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Mental health of carers of children affected by HIV attending community-based programmes in South Africa and Malawi

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Abstract

There is strong evidence that both adults and children infected with and affected by HIV have high levels of mental health burden. Yet there have been few studies investigating carer mental health outcomes in the context of HIV in Malawi and South Africa. The objective of this study was to assess the mental health of carers of children affected by HIV as a part of the Child Community Care study, which aims to generate evidence on the effectiveness of community-based organisation (CBO) services to improve child outcomes. In a cross sectional study, we interviewed 952 carers of children (aged 4 to 13 years) attending 28 randomly selected CBOs funded by 11 major donors in South Africa and Malawi. Psychological morbidity was measured using the Shona Symptom Questionnaire (SSQ) and suicidal ideation was measured using an item from the Patient Health Questionnaire (PHQ). Carers were asked about care-seeking for emotional problems. Overall, 28% of carers scored above the clinical cut-off for current psychological morbidity and 12.2% reported suicidal ideation. We used logistic regression models to test factors associated with poor outcomes. Household unemployment, living with a sick family member, and perceived lack of support from the community were associated with both psychological morbidity and suicidal ideation in carers. Reported child food insecurity was also associated with psychological morbidity. In addition, carers living in South Africa were more likely to present with psychological morbidity and suicidal ideation than carers in Malawi. Rates of help-seeking for mental health problems were low. Carers of children affected by HIV are at risk for mental health

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problems as a result of HIV, socio-economic, care-giving and community factors. We call for increased recognition of the potential role of CBOs in providing mental health care and support for families as a means to improve equity in mental health care. Specifically, we highlight the need for increased training and supervision of staff at CBOs for children affected by HIV, and the inclusion of CBOs in broader efforts to improve population mental health outcomes.

Keywords

Children; HIV/AIDS; mental health; community; caregiving

Introduction

The psychological impact of HIV is felt not only by those who are infected, but by their relatives, household and community members, especially in conditions of poverty. People living in poverty are more likely to develop mental health problems due to factors such as increased levels of stress, malnutrition, higher levels of ill-health and exposure to violence (Patel & Kleinman 2003). Those with mental health problems are more likely to slide into poverty due to stigma and exclusion from social and economic opportunities, the high cost of accessing treatment, or the loss of employment due to diminished productivity (Saraceno, Levav, & Kohn, 2005). The added impact of HIV on this relationship is likely to have a profound effect on well-being. People with mental health problems are at greater risk for contracting HIV. HIV infection is associated with a number of negative physiological and psychological effects, related to disease progression, side effects of medication, social stressors and the financial burden of being ill, all of which can have an effect on the mental health of individuals with the disease (Kagotho & Ssewamala, 2012). Having the disease can exhaust family financial resources, through job loss or reduced productivity due to illness, the expenses associated with accessing health care, and the high cost of funerals (Thomas, 2006). Families living in communities with high HIV prevalence often have heavy care-giving responsibilities, for sick family members and orphaned and vulnerable children (Casale, Wild, Cluver, & Kuo, 2013). On the other hand, protective factors that promote good mental health outcomes in the context of HIV include strong family support networks and having cash savings (Kagotho & Ssewamala, 2012; Simbayi et al., 2007).

HIV has been linked with depression, post-traumatic stress disorder and suicidal behaviour in a range of contexts (Catalan et al., 2011; Sherr, Clucas, Harding, Sibley, & Catalan, 2011; Sherr et al., 2011), however there have been few studies investigating this relationship in Malawi and South Africa, where adult HIV prevalence is 10.8% and 17.9% respectively (UNAIDS, 2012). In Malawi, studies of mothers with infants attending clinics for vaccination reported a prevalence of any current depressive episode at 30.4%, with poor mental health outcomes associated with HIV infection, low socio-economic status, recent child illness and other factors (Stewart et al., 2010). Further, Malawian mothers whose children were receiving acute care for severe malnutrition showed extremely high levels of psychiatric morbidity at 70.9%, with 15.6% reporting suicidal ideation. These high levels of distress were associated with child HIV, current child diarrhoea, and previous child death (Stewart et al., 2011). In South Africa, studies of HIV positive people accessing HIV

services have shown depression rates varying from 14 to 43% (Freeman, Nkomo, Kafaar, & Kelly, 2007; Hughes, Jelsma, Maclean, Darder, & Tinise, 2004; Myer et al., 2008). and poor mental health outcomes have been found in carers of both children and adults with HIV (Kuo & Operario, 2011; Nyirenda, Chatterji, Rochat, Mutevedzi, & Newell, 2013). Access to mental health care in both countries is limited. The only nationally representative survey of mental health in South Africa revealed that only 28% of people with severe mental disorders had received treatment (Williams et al., 2008). In Malawi, as in many low and middle income countries (LMIC), mental health care is delivered primarily through centralised mental hospitals making it largely inaccessible (Kauye et al., 2011).

The emerging evidence suggests that caring for children affected by HIV/AIDS in a context of poverty places carers at risk of developing depression and other mental health problems, and that accessing mental health services may be difficult. This is likely to have a profound impact on the well-being of carers and the children in their care (Casale et al., 2013; Smith Fawzi et al., 2012). Poor maternal mental health outcomes are associated with under-nutrition (with mixed outcomes in different countries) (Medhin et al., 2010), poor cognitive development (Servili et al., 2010), delayed initiation of breastfeeding (Hanlon et al., 2009), and child mortality (Deyessa et al., 2010).

Child carers of HIV-sick adults show increased depression, anxiety, and posttraumatic stress symptoms that persist over time (Cluver, Orkin, Boyes, Gardner, & Nikelo, 2012), yet there are few studies on the mental health burden of adult carers. There is a need for studies that examine the prevalence of mental health problems in carers of HIV-affected children, and the correlates of these conditions among this population (Kagotho & Ssewamala, 2012) so that services can be adequately and accurately targeted to improve both child and carer well-being. The aim of this study was to examine the mental health of the primary carers of children affected by HIV, who attend community-based organisation (CBO) programmes in South Africa and Malawi.

Methodology

The study was conducted with ethical approval from the Institutional Review Board at University College London (reference number 1478/002) and the Health Research Ethics Committee at Stellenbosch University (reference number N10/04/112).

Sample selection

Study partners (UNICEF, Save the Children, Firelight Foundation, Bernard van Leer Foundation, World Vision, REPSSI, Comic Relief, Stop AIDS Now, AIDS Alliance, Help Age, Diana Memorial Fund) provided researchers with a list of all funded CBO programmes that were providing a service to children between 4 and 13 years of age and were functioning at a sufficient level to permit the hosting of a team of data collectors over a 2–3 day period. This resulted in a list of 588 CBOs (524 in South African and 64 in Malawi). Programmes were stratified by partner and geographical location and 28 were randomly selected for inclusion in the study (24 in South Africa and 4 in Malawi). At each organisation, researchers aimed to recruit a consecutive sample of 40 children attending the programme.

Measures

Children and their primary carers were interviewed separately by trained data collectors using mobile phone technology, after full study information was provided and informed consent processes (assent in the case of children) were completed. Carers provided information on their socio-demographic status, including items on income, education, housing, self and household employment, as well as recent household illness and death. Child and carer HIV status was established based on parental report. Carer mental health was measured using the Shona Symptom Questionnaire (SSQ) (Patel, Simunyu, Gwanzura, Lewis, & Mann, 1997) and the Patient Health Questionnaire (PHQ) (Kroenke, Spitzer, & Williams, 2001). The SSQ is a 14 item scale, with a cut-off for psychological morbidity of 8 and over. Suicidal ideation was measured using one item from the PHQ, namely “*Over the past two weeks, how often have you had thoughts that you would be better off dead, or of hurting yourself?*”. Participants were asked if they had sought help from any source for mental and emotional problems during the past year. Carers were also asked about levels of support for children affected by HIV/AIDS from the community. Carer exposure to violence was measured using an item from the South African DHS survey, described by Snider (2006). Carers also completed measures relating to their children, including items on food and nutrition and school functioning from the Child Status Index (Nyangara et al, 2008). Children completed an adapted version of the Child Depression Inventory (Kovacs, 1992), which has been recently used in South Africa (Cluver, Gardner, & Operario, 2007; Mueller, Alie, Jonas, Brown, & Sherr, 2011).

Data analysis

After descriptive analyses, we used logistic regression models to test for a range of factors associated with carers scoring above the clinical cut-off for psychological morbidity and experiencing suicidal ideation. Potential predictors were demographics (age, gender, country of residence), socio-economic factors (employment, housing conditions), health status (HIV burden, other illnesses and loss in the household), exposure to violence at home, perceptions of stigma in the community, and child psychosocial outcomes. In multivariate analyses we explored the independent effects of all these variables. Adjusted odd ratios (OR) and 95% confidence intervals (CI) are presented, with a significance level of $p < 0.05$. Analyses were carried out using SPSS 20.0 (IBM, Chicago, IL, USA).

Results

In total, we interviewed 979 children and their carers as part of the study. Initially, 996 carer-child pairs were approached to take part in the study. Of these, 7 carer-child pairs did not consent (0.7% refusal rate). We omitted 10 carer-child pairs from the analysis for this study due to missing child-report data. There were 27 carers who were interviewed for more than one of their children, resulting in a final sample size of 979 children and 952 carers.

Of this group, 903 (94.9%) of the carers were female and 797 (83.7%) lived in South Africa. HIV burden in the household was high, with 33.8% ($n=322$) reporting that someone in the household had HIV. Of the total, 19.4% ($n=185$) of carers reported being HIV positive themselves and 14.4% ($n=137$) reported living with someone else with HIV. Only 53.8%

(n=512) reported that someone in the household was employed, and 27.2% (n=259) reported food insecurity. About a fifth (21.5% n=205) overall had a household member sick for more than three months in the preceding year and 273 (28.7%) had experienced a death in the household in the preceding 24 months. (Table 1).

Levels of psychological morbidity were high, with 28% of carers in the study scoring above the clinical cut-off, indicating the presence of a current mental health problem in the past week and 12.2% reported suicidal ideation in the past 2 weeks. Co-morbidity was examined. Of the total sample, 8.5% met the threshold for both mental health disorders and suicidal ideation, while 19.5% scored above the clinical cut-off on the SSQ but did not report suicidal ideation, and 3.7% reported suicidal ideation only.

As seen in Figure 1, being HIV positive or living with someone HIV positive was associated with poor mental health outcomes. Prevalence of psychological morbidity was higher in HIV positive carers (34.6%) and carers living with someone with HIV (32.8%), compared to carers living in HIV-free households (25.1%) ($X^2(2) = 8.24, p=0.016$). Prevalence of suicide ideation was also higher among HIV positive carers (15.1%) and carers living with someone with HIV (13.9%) compared to carers living in HIV-free households (11%), but this difference did not reach statistical significance.

We used logistic regression models to test factors associated with scoring above the clinical cut-off for psychological morbidity and having suicidal ideation (Table 2). Carers living in Malawi were less likely to meet the threshold for mental health disorders compared to those living in South Africa (19.4% vs. 29.7%, Adjusted OR: 0.30, 95% CI: 0.17–0.52, $p<0.0001$), and were less likely to have suicidal ideation compared to those in South Africa (10.3% vs. 12.5%, Adjusted OR: 0.44, 95% CI: 0.21–0.91), $p=0.028$). Carers who lived in households where no one was employed were more likely to score above the clinical cutoff (31.1% vs. 25.4%, Adjusted OR: 1.57, 95% CI: 1.13–2.18), $p=0.008$ and to report suicidal ideation (15.7% vs. 9.2%, Adjusted OR: 2.23, 95% CI: 1.41–3.55, $p=0.001$) compared to those who lived in households where someone was employed. Carers who lived with a sick family member were more likely to meet the threshold for common mental health disorders (38% vs. 25.3%, Adjusted OR: 1.65, 95% CI: 1.16–2.36), $p<0.0001$ and to report suicidal ideation (19% vs. 10.3%, Adjusted OR: 1.68, 95% CI: 1.06–2.65, $p=0.027$) than those who lived in households with no one sick in the past year. Carers reporting low perceived community support for people with HIV were more likely to have current mental health problems ($M=0.25, SD=0.66$ vs. $M=0.10, SD=0.43$, Adjusted OR: 1.60, 95% CI: 1.23–2.09, $p<0.0001$), and were also more likely to report suicidal ideation ($M=0.30, SD=0.71$ vs. $M=0.12, SD=0.47$, Adjusted OR: 1.64, 95% CI: 1.21–2.23, $p=0.002$). Carers who reported their child had insufficient food were more likely to score above the clinical cut-off for mental health problems compared to those who reported their child to be food secure (29.3% vs. 27.6%, Adjusted OR: 1.82, 95% CI: 1.20–2.77, $p=0.005$). Carers living in poor housing conditions were more likely to report suicidal ideation compared to those living in dry and comfortable houses (15% vs. 10.2%, Adjusted OR: 1.55, 95% CI: 1.03–2.34, $p=0.036$).

Approximately one third of all participants (35.9%) had sought help for mental or emotional distress in the past year. Nearly two-thirds (59.6%) of participants above the SSQ cut-off,

and 68.1% of participants with suicidal ideation had sought care. On the other hand, 26.8% of participants who did not reach the threshold for psychological morbidity reported having sought help (Table 3).

Discussion

In this study, we found that mental health problems and suicidal ideation were common in carers of children affected by HIV/AIDS in different community settings across two Southern African countries. Most studies of adult mental health in the context of HIV/AIDS have taken place in clinic settings and have looked specifically at the links between HIV infection or disease progression and mental health outcomes. However, these data show that people in families affected by HIV are exposed to a range of other risks for poor mental health, besides their own HIV status. These cluster of factors include unemployment, hunger, violence, household illness and stigma. In this study, we found higher rates of mental health problems both in people with HIV/AIDS and those living with someone else living with HIV. Our findings suggest that in addition to HIV status, socioeconomic factors play a key role in affecting carer mental health, which is compounded by the burden of caregiving for sick family members, and the existence of community level HIV stigma. Our study feeds into a growing body of research on the prevalence and risk factors for poor mental health in Southern Africa. Previous studies have also found that caregiving is associated with elevated mental health problems in both young and adult carers (Casale et al., 2013; Kuo & Operario, 2011; Kuo, Reddy, Operario, Cluver, & Stein, 2013).

We found that carers in Malawi were less likely to score above clinical cut-off for mental disorders than those in South Africa. South Africa may have higher rates of mental health problems than many other African countries, but the reasons for this are uncertain (Herman et al., 2009). South Africa has a traumatic history, with high levels of abuse perpetuated by the apartheid government on a national scale. There is ongoing poverty, inequality and elevated levels of unemployment in the country, all of which have mental health effects (Lund, Kleintjes, Kakuma, & Flisher, 2010). Substance use is common, with extremely high levels of misuse of alcohol (Scott-Sheldon et al., 2012) and rising use of methamphetamine (Plüddemann, Flisher, McKetin, Parry, & Lombard, 2010), but this was not tracked in our study. In addition, violence and injury account for a heavy burden of disease in the country (Seedat, Van Niekerk, Jewkes, Suffla, & Ratele, 2009). In our study, over a quarter of people who did not present with any mental health problems in the study reported seeking help for emotional distress, and this may be related to high levels of exposure to some of these risk factors. Relatively high levels of care-seeking in the absence of clinical disorder have been noted in a South African population before, with 13.4% of people without a diagnosis having sought mental health care in a nationally representative epidemiological study (Seedat et al., 2009).

In this community-based study we note that there are relatively low rates of reported help-seeking for mental health problems. This appears to suggest that while carers are in contact with CBOs, they are not identifying them as potential sources of support and care for mental health problems, and CBOs may not be detecting and recognising the burden of mental health problems among the carers of children that they serve. The World Mental Health

surveys found that up to 85% of people with serious mental disorders and 87% of people with suicidal ideation in LMIC were not seeking or receiving mental health care of any kind (Bruffaerts et al., 2011; Demyttenaere et al., 2004). This has been attributed to stigma, poor mental health knowledge (Gulliver, Griffiths, & Christensen, 2010) and a lack of mental health professionals and availability of services in LMIC settings. Poor recognition of depression in community health settings is of particular concern in LMIC (Saxena, Thornicroft, Knapp, & Whiteford, 2007), and as a result the integration of screening for mental disorders into primary health care is a global mental health priority (Collins et al., 2011). In Malawi, a recent study of primary care centre users recently showed that detection of depression by health care workers was extremely low (Kauye, Jenkins, & Rahman, 2013).

Mental health is increasingly being recognised as a global public health priority and WHO's recent *Mental Health Action Plan 2013–2020* recommends a number of actions to address the existing treatment gap, including capacitating non-specialised health professionals to provide mental health services, especially at primary care level (World Health Organization, 2013). International efforts to improve health outcomes require targeted focus on addressing health inequities, or risk leaving behind the most vulnerable groups (Victoria et al., 2003). Engaging CBOs in the provision of mental health care and support services for families is central to promoting equity in mental health. By their nature, CBOs are more likely to be able to connect with marginalised and isolated community members, in the context of their homes, not just in healthcare settings (Selke et al., 2010). This study has shown that CBOs are already engaging with and providing some form of care for families who are experiencing mental health problems.

A number of studies have shown that training and supporting generalist health professionals and community health workers to deliver interventions can result in positive mental health outcomes (Van Ginneken et al., 2011). In addition, community based interventions targeting caregivers with maternal depression can improve child development outcomes (Tomlinson et al., in preparation). Community-level workers have been successfully involved in a range of functions in the delivery of mental health care in various settings (Kakuma et al., 2011) and CBO funders should invest in developing and adapting existing capacity development programmes in this area. Specifically, in the context of CBO programmes for children affected by HIV, CBO workers could be involved in screening and referral of adults and children with mental health problems to health services, as well as the follow up of people requiring support in the community.

Limitations

This study was conducted within community-based organisations, and the sample was thus not necessarily representative of the broader communities in which the study took place. It is possible that there are higher rates of poor mental health in this group compared with the community at large, as vulnerable carers may have sought extra help from CBOs, or been selected by CBOs to engage in their programmes. The data is cross sectional and causal inferences cannot therefore be drawn. Longitudinal data will be collected as part of the ongoing study. HIV status is confined to self report and was not confirmed with laboratory testing. Underreporting due to lack of testing as well as stigma may be an issue. Despite

these limitations, the robust sample provides useful information for future programme planning and policy.

Conclusion

Our study adds to the literature on mental health outcomes in adult carers of children affected by HIV/AIDS in communities across southern Africa. The predictors of poor mental health are linked to HIV infection, but also to socio-economic outcomes, caregiving and lack of community support. This provides important evidence for inclusion of CBO projects into broader efforts to improve population mental health.

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Figure 1.
SSQ scores and suicidal ideation according to HIV status.

Table 1
Demographic information for carers above and below the SSQ clinical cut-off and for those with or without suicidal ideation

	SSQ scores		Suicidal ideation		P value
	> cut-off (n=267)	< cut-off (n=685)	'yes' (n=116)	'no' (n=836)	
Age (n=950)	M=43.8 (SD=14.4)	M=43.3 (SD=15.2)	M=42.5 (SD=13.9)	M=43.6 (SD=15.1)	n.s.
Country					
South Africa (n=797)	237 (29.7)	560 (70.3)	100 (12.5)	697 (87.5)	n.s.
Malawi (n=155)	30 (19.4)	125 (80.6)	16 (10.3)	139 (89.7)	
Gender					
Male (n=49)	8 (16.3)	41 (83.7)	4 (8.2)	45 (91.8)	n.s.
Female (n=903)	259 (28.7)	644 (71.3)	112 (12.4)	791 (87.6)	
Employed					
Yes (n=162)	39 (24.1)	123 (75.9)	16 (9.9)	146 (90.1)	n.s.
No (n=790)	228 (28.9)	562 (71.1)	100 (12.7)	690 (87.3)	
Household employment					
Anyone employed (n=512)	130 (25.4)	382 (74.6)	47 (9.2)	465 (90.8)	0.003
No-one employed (n=430)	137 (31.1)	303 (68.9)	69 (15.7)	371 (84.3)	
HIV burden in household					
HIV positive carer (n=185)	64 (34.6)	121 (65.4)	28 (15.1)	157 (84.9)	n.s.
Other HIV positive (n=137)	45 (32.8)	92 (67.2)	19 (13.9)	118 (86.1)	
No-one HIV positive (n=630)	158 (25.1)	472 (74.9)	69 (11.0)	561 (89.0)	
Household sickness					
Yes (n=205)	78 (38.0)	127 (62.0)	39 (19.0)	166 (81.0)	0.002
No (n=747)	189 (25.3)	558 (74.7)	77 (10.3)	670 (89.7)	
Loss family member					
Yes (n=273)	83 (30.4)	190 (69.6)	45 (16.5)	228 (83.5)	0.01
No (n=679)	184 (27.1)	495 (72.9)	71 (10.5)	608 (89.5)	
Household food security					
Food secure (n=693)	191 (27.6)	502 (72.4)	81 (11.7)	612 (88.3)	n.s.
Food insecure (n=259)	76 (29.3)	183 (70.7)	35 (13.5)	224 (86.5)	
Comfortable home					

Note: All p values are associated with chi-square tests and t -tests

Table 2
Logistic regression models testing predictors of mental health disorders and suicidal ideation in caregivers

	SSQ above clinical cut-off				Suicidal ideation			
	Univariate		Multivariate ^a		Univariate		Multivariate ^b	
	Unadjusted %	Unadjusted OR (95% CI)	Adjusted OR (95% CI)		Unadjusted %	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	
<i>All (n=952)</i>	28.0				12.2			
Age in years (n=950)	M=43.8 (SD=14.4)	1.00 (0.99–1.01)	1.01 (1.00–1.02)		M=42.8 (SD=14.0)	1.00 (0.98–1.01)	1.00 (0.98–1.01)	
Gender								
Female (n=903)	28.7	Reference	Reference		12.4	Reference	Reference	
Male (n=49)	16.3	0.49 (0.22–1.05)	0.51 (0.23–1.12)		8.2	0.63 (0.22–1.78)	0.60 (0.20–1.76)	
Country								
South Africa (n=797)	29.7	Reference	Reference		12.5	Reference	Reference	
Malawi (n=155)	19.4	0.57 (0.37–0.87)**	0.30 (0.17–0.52)***		10.3	0.80 (0.46–1.40)	0.44 (0.21–0.91)*	
Work status								
Working (n=162)	24.1	Reference	Reference		9.9	Reference	Reference	
Not working (n=790)	28.9	1.28 (0.87–1.89)	1.01 (0.71–1.69)		12.7	1.32 (0.76–2.31)	1.07 (0.57–1.99)	
Comfortable home								
Yes (n=558)	26.9	Reference	Reference		10.2	Reference	Reference	
No (n=394)	29.7	1.15 (0.86–1.53)	1.24 (0.92–1.68)		15.0	1.55 (1.05–2.29)*	1.55 (1.03–2.34)*	
Employment in HH								
Anyone employed (n=512)	25.4	Reference	Reference		9.2	Reference	Reference	
No one employed (n=430)	31.1	1.33 (1.00–1.76)*	1.57 (1.13–2.18)**		15.7	1.84 (1.24–2.73)**	2.23 (1.41–3.55)**	
HIV burden in HH								
No one HIV+ve (n=630)	25.1	Reference	Reference		11.0	Reference	Reference	
HIV+ve carer (n=185)	34.6	1.58 (1.11–2.25)**	1.42 (0.97–2.07)		15.1	1.45 (0.90–2.33)	1.20 (0.68–2.13)	
Other HIV+ve (n=137)	32.8	1.46 (0.98–2.17)	1.33 (0.87–2.02)		13.9	1.31 (0.76–2.59)	1.15 (0.69–1.91)	
HH sickness								
No (n=747)	25.3	Reference	Reference		10.3	Reference	Reference	
Yes (n=205)	38.0	1.81 (1.31–2.51)***	1.65 (1.16–2.36)**		19.0	2.04 (1.34–3.12)**	1.68 (1.06–2.65)*	

	SSQ above clinical cut-off				Suicidal ideation			
	Univariate		Multivariate ^a		Univariate		Multivariate ^b	
	Unadjusted %	Unadjusted OR (95% CI)	Adjusted OR (95% CI)		Unadjusted %	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	
HH loss								
No (n=679)	27.1	Reference	Reference		10.5	Reference	Reference	
Yes (n=273)	30.4	1.18 (0.86–1.60)	1.00 (0.72–1.39)		16.5	1.69 (1.13–2.53)**	1.48 (0.96–2.28)	
HH violence								
No (n=883)	27.2	Reference	Reference		11.6	Reference	Reference	
Yes (n=69)	39.1	1.72 (1.04–2.86)*	1.46 (0.85–2.50)		20.3	1.95 (1.05–3.63)*	1.69 (0.87–3.28)	
Stigma (n=952)	M=0.25 (SD=0.66)	1.65 (1.28–2.12)***	1.60 (1.23–2.09)***		M=0.30 (SD=0.71)	1.68 (1.26–2.25)***	1.64 (1.21–2.23)**	
Child food security								
Sufficient food (n=716)	27.6	Reference	Reference		11.7	Reference	Reference	
Insufficient food (n=263)	29.3	1.09 (0.80–1.50)	1.82 (1.20–2.77)**		13.5	1.28 (0.77–1.81)	1.37 (0.78–2.39)	
Child hunger last night								
Not hungry (n=827)	28.3	Reference	Reference		11.4	Reference	Reference	
Hungry (n=125)	26.4	0.91 (0.59–1.39)	0.81 (0.51–1.28)		17.6	1.67 (1.00–2.77)*	1.43 (0.83–2.48)	
Child depression (n=705)	M=1.01 (SD=1.40)	1.03 (0.92–1.14)	--		M=1.04 (SD=1.41)	1.04 (0.90–1.19)	--	
Performance at school								
Better/equal (n=765)	27.1	Reference	--		10.7	Reference	--	
Struggles (n=151)	32.5	1.30 (0.89–1.89)	--		20.5	2.15 (1.36–3.40)***	--	

Adjusted OR: Odds ratios adjusted for all variables (except those with smaller Ns: CDI score and school performance); CI: Confidence interval.

* Significant at p<0.05,

** Significant at p<0.01,

*** Significant at p<0.0001.

Child depression was assessed using the CDI measure which has been validated for children above 7 years, thus n=705.

^a N=950, $\chi^2(14)=63.45$, $p<0.0001$, Nagelkerke $R^2=0.093$,

^b N=950, $\chi^2(14)=50.05$, $p<0.0001$, Nagelkerke $R^2=0.098$.

Table 3

Association between carers' mental health problems and care seeking

	Sought mental health care (n=342)	Did not seek mental health care (n=610)
SSQ above cut-off (n=267)	159 (59.6%)	108 (40.4%)
SSQ below cut-off (n=685)	183 (26.7%)	502 (73.3%)
Suicidal ideation (n=116)	79 (68.1%)	37 (31.9%)
No suicidal ideation (n=836)	263 (31.5%)	573 (68.5%)