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Family Economic Empowerment and Mental Health Among AIDS-Affected Children Living in AIDS-Impacted Communities: Evidence from a Randomized Evaluation in Southwestern Uganda

Chang-Keun Han, Ph.D.,

Department of Social Welfare, Sungkyunkwan University, Jongnogu Myeongnyundong 3ga 53, 110-745, South Korea, chkhan@skku.edu, Tel: 82-2-760-0613, Fax: 82-2-760-0630

Fred M. Ssewamala, PhD., and

Columbia University, School of Social Work, 1255 Amsterdam Avenue, Office 1122, New York, NY 10027, USA, Tel: 212-851-2250, fs2114@columbia.edu

Julia Shu-Huah Wang, MSW

Columbia University, School of Social Work, 1255 Amsterdam Avenue, Office 1121, New York, NY 10027, USA, jw2674@columbia.edu

Abstract

OBJECTIVE—We examine whether an innovative family economic empowerment intervention addresses mental health functioning of AIDS-affected children in communities heavily impacted by HIV/AIDS in Uganda.

METHODS—A cluster randomized controlled trial (RCT) consisting of two study arms: a treatment condition (n=179) and a control condition (n=118) was used to examine the impact of the family economic empowerment intervention on children's levels of hopelessness and depression. The intervention comprised of matched children savings accounts, financial management workshops, and mentorship. Data were collected at baseline and 12 months post-intervention.

Request for Reprints should be sent to Fred M. Ssewamala, Associate Professor, Columbia University School of Social Work, 1255 Amsterdam Avenue, New York, NY 10025 (fs2114@columbia.edu).

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Competing interests

None to declare.

Ethics approval

The work was conducted with the approval of Columbia University's Morningside Institutional Review Board (AAAD2525) and Uganda National Council of Science and Technology (ref SS 1540).

Contributorship Statement

Han Chung Keun, Sungkyunkwan University

Fred M. Ssewamala, Columbia University

Julia Shu-Huah Wang, Columbia University

Fred M. Ssewamala conceived of the study, obtained funding for the study, supervised all aspects of the study design and implementation, including data collection, data entry, cleaning, and analysis. Chung-Keun Han led data analysis and was involved in interpretation of the study findings. Julia Shu-Huah Wang was involved in literature reviews, assisted with data cleaning, and the review and formatting of the drafts of the manuscript. All authors contributed equally in the writing of the final manuscript, including interpretation of the study findings for intellectual content.

RESULTS—Using multivariate analysis with several socio-economic controls, we find that children in the treatment condition (receiving the intervention) report significant improvement in their mental health functioning. Specifically, the intervention reduces hopelessness and depression levels. On the other hand, children in the control condition (not receiving the intervention) report no changes on both measures.

CONCLUSIONS—The findings indicate that children with poor mental health functioning living in communities affected by HIV/AIDS may benefit from innovative family economic empowerment interventions. As measures of mental health functioning, both hopelessness and depression have long-term negative psychosocial and developmental impacts on children. These findings have implications for public health programs intended for long-term care and support of children living in resource poor, AIDS-impacted communities.

BACKGROUND

Losing a parent is a critical life event. It negatively influences child development. Children who lose their parents to HIV/AIDS (*hereafter* AIDS-orphans) are more likely to experience lasting and persistent psychological distress (e.g., hopelessness, depression, anxiety, and post-traumatic stress disorder) than their non-orphan counterparts or children orphaned from other causes.[1–4] For example, Cluver and Gardner found that among orphaned children in urban communities in South Africa, AIDS-orphans were more likely to report symptoms of depression than both non-orphans and children orphaned by other causes.[5] Watching their parents go from normal functioning individuals – normally with youthful energy and optimism – to chronic sickness from a highly stigmatized disease (AIDS), and then eventually dying, negatively impacts the surviving children. These children tend to react to the death of their parent(s) with a sense of despair. They lose hope in the future – partly because of unstable economic means for survival, on top of living in very poor-resourced communities. This may lead to surviving children engaging in high-risk behaviors intended for immediate gratification, including sexual promiscuity and substance abuse.[6–8] Moreover, feeling hopeless may be a concomitant and long-term predictor of suicidal ideation, intent, and behavior.[9–13]

Interventions of therapeutic counseling are popular for orphans and their families, especially in poor communities. Counseling may be provided by civil society (including religious institutions) within a family setting or an institution. However, psychological support alone might not be enough to address the psychosocial and economic challenges of orphanhood. [14–15] Theory and empirical studies indicate that when poor children and their families perceive that they have concrete financial resources for future development, they may view a brighter future.[14,16–20] On the other hand, poverty suppresses a sense of hope among children, especially those with no parents.

Using data from a randomized controlled trial (registered in the [Clinicaltrials.gov](https://clinicaltrials.gov) database [ID # NCT01180114]), we examine the extent to which a family economic empowerment intervention comprising of a matched child savings accounts, financial management workshops and mentorship – over and above psychological counseling – may impact AIDS-affected children’s mental health functioning. This study is important because it may contribute to our understanding of the extent to which innovative programming, for example using a family economic empowerment approach in poor resource communities, may influence the psychosocial functioning of AIDS-affected children, a vulnerable population.

METHODS

The Intervention: Suubi-Maka

This paper uses data from the first two waves of a 4-year study called Suubi-Maka (2008–2012). Suubi-Maka (meaning “hope for families” in Luganda, a commonly spoken language in Uganda) was funded by the National Institutes of Mental Health (NIMH; grant RMH081763). The goal of the study was to develop and examine a family economic empowerment intervention that creates economic opportunities for poor families caring for AIDS-orphans in Ugandan communities. The intervention has three key components: 1) promoting monetary savings for educational opportunities. Education has been shown to be a protective factor for mental health and psychosocial functioning of children operating both directly and indirectly through access to services;[21] 2) financial management workshops and family-level income generating projects believed to enhance economic stability and reduce poverty; and 3) providing adult mentors to children. An ongoing caring relationship with an adult is one of the most important sources for resilience in children and can protect their mental health when they experience stress, hopelessness, and adversity.[22–24]

Children in Suubi-Maka (also known as the treatment condition) received a matched child savings account (CSA), ten 1–2 hour training sessions on career planning and financial management—including how to save money; plus an average of one mentorship meeting per month during the 12-month intervention period. This was in addition to usual care—described below.

Children in the control condition received usual care consisting of counseling and mentorship, food aid (specifically school lunches), and scholastic materials (including text books, notebooks and the required school uniforms).

Data and sample

Suubi-Maka used a two-arm cluster randomized controlled trial. The two study arms were: (1) the treatment condition (also known as Suubi-Maka) and (2) the control condition (also known as Usual Care—described earlier). Participants (N=297) were AIDS-orphans in the last two years of primary school (ages 12 to 14). Specifically, this paper is based on the first two waves of data, baseline (pre-intervention [wave 1]) and 12-month post-intervention (wave 2). Due to attrition, the final sample at post-intervention follow-up (Wave 2) is 270.

Children were selected from 10 comparable primary schools in Rakai and Masaka Districts of southwestern Uganda—a community heavily affected by HIV/AIDS. Specifically, all selected schools were semi-urban public schools. The schools were balanced on academic performance (on the government-administered primary leaving examinations [PLE]). PLE is a national examination used as the qualification for admission to secondary school (the equivalent of high school in the U.S. education system). We selected schools that were at a comparable level of performance based on the previous three years of PLE grades (prior to study initiation) and invited their participation.

Each of the 10 schools was randomly assigned to one of the two study conditions: Suubi-Maka (n=5 schools, 179 children) or Usual Care (n=5 schools, 118 children). All selected children from a particular school received the same intervention. This was intended to address issues of potential contamination. In the analysis, we adjust for clustering of individuals within schools.

The study received IRB approval from Columbia University (IRB-AAAD2525) and Uganda National Council of Science and Technology (ref SS 1540). Data were collected using surveys administered by trained Ugandan interviewers. All measures were translated from

English to the local Luganda language, and back translated to ensure accuracy. The Principal Investigator and all the in-country research staff were fluent in the local Luganda language.

Measures

The current study uses two outcome measures of child mental health functioning: 1) hopelessness and 2) depression.

Child hopelessness is measured by the Beck Hopeless Scale (BHS) with 20 items which has true/false responses (e.g., “*I look forward to the future with hope and enthusiasm*”, “*My future seems dark*”, and “*I don’t expect to get what I really want*”). Items with positive wording are reverse coded to create a summated score with higher scores meaning a higher level of hopelessness. Internal consistency (Cronbach’s α) of the BHS is moderate (.6605 at baseline and .6726 at post-intervention follow-up).

Child depression, measured by Child Depression Inventory (CDI), has 27 questions with 3-response categories (e.g. “*I am sad once in a while*”, “*I am sad many times*, and “*I am sad all the time*”). A child is asked to mark a sentence that best describes the way he/she has been in the last two weeks. Similar to the hopelessness measure, the CDI questions with positive wording were reverse-coded and summed to create a score. The high score of the summated CDI score indicates higher levels of depression. Cronbach’s α at waves 1 and 2 is .6285 and .6943, respectively. The internal consistency of CDI in this study is comparable with previous studies in African countries.[25–27]

A key independent variable in this study is participation in the treatment arm (the Suubi-Maka program). This variable is dichotomized as “no” (for membership in control arm) and “yes” (for membership in treatment arm).

We include several covariates in the analysis: 1) A family relations measure to control for the relationship between the intervention and child outcomes. The measure (family relations) has 6 items. Each item consists of 5 response points (*Never, rarely, sometimes, most of the time, and always*). A reliability test found the 6 items to have an acceptable level of internal consistency (Cronbach’s α = .74). 2) Other control variables include child’s age and gender, guardian’s age and gender, duration of child living with current guardian (in years), household size, orphanhood status (double orphan – both biological parents died vs. single orphan), and child’s physical health (poor to fair or good to excellent). The analysis used the covariates measured at baseline. In addition, we include measures of hopelessness and depression at wave 1.

Analytical procedure

First, we analyze socioeconomic backgrounds of the study participants at baseline. We present the means and frequencies in Table 1. Second, we examine whether the two study arms differ on key socioeconomic characteristics, hopelessness, and depression. We use independent t-tests for continuous variables (e.g., child’s and guardian’s age, duration of child living with current guardian, household size, family relationship, hopelessness, and depression). For categorical variables (e.g., child’s and guardian’s gender, orphanhood status –double vs. single, and child’s physical health), we use cross tabulation to test the observable differences between the two study arms. Last, we employ multivariate regression models to examine the intervention impact on hopelessness and depression of AIDS-orphans controlling for the covariates.

RESULTS

Descriptive and bivariate analysis findings

Average age for the participating children is 13.39 years. That of their primary guardian is 46.31 years. A majority of children (64.98%) and guardians (79.38%) is female. The average duration of child living with the current guardian is 9.7 years. The average household size is 6.44. About 70% of children reported being in good or excellent health. Twenty-seven percent of all children are double orphans. Overall, children rate their family relations to be high. Specifically, on a family relations summated score ranging from 6 to 30 points, the reported mean is 25.92. This is a high score, indicating good family relations between the children and their guardians.

The two study groups do not differ on child's age, gender, and physical health. They also do not differ on guardian's gender, duration of child living with current guardian, household size, and family relations. However, there are a few reported differences at baseline: compared to children in the treatment condition, children in the control condition are likely to have older guardians (49.79 years vs. 44.01 years) and to report double orphanhood status (33.90% vs. 22.91%). We cannot determine with certainty how these differences may impact the observable outcomes regarding hopelessness and depression. For example, having a relatively older caregiver (as is the case with control condition children) may signify living within a more financially stable household compared to a relatively younger guardian. On the other hand, reporting higher numbers of double orphanhood status (as, again, is the case with control condition children) may be an indication of economic vulnerability. We do control for these observable differences in the regression models.

At baseline, the two study groups reported similar scores on hopelessness and depression with no significant differences. However, following the intervention (at 12-month follow-up) children in the treatment condition reported significantly lower scores on the hopelessness and depression measures. Specifically, the level of hopelessness among treatment condition children decreased from 5.59 points (baseline) to 3.28 points (at 12-month follow-up). The 2.31 point-reduction in hopelessness is a huge reduction in the positive direction—signifying a huge improvement in the level of hopefulness among children in the treatment condition.

In regards to depression, both study arms reported a reduction in depression levels between baseline and 12-month follow-up. However, the reduction was greater, in proportion, among treatment condition children, reporting almost a 5 point-reduction in depression scores (from 13.06 to 8.42), compared to their counterparts in the control condition with a 2.66 reduction (from 13.24 to 10.58) (See Table 1).

Multivariate analysis findings

Model 1 (Table 2) tests whether participation in the Suubi-Maka program influences hopelessness among AIDS-orphans. Controlling for socioeconomic characteristics of children and their guardians, children in the treatment condition are likely to show lower levels of hopelessness than their counterparts in the control condition. The other key finding is that gender of a child is significantly associated with hopelessness. Girls report higher levels of hopelessness than their male counterparts. This finding calls for further investigation in regards to the impact of family economic empowerment programs on girls' levels of hopelessness. What could be the explanation behind the observable differences between girls and boys? Why are boys doing better compared to their female counterparts? Could it be a function of the region's cultural and traditional values that subjugate girls? Unfortunately, with our current data, we can only speculate on the answers to these questions. We need a qualitative study specifically focused on these observations.

Model 2 examines the impact of the Suubi-Maka program on AIDS-orphans' depression levels. Controlling for socioeconomic characteristics of children and their guardians, we find four key outcomes: 1) children in the treatment condition report significantly decreased depression scores; 2) while a child's gender is not significantly associated with depression, the gender of the child's guardian is predictive of the child's depression levels. Specifically, a child being cared for by a female guardian is likely to report higher depression levels at the 12-month follow-up. This may imply that children in female-headed households may need additional support over and above what is presently offered by the Suubi-Maka family economic intervention; 3) age of the child's guardian is positively related to child's depression at wave 2. A child with an older guardian is likely to report higher depression levels. Older guardians may need additional support; and 4) the child's physical health is significantly associated with child's depression. A child reporting good to excellent health is likely to have lower depression levels.

DISCUSSION AND IMPLICATIONS

Overall, the findings of this study point to the potential of family economic empowerment interventions in impacting depression levels and hopelessness of AIDS-orphaned children in poor-resource communities. Specifically, the results support asset-theory which posits positive effects of asset-ownership (in this case savings for education and investment in small business development) on individuals including children.[16–17] The mechanisms of change may be that asset ownership enhances children's self-esteem, thereby reducing their anxiety, which in turn impacts a child's degree of hopefulness and overall mental health functioning.[15,28] An earlier RCT study by Ssewamala and colleagues found that children with individual savings accounts were likely to have higher self-esteem compared to their counterparts in a control condition.[28]

The findings of this study also point to another community health implication: an intervention aimed at enhancing the psychosocial functioning of poor AIDS-orphaned children should not only focus on psychological support. It should also include family economic empowerment through asset-building opportunities for families in poor resource communities. Assets can provide children in adversity with a sense of hope. Assets do not only buffer immediate financial shocks, but they (assets) may also provide feasible springboards for future goals. If children perceive that they have the resources with which to increase the possibility of achieving their goals, their evaluation of the future will be enhanced.[28] This would enable children to envision the future with realistic hope and optimism, and may lead to improved mental health functioning and decreased depressive symptoms. Indeed, asset theorists posit that promoting asset-ownership opportunities is not only a means of fighting poverty, but also of generating positive psychosocial outcomes (including mental health functioning and a realistic sense of hope). When people – including the poor – have assets (even small amounts), it changes their economic lives, behaviors, attitudes, and hopes for the future.[17,29–30]

In addition, a family economic empowerment program may relieve psychosocial distress among AIDS-orphaned children. Economic resources, including assets, may have multiple positive impacts simultaneously. For example, as is the case with the reported findings, the Suubi-Maka intervention seems to have reduced both hopelessness and depression among the study participants. Given these findings, one may be justified to argue that family economic empowerment interventions in poor resource communities may play an important role in addressing the multiple negative psychosocial distresses experienced by AIDS-orphaned children.

Further, while several studies indicate that hopelessness is a correlate of depression, [10,31–32] this study found no significant associations between the two measures in the multivariate models. Indeed, a study by Breitbart and colleagues indicate that depression and hopelessness have a very low correlation—implying that the two constructs may be independent of each other.[33]

Last, the relationships between physical health and mental health functioning are noteworthy. While physical health is not significantly related to hopelessness, physical health is a significant correlate with depression. In the early 1990s, Bennett conducted a review of 60 studies and concluded that children with a chronic health problem are at a slightly elevated risk of depressive symptoms.[34] In more recent research, Curtis and Luby studied 273 preschool children in the United States ages 3 to 5 years and found that a chronic illness significantly predicts early-onset depressive symptoms, even after accounting for socioeconomic status. When compared to children with no health conditions, children with at least one health condition exhibited significantly higher levels of depression.[35]

Indeed, in addition to its contribution to the asset-development and family economic empowerment literature – and the potential role in public and community health promotion – our study makes another important contribution: it contributes to the emerging body of knowledge regarding the relationship between physical health and depression. Moreover, the non-significant relationship between physical health and hopelessness may support the concept that hopelessness is different from depression.

LIMITATIONS

One limitation of the Suubi-Maka study is that the intervention was delivered as a bundle of services that include financial education, mentorship, and a CSA. It is therefore not possible to specify which component(s) of the intervention played the most important role in improving the participants' mental health functioning outcomes reported in this article. For example, we expect that the matched savings component would play a primary role, by giving children hope that they could continue on to secondary school and by raising family incomes and reducing financial hardships within the communities where the children live. [36] On the other hand, it is likely that the role of those matched savings accounts was augmented by children receiving the workshops and the mentorship. It is also likely that having a mentor may have had a direct effect on the participants' mental health functioning. However, our study was not designed to tease apart the effects of different components and thus we can only speculate about this. Future studies should consider varying the elements of family economic empowerment interventions (similar to Suubi-Maka intervention) so that the effectiveness of each specific element can be discerned.

A second limitation worth highlighting is that the reported data are derived from self-reports. Self-reports tend to suffer from an element social desirability, which may limit data on participants' outcomes. Future studies should incorporate administrative and biomedical data.

Finally, the study focuses exclusively on school-going AIDS-affected children living within a family and being cared for by an adult caregiver. The sample, for example, did not include out-of-school orphaned adolescents or orphans from child-headed households. The reported results may be different for out-of-school children and/or child-headed households common in AIDS-impacted communities. We, therefore, refrain from making inferences about these two population groups: out-of-school children and child-headed households. Indeed, the intervention may have different outcome patterns on these two populations. For example, being enrolled in school is considered a protective factor for many psychosocial issues.

Future studies should, therefore, include out-of-school children, and child-headed households.

CONCLUSIONS

Establishing the causal link between family economic empowerment and orphans' hopelessness and depression levels – as potential measures of mental health functioning – is quite challenging. An experimental design may help us test the impact of an economic empowerment intervention in poor resource communities on children's mental health. The Suubi-Maka program employed a RCT design that is considered the gold standard in research: it allows more precise estimates of program impacts. Against that backdrop, one may be justified to argue that the findings of this study underscore the importance of family economic empowerment interventions in enhancing mental health functioning of AIDS-affected children. However, although the reported findings are noteworthy, additional investigation is necessary to understand how the relationship is mediated and moderated by, for example, family dynamics and community and social support, including support from peers and friends. In addition, future studies are necessary to examine how children and families – in economic empowerment programs – develop assets for a long-term period and how, over time, accumulated assets influence child development and family functioning.

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SUMMARY BOXES**What is already known on this subject**

- AIDS-affected orphans living in poor resource communities, compared to their non-orphan counterparts, experience higher level of psychological distress.
- Interventions incorporating child poverty alleviation programming may have multidimensional positive effects, including improved psychological wellbeing.
- Limited evidence exist identifying effective interventions to support poor resource communities, especially those affected by HIV/AIDS.

What this study adds

- The Suubi-Maka randomized controlled trial study in Uganda shows that an innovative family economic empowerment intervention – including children's matched savings account for post-primary education and small business development, financial workshops and mentorship – improves AIDS-affected children's mental health functioning.
- Family economic empowerment interventions in poor resource communities may hold promise in assisting and empowering impoverished AIDS-affected children.

Table 1

Descriptive and bivariate statistics of the sample

	Total sample (N=297)	Control group (n=118)	Treatment group (n=179)	
	Mean (SD) or %	Mean (SD) or %	Mean (SD) or %	t-statistics or χ^2
Child's age	13.39 (1.25)	13.41 (1.25)	13.38 (1.26)	.18
Child's gender (%)				
Male	35.02	35.59	34.64	.03
Female	64.98	64.41	65.36	
Guardian's age	46.31 (14.60)	49.79 (15.01)	44.01 (13.89)	3.38***
Guardian's gender (%)				
Male	20.61	17.95	22.35	.84
Female	79.39	82.05	77.65	
Duration of child living with current guardian (year)	9.70 (4.72)	9.82 (4.47)	9.62 (4.89)	.37
Household size	6.44 (2.26)	6.25 (1.95)	6.58 (2.44)	1.23
Orphanhood Status (%)				
Single Orphan	72.73	66.10	77.09	4.33*
Double Orphan	27.27	33.90	22.91	
Child's physical health (%)				
So-so	29.63	30.51	29.05	.07
Good or excellent	70.37	69.49	70.95	
Family relationship	25.92 (3.56)	26.07 (3.30)	25.83 (3.73)	.56
Hopelessness at wave1	5.48 (3.04)	5.31 (2.96)	5.59 (3.10)	.77
Hopelessness at wave2	3.67 (2.74)	4.27 (2.89)	3.28 (2.57)	2.96**
CDI at wave1	13.13 (5.58)	13.24 (6.01)	13.06 (5.30)	.27
CDI at wave2	9.28 (5.32)	10.58 (5.60)	8.42 (4.96)	3.38***

Note. For bivariate statistics, *t*-tests were used for continuous variables and chi-square tests were used for categorical variables.

*
<.05;

**
<.01;

<.001

Table 2

Regression on children's hope and depression

	Model 1: hopelessness		Model 2: depression levels	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Constant	11.59 ***	2.43	1.14	4.66
Experimental group	-1.08 ***	.33	-1.76 **	.63
Child's gender				
Male (reference)				
Female	.75 *	.34	-.31	.65
Child's age	-.11	.13	.09	.26
Child's physical health				
Poor to fair (reference)				
Good to excellent	.44	.37	-1.33 †	.71
Guardian's gender				
Male (reference)				
Female	.21	.40	1.27 †	.76
Guardian's age	.02	.01	.04 †	.02
Duration of living together	.01	.04	-.01	.07
Double orphan				
No (reference)				
Yes	.16	.39	-.82	.75
Household Size	-.02	.07	.13	.14
Family relations	.03	.04	-.14	.09
Child Depression at W1	.03	.03	.23 ***	.06
Hopelessness at W1	.24 ***	.06	.09	.11
Adjusted R^2	.132		.130	
<i>F</i> value (<i>df</i>)	4.42 *** (12)		4.37 *** (12)	
<i>N</i>	270		270	

†
<.10;*
 $p < .05$;**
 $p < .01$;***
 $p < .001$