096)	.005
Post-traumatic symptoms	0.034 (-0.092, 0.160)	.597

Note. Analyses are multiple logistic regressions (for binary outcomes) or multiple linear regressions (for continuous outcomes) conducted separately for each outcome variable. For all analyses, the predictor variable was CBO attendance and the covariates were: gender, age, housing type, household employment, orphanhood, school non-enrolment, caregiver HIV status, seen someone being attacked, caring for children, caring for sick people, and household size.

Table 5 summarizes the comparison between boys and girls on all outcome variables. We found no gender differences on any outcome except post-traumatic symptoms, with girls showing higher standardized scores (mean 0.1) than boys (mean -0.1).

Table 5. Gender comparisons on outcome variables

	Girls (N=1011)	Boys (N=837)	Difference statistic (p-value)
Weekly physical abuse	52 (5.1%)	45 (5.4%)	0.05 (.82)
Weekly emotional abuse	85 (8.4%)	57 (6.8%)	1.65 (.20)
Regular parental praise	712 (70.4%)	577 (68.9%)	0.48 (.49)
Suicidal ideation	42 (4.2%)	29 (3.5%)	0.60 (.47)
Weekly domestic conflict	240 (76.3%)	220 (26.3%)	1.63 (.20)
Weekly domestic violence	42 (4.2%)	37 (4.4%)	0.08 (.77)
Depressive symptoms	1.2 (1.9)	1.0 (1.7)	1.51 (.13)
Post-traumatic symptoms	0.1 (1.0)	-0.1 (1.0)	2.21 (.03)

Note. Data are mean (SD) or N (%). Difference statistic is chi-square or t-value.

3.4. What mediates the association between CBO attendance and improved child psychological wellbeing?

To better understand the potential mechanisms underlying the association between CBO attendance and significantly better psychological wellbeing (i.e., lower depressive symptoms), we tested whether any of the statistically significant family-level variables in Table 4 (abuse, parental praise, and domestic violence or conflict) mediated this association. As shown in Figure 1, the relationship between CBO attendance and decreased child depressive symptoms was indeed mediated by lower rates of physical or emotional child abuse ($B=-0.07$), lower rates of domestic violence/conflict ($B=-0.03$), and higher rates of parental praise ($B=-0.03$).

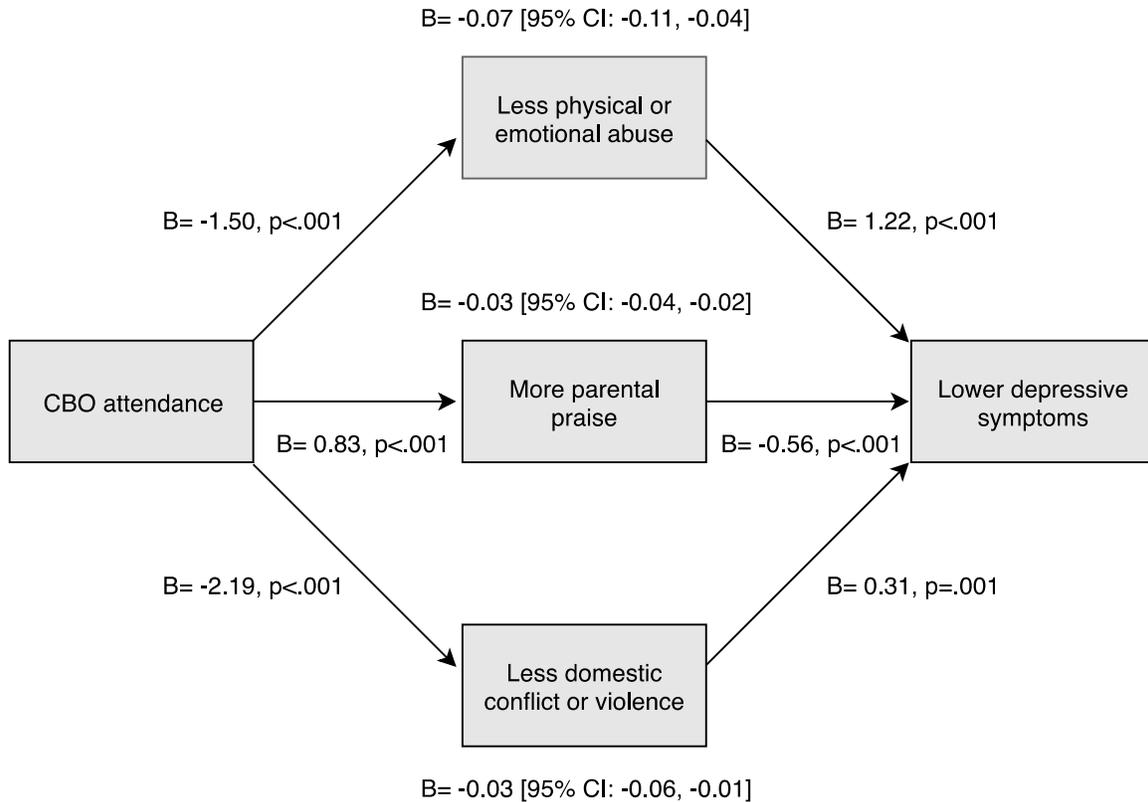


Figure 1. Mediated associations between CBO attendance and child depressive symptoms:

The above multiple mediation model was run in Stata using 5000 bootstrap samples, controlling for gender, age, housing type, household employment, any orphanhood, school non-enrolment, HIV-positive caregiver, seen someone being attacked, caring for children, caring for sick people, and household size.

4. Discussion

This study investigated whether CBOs are reaching the most vulnerable children, the extent to which children attending CBOs have better psychosocial outcomes, and potential mechanisms by which CBO attendance may be associated with improved psychological wellbeing. We found that CBOs do appear to be reaching the most vulnerable children in South Africa, including those who are living in largely unemployed or overcrowded households, are orphaned, have high caregiving responsibilities, and have greater exposure to community violence. However, we also found that girls, younger children, those living in informal housing, and those with HIV-positive parents who are still alive all had lower odds of attending a CBO. In particular, children with HIV-positive parents appear to only be reached by CBOs once their parent(s) have died – given our findings that children attending CBOs tended not to have HIV-positive caregivers and were also more often orphaned. Yet children of caregivers who are living with HIV are a critical subgroup of vulnerable children, given their increased risk for child abuse and psychosocial stress (e.g., Meinck et al., 2015). This may consequently indicate an important area of improvement for CBOs, which may find it easier to target children who are already orphaned – for instance, because targeting children of caregivers living with HIV may be complicated by factors such as HIV-related stigma.

Our analysis also provides cross-sectional evidence of associations between receiving CBO services and better family and child psychosocial outcomes, despite the heightened socio-demographic vulnerability observed amongst children attending CBOs. That is, children attending CBOs tended to have more positive parenting, less family violence, abuse, and conflict, and fewer depressive symptoms. This suggests that not only is CBO attendance associated with better *individual* psychological outcomes for children (i.e., lower depression), it is also related to better home environments, which can then support child wellbeing. Indeed, CBO services are often family-based and the benefit to caregivers may directly impact the children. In addition, we found that child depression may in fact be reduced by improved home environments, which was associated with CBO attendance. This evidence for *mediated* effects of CBO attendance on child psychological wellbeing via reduced child abuse, reduced domestic violence/conflict, and higher parental praise elucidates several potential mechanisms through which CBOs may positively affect children. In turn, it emphasizes the importance of family attendance at CBOs, bolstering arguments for a family-centered approach to alleviating child vulnerability to HIV/AIDS and poverty (Richter et al., 2009). Importantly, however, we did not find evidence that CBOs are associated with improvements on more severe psychological outcomes such as child trauma and suicidal ideation. This suggests that more intensive psychosocial services are required to reduce these conditions amongst vulnerable children, for which CBOs may not have the specialized training or skills. This may represent an area of development for CBO provision, whereby early identification and intervention – specifically, the use of evidence-based interventions for psychological problems – are prioritized and better resourced. In the absence of such skill enhancement, however, CBOs may instead need to improve identification of psychological problems and pathways of referral.

A limitation of the current study is that data were drawn from two separate sources and thus differences observed could potentially be the result of differences in methodology (e.g., differences in measures; different research assistants and training) rather than CBO attendance. However, both studies used similar and sometimes parallel measures, all research assistants were local people trained for approximately one month in confidentiality and techniques of interviewing vulnerable children, with shared training manuals. Moreover, the fact that we did not find differences between CBO attenders and non-attenders on several socio-demographic conditions and psychosocial outcomes suggests that the differences we did observe were not simply the result of variance in methodologies. Additional limitations are that data are cross-sectional and CBO attendance was not randomized. Therefore, causal attributions cannot be made. Finally, it would be valuable for future research to investigate other potential mechanisms via which CBOs may positively affect child psychological wellbeing, such as economic strengthening.

This is the first known, large-scale study to investigate the reach, psychosocial correlates, and potential mechanisms of existing CBOs in South Africa. This kind of ‘real-world’ investigation is essential to understanding how CBOs work in practice, rather than under ideal, artificial research conditions. We found evidence that CBOs are targeting children who are most vulnerable in many ways, that attending these organizations is associated with positive psychosocial outcomes, and that their positive association with child psychological wellbeing may be mediated by improvements in family environment. Despite this encouraging evidence, a

concerted effort is still needed to reach some vulnerable subgroups of children and better address severe psychological conditions.

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References

- Amaya-Jackson, L., McCarthy, G., Cherney, M. S., & Newman, E. (1995). *Child PTSD Checklist*. Durham, NC: Duke University Medical Center.
- Bee, P., Bower, P., Byford, S., Churchill, R., Calam, R., Stallard, P., ... Abel, K. (2014). The clinical effectiveness, cost-effectiveness and acceptability of community-based interventions aimed at improving or maintaining quality of life in children of parents with serious mental illness: A systematic review. *Health Technology Assessment*, 18(8), 1-250.
- Boyes, M. E., Cluver, L. D., & Gardner, F. (2012). Psychometric properties of the child PTSD checklist in a community sample of South African children and adolescents. *PLoS One*, 7(10), e46905. doi: 10.1371/journal.pone.0046905
- Briere, J. (1996). *Trauma Symptom Checklist for Children (TSCC) Professional Manual*. Odessa, FL: Psychological Assessment Resources.
- Campbell, C., & Mzaidume, Y. (2002). How can HIV be prevented in South Africa? A social perspective. *British Medical Journal*, 324, 229-232.
- Campbell, C., Nair, Y., & Maimane, S. (2007). Building contexts that support effective community responses to HIV/AIDS: A South African case study. *American Journal of Community Psychology*, 39(3-4), 347-363.
- 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. doi: 10.1016/j.jadohealth.2015.03.001
- Dube, S. R., Anda, R. F., Felitti, V. J., Chapman, D. P., Williamson, D. F., & Giles, W. H. (2001). Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the life span: Findings from the Adverse Childhood Experiences Study. *JAMA*, 286(24), 3089-3096.
- Foster, G. (2007). Under the radar: Community safety nets for AIDS-affected households in sub-Saharan Africa. *AIDS Care*, 19(Suppl 1), S54-63.

- Fraser, M. W., Richman, J. M., Galinsky, M. J., & Day, S. H. (2009). *Intervention Research: Developing Social Programs*. New York: Oxford University Press.
- JLICA. (2009). Home truths: Facing the facts on children, AIDS, and poverty. *Final Report of the Joint Learning Initiative on Children and HIV/AIDS*. Boston: Joint Learning Initiative on Children and HIV/AIDS (JLICA).
- Joseph, S., Becker, F., & Becker, S. (2009). Manual for Measures of Caring Activities and Outcomes for Children and Young People. London: The Princess Royal Trust for Carers.
- Kahn, K., Tollman, S. M., Garenne, M., & Gear, J. S. S. (2000). Validation and application of verbal autopsies in a rural area of South Africa. *Tropical Medicine and International Health*, 5(11), 824-831.
- King, E., De Silva, M., Stein, A., & Patel, V. (2009). Interventions for improving the psychosocial wellbeing of children affected by HIV and AIDS. *Cochrane Database of Systematic Reviews*, 2, CD006733. doi: 10.1002/14651858.CD006733.pub2
- Kovacs, M. (1992). *Children's Depression Inventory*. Niagra Falls, NY: Multi-Health Systems.
- Lopman, B. A., Barnabas, R. V., Boerma, J. T., Chawira, G., Gaitskell, K., Harrop, T., . . . Gregson, S. (2006). Creating and validating an algorithm to measure AIDS mortality in the adult population using verbal autopsy. *PLoS Med*, 3(8), e312. doi: 10.1371/journal.pmed.0030312
- Meinck, F., Cluver, L. D., & Boyes, M. E. (2015). Household illness, poverty and physical and emotional child abuse victimisation: findings from South Africa's first prospective cohort study. *BMC Public Health*, 15, 444. doi: 10.1186/s12889-015-1792-4
- Mueller, J., Alie, C., Jonas, B., Brown, E., & Sherr, L. (2011). A quasi-experimental evaluation of a community-based art therapy intervention exploring the psychosocial health of children affected by HIV in South Africa. *Tropical Medicine & International Health*, 16(1), 57–66. doi:10.1111/j.1365-3156.2010.02682.x
- PEPFAR. (2005). Engendering bold leadership: The President's Emergency Plan for AIDS Relief. First Annual Report to Congress. Washington D.C.: Office of the United States Global AIDS Coordinator.
- Richter, L. M., Sherr, L., Adato, M., Belsey, M., Chandan, U., Desmond, C., . . . Wakhweya, A. (2009). Strengthening families to support children affected by HIV and AIDS. *AIDS Care*, 21(Supplement 1), 3-12. doi: 10.1080/09540120902923121
- Richters, J., & Martinez, P. (1993). The NIMH Community Violence Project: i. Children as victims of and witnesses to violence. *Psychiatry*, 56(1), 7-21.
- Schenk, K.D. (2009). Community interventions providing care and support to orphans and vulnerable children: a review of evaluation evidence. *AIDS Care*, 21(7), 918–942.
- Sherr, L., & Zoll, M. (2011). PEPFAR OVC evaluation: How good at doing good? Washington, D.C.: USAID. Available at: <http://www.miriamzoll.net/documents/USAID-PEPFAR%20OVC%20Eval.pdf>
- Skeen, S., Tomlinson, M., Croome, N., & Sherr, L. (2014). *Interventions for improving psychosocial outcomes for children affected by HIV/AIDS*. Report for RIATT-ESA.
- Snider, L. M., & Dawes, A. (2006). Psychosocial vulnerability and resilience measures for national-level monitoring of orphans and other vulnerable children: Recommendations for revision of the UNICEF Psychological Indicator. Cape Town: UNICEF.
- Statistics South Africa. (2001). Census 2001. Pretoria: Statistics SA.

- Thurman, T. R., Jarabi, B., & Rice, J. (2012). Caring for the caregiver: evaluation of support groups for guardians of orphans and vulnerable children in Kenya. *AIDS Care*, 24(7), 811–819. doi:10.1080/09540121.2011.644229
- Tomlinson, M, Solomon, W., Singh, Y., Doherty, T., Chopra, M., Ijumba, P., ...Jackson, D. (2009). The use of mobile phones as a data collection tool: A report from a household survey in South Africa. *BMC Medical Informatics and Decision Making*, 9, 51.

Paper title: Community-based organizations for vulnerable children in South Africa: Reach, psychosocial correlates, and potential mechanisms

Highlights:

- Children attending CBOs across South Africa are more vulnerable in many ways
- CBO attendance is associated with more positive psychosocial outcomes
- Attending CBOs is associated with lower depression via better family environments
- CBOs do not appear to affect severe psychopathology such as suicidality