

Original Research Article

Improving Education Opportunity, Health, and Quality of Life of Orphans and Vulnerable Children: The Sustainable Action against HIV and AIDS in Communities (SAHACOM)

ABSTRACT

Aims: This study was conducted to evaluate the impact of the Sustainable Action against HIV and AIDS in Communities (SAHACOM) project in improving education opportunity, health, and quality of life of orphans and vulnerable children (OVC).

Study design: Operational intervention study

Place and duration of the study: Five provinces in Cambodia, from 2010 to 2014.

Methodology: A two-stage cluster sampling method was used to select 756 OVC at midterm and 785 OVC at end line for face-to-face interviews. Outcome indicators from end line (2014) were compared to those obtained at midterm (2012) and baseline documentation (2010).

Results: The percentage of OVC receiving external support for child care surged from 30.0% at baseline to 84.0% at midterm but decreased to 76.8% at end line. Compared to children at midterm, children at end line were significantly more likely to report that they had attended school regularly in the past 12 months, less likely to suspend study in order to work to help feed the family in the past 12 months, less likely to report that their family reduced times for daily meals due to the shortage of food in the past 12 months, more likely to rate their overall health and overall quality of life as fair, good, or very good, less likely to respond that food supports and other basic needs such as clothes and other household materials were the most important needs for their family today, and more likely to perceive that supports for child education were the most important for their family today.

Conclusions: This study indicates significant impact of the SAHACOM on education, health, and quality of life of OVC in Cambodia. This community-based model should be adapted for future interventions, taking into account the available resources.

Keywords: *Community-based intervention; HIV/AIDS; orphans and vulnerable children; quality of life; sustainability; Cambodia.*

1. INTRODUCTION

HIV/AIDS continues to be a major global public health issue, having claimed more than 39 million lives so far [1]. As a result, 17.8 million children under 18 have been orphaned by AIDS, and this will rise to 25 million by 2015 [2]. Consequently, the term Orphans and Vulnerable Children (OVC) have surfaced. This term refers to both orphans and other children who are more exposed to risks than their peers. According to the World Bank, OVC can be grouped into several categories [3]. These categories include street children, children in the worst forms of child labor, children affected by armed conflict, children affected by HIV/AIDS, children living with disability, children in multiple OVC categories, and local OVC groups. Local OVC groups are children who are considered vulnerable in their own local context such as child substance abusers in South Africa and trafficked children in Benin [4].

The survival and development of a child is at risk if the family environment is undermined as a result of illness or death of the parents or guardian. If the mother or guardian of a child dies during his or her first year of life, this might have life-threatening impact on the child's life. Resulting changes in OVC's well-being are cumulative, multifaceted, and interlinked [5]. The changes may include increased risks of

31 school drop-out and poor school performance [6-8], impaired food security [9-11], diminished
32 psychological wellbeing [12-14], elevated risks of HIV and sexually transmitted infections [15-17], and
33 reduced access to health care and other services [18-20]. The economic and social effects on OVC may
34 imply reduced access to education and health care [21,22]. Children whose mothers are infected with HIV
35 are significantly more likely to be stunted, wasted, or underweight compared to their counterparts of
36 similar demographic and socio-economic background whose mothers are not infected [23]. Findings from
37 a systematic review indicate the value of community-based interventions in improving OVC's wellbeing
38 and suggest that a strategic research agenda is needed to inform resource allocation and program
39 management decisions [5].

40 Since 2009, KHANA has implemented the Sustainable Action against HIV and AIDS in Communities
41 (SAHACOM) through 20 community-based implementing partners in the capital city and eight provinces in
42 Cambodia. The SAHACOM utilizes a community-based approach to empower and create ownership
43 among the communities being served. Through this model, community support volunteers, peer
44 facilitators, and peer educators are utilized to provide support, services, and implement the activities of
45 the project. It aims to reduce the impact of HIV and AIDS by improving health and quality of life of the
46 most vulnerable populations including OVC. The implementing partners have also been provided
47 technical supports on capacity building as well as policy and strategy work. By September 2013, a total of
48 15,681 OVC had been reached through KHANA's community-based care activities, and 1,791 HIV-
49 positive children were supported to access clinical services [24]. The logical framework for the SAHACOM
50 is shown in the Figure.

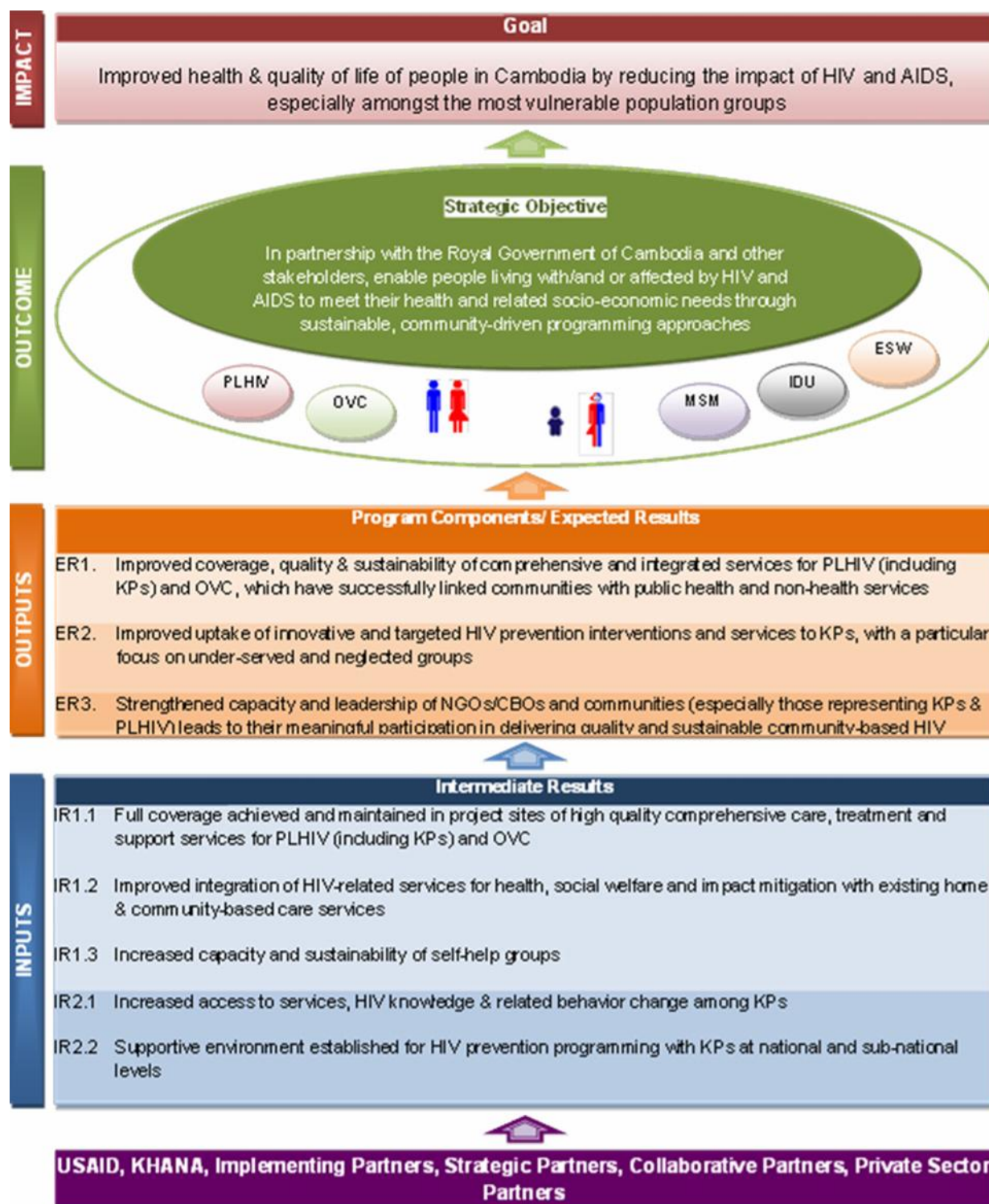


Figure. Logical framework for the SAHACOM

Shortly after the project was started, the SAHACOM baseline documentation was conducted using desk reviews, field visits, and consultative meetings with various program staff, and a mid-term evaluation survey was conducted in 2012. A number of core indicators and practical recommendations were documented. In 2014, the end-of-project evaluation was conducted to review the intervention activities and measure changes in terms of efficiency and effectiveness of the program. The overall goal of this evaluation was to measure the effectiveness of the SAHACOM in improving living conditions, health, and quality of life of the target populations by examining the extent to which the intended objectives of the project set at the baseline have been achieved. The specific objectives of this study were: (1) to assess the changes of key outcome indicators among OVC by comparing data collected at end line to those collected at baseline and midterm; (2) to document lessons learned and challenges; and (3) to make further recommendations for the improvement of the implementation of the project.

2. MATERIAL AND METHODS

2.1. Study sites and sampling

Participants were recruited from five provinces including Battambang, Kampong Cham, Pailin, Pursat, Siem Reap, and Takeo. The z test for a two sample comparison of proportions was employed to detect a change of 10-15% of key indicators such as general health status and self-rated quality of life. The power of 80% with 95% confidence interval was set for the calculation. Design effect of 2 was used to compensate the cluster effect. The selection of these indicators was based on the SAHACOM baseline documentation report [25] and findings from the SAHACOM midterm review [26]. As a result, the total minimum sample size required for the study was approximately 690 samples. Adjusted for incomplete responses and missing data of 10%, the final sample size was approximately 760.

Five out of nine provinces where interventions targeting OVC have been implemented were selected to represent the overall SAHACOM. We excluded other provinces because the target population size for the interventions was too small at the time when the baseline documentation and mid-term review was conducted. Moreover, the total number of the population in the selected five provinces represented more than 70% of the total coverage of the project activities.

We used a two-stage cluster sampling method to select the study samples. The sample size was proportionally allocated to the size of OVC in each province. Number of health centers in each selected province to be included in the study was decided based on the number of OVC registered in each health center. We assessed several factors when deciding whether to include a health center in the study such as number of people living with HIV, convenience for data collection, and duration of the project implementation in the health center coverage. We then used the probability proportional-to-size sampling to select the required number of OVC from each province.

2.2. Data collection training and procedures

A two-days training was provided to all interviewers and field supervisors. The main objective of the training was to ensure that all interviewers and field supervisors understood the procedures and followed the standardized guideline in the same manner and guaranteed the quality of the data. The training covered necessary skills including interview techniques, confidentiality, and practices of the questionnaire administration. We also reviewed the study protocol during the training sessions in order for the team members to be thoroughly familiarized with it. Quality control skills such as rechecking and reviewing the questionnaires after administration as well as resolving issues that might arise during the fieldwork were included in the training. Regular review sessions with interviewers were conducted during the survey period to review progress and communicate any issues occurring during the data collection.

2.3. Questionnaire development

Standardized tools were adapted from previous studies to measure key outcome indicators related to the project objectives. We initially developed the questionnaire in English and then translated it into Khmer, the national language of Cambodia. It was then back-translated into English by another translator to ensure that the “content and spirit” of every original item were maintained. Clear instructions and explanations were addressed to avoid any confusion during the interviews.

A pilot study was conducted prior to the main data collection to ensure that the wording and contents were culturally suitable, acceptable, and clearly understandable for the study participants. The pilot study was conducted with 10 randomly selected samples to assess the contents, format, length, language, and appropriateness of the questionnaire. Necessary modifications were made based upon feedbacks from the pilot study and comments from researchers and practitioners working on this area in Cambodia.

2.4. Variables and measurements

Data were collected through an interview with the OVC themselves if he/she was 11 years of age or older and with his/her caregiver if he/she was younger than 11 years. Socio-economic characteristics, community support, and health and nutrition status were measured using existing items adapted from our previous studies in the same populations [27] and the most recent Cambodia Demographic and Health Survey [28].

Socio-economic characteristics included age, gender, maternal and paternal occupation, main caregiver or guardian, schooling status, years of schooling completed, whether they had enough stationary for their study in the past six months, whether they had ever suspended school to work for feeding their family in the past six months, and whether they had received any external support for schooling as well as sources of the support received in the past six months. For those who were not currently in school, they were also asked about the reasons for not being currently in school.

Regarding community support, the children were asked whether they or their family had received any external support after their parents passed away or got sick. Yes/no questions were asked to collect information about receipt of different types of support in the past 12 months. The respondents were also asked about sources of the support they had received, types of support they thought the most useful for them or their family, and whether they thought their family life situation would be more difficult if there was no food support.

For health and nutrition, children were asked about their HIV status, their overall health status and quality of life, whether they had been very sick making them unable to work or go to school, and duration of the sickness in the past six months. Regarding food security, we collected information on number of meal times the children had on an average day, whether the children had enough food to eat and the reason for not having enough food in the past six months, whether their family had reduced the number of meal times because of not having enough food, and if they thought that their family had less amount of food than that of other families in the community.

2.5. Ethical considerations

Participation in this study was voluntary. Participants could refuse or discontinue their participation at any time for any reason without any consequences. An informed consent was obtained from each participant after a detailed description of all study objectives and procedures was provided. Confidentiality of the information was ensured by removing all personal identifiers from the survey questionnaire. The study protocol was approved by the National Ethics Committee for Health Research, Ministry of Health, Cambodia.

2.6. Data entry and analyses

Data were coded and entered into a computerized database using Epi Data version 3 (Odense, Denmark). Double data entry was performed to minimize entry errors. Descriptive statistical tests were used to compute means and standard deviations (SD) for numerical variables and frequencies for nominal and ordinal variables. We used Chi-square test or Fisher's Exact test for categorical variables and t-test or one-way analysis of variance (ANOVA) for continuous variables to compare outcomes at midterm to those at end line to detect changes in key outcome indicators. Two-sided p-values of less than 0.05 were regarded as statistically significant. SPSS version 20.0 (IBM Corporation, New York, USA) was used for all data analyses.

3. RESULTS

3.1. Socio-economic characteristics of OVC at end line

In total, 756 OVC were included in midterm survey and 785 OVC in end-line survey. Approximately half (48.6%) of the children were boys with the mean age of 12.6 years (SD= 2.7). The majority of the children (77.0%) lived in their own family house, while the remaining lived in their relative's house (19.8%), other people's house or rented house (2.4%), and other places such as an orphanage, pagoda, or public shelter (0.8%). The average number of siblings of the respondents was 3.1 (SD= 1.7), and their caregiver included parents (65.5%), grandparents (23.5%), relatives (6.5%), siblings (2.4%), or other (2.1%). Less than a quarter (20.4%) of the respondents was living with HIV.

Regarding their education, the majority of the children were currently in school (93.2%). Among the students, only 48.8% reported having enough materials for study, and 9.0% reported having to suspend school in order to work to help feed the family in the past 12 months. The majority of the children (81.2%) reported receiving some form of educational support in the past six months; and of them, 87.2% had received such supports from KHANA/IPs. When asked about other living situations, 92.5% reported having enough food to eat in the past 12 months, and only 5.1% reported that their family had reduced daily meal times due to the lack of food in the past 12 months. However, only 64.8% of them had three meals per day in the past 12 months.

The children had received different types of social support since their parents died or got sick including support for schooling (81.2%), financial support for starting up family business (79.8%), clothes or other materials for daily living (70.7%), food support (63.7%), and psychological support such as home visits and counseling (58.7%) from NGO and other people. When asked to raise the most important needs for their current family daily living, 80.9% of the children perceived school materials as the most important, followed by basic materials for daily living such as clothes and other household materials (61.2%), financial support (60.3%), food support (48.3%), and psychological support such as home visits or counseling (12.6%).

Regarding their overall health conditions, 34.1% of OVC reported that they had been seriously sick preventing them from their daily work or study in the past three months. When asked to rate their health condition, 92.2% of the respondents reported that their overall health condition was fair, good, or very good, and 87.7% of them rated their overall quality of life as fair, good, or very good. As shown in **Table 1**, no significant difference was found in the comparisons of socio-economic characteristics of the children at midterm and end line.

Table 1. Comparisons of socio-economic characteristics of OVC at midterm and end line

Variables	Midterm	End line	OR (95% CI)
Mean age of participants (SD)	12.8 ± 2.6	12.6 ± 2.7	0.82
Male gender	335 (44.4)	382 (48.6)	1.2 (1.0-1.5)
Living with HIV	129 (17.1)	160 (20.4)	1.2 (1.0-1.9)
Main care giver/guardian			
Parents	485 (64.2)	515 (65.5)	1.1 (0.9-1.3)
Grandparents	168 (22.2)	185 (23.5)	1.1 (0.9-1.4)
Siblings	22 (3.0)	19 (2.4)	0.8 (0.4-1.5)
Other (relatives, step-parent, orphanage)	72 (9.5)	67 (8.5)	0.9 (0.6-1.3)
Currently in school	696 (92.9)	725 (93.2)	1.1 (0.7-1.5)
Having enough study materials	416 (59.1)	355 (48.8)	1.0 (0.7-1.5)

Abbreviations: CI, confidence interval; IP, implementing partner; OR, Odds ratio; OVC, orphan and vulnerable children; SD, standard deviation.

*P-value.

3.2. Comparisons of types of supports

Table 2 shows the comparisons of types of support received in the past 12 months among OVC at midterm and end line. Compared to children at midterm, children at end line were significantly less likely to receive several types of support such as clothes and other household materials for daily living (OR= 3.0, 95% CI= 2.3-4.0) and psychological support such as home visits or counseling (OR= 2.5, 95% CI= 1.9-3.3). They also were significantly less likely to receive support for child education from KHANA/IPs in the past six months (OR= 3.5, 95% CI= 2.2-5.6). It is worth-noting that only 30.0% of OVC at baseline received overall external support for child care compared to 84.0% and 76.8% at midterm and end line, respectively.

Table 2. Comparisons of types of support received in the past 12 months among OVC at midterm and end line

Variables	Midterm	End line	OR (95% CI)
Social support received since parent died or got sick			
Food supports (rice, noodles, canned fish)	614 (81.2)	597 (76.1)	1.4 (1.1-1.7)
Clothes and other materials	668 (88.4)	428 (70.7)	3.0 (2.3-4.0)
Financial supports for starting up family business	637 (84.3)	483 (79.8)	1.2 (0.9-1.6)
Psychological supports (home visits, counseling)	639 (84.5)	353 (58.7)	2.5 (1.9-3.3)
Support for child education from any sources	616 (81.5)	492 (81.2)	1.0 (0.8-1.3)
Educational support from KHANA/IPs	591 (96.0)	555 (87.2)	3.5 (2.2-5.6)

Notes: CI, confidence interval; IP, implementing partner; OR, Odds ratio; OVC, orphan and vulnerable children; SD, standard deviation.

3.3. Comparisons of types of support perceived to be the most important

Comparisons of types of support perceived to be the most important for today family daily living among OVC at midterm and end line are shown in **Table 3**. Children at end line were significantly less likely to respond that food supports (OR= 3.6, 95% CI= 2.9-4.4) and other basic needs such as clothes and other household materials (OR= 1.6, 95% CI= 1.3-1.9) were the most important needs for their family today compared to children at midterm. However, they were significantly more likely to perceive that supports for child education were the most important need for their family life today (OR= 7.2, 95% CI= 5.7-9.1) compared to children at midterm.

Table 3. Comparisons of types of support perceived to be the most important among OVC at midterm and end line

Variables	Midterm	End line	OR (95% CI)
Perceived most important needs for family daily living			
Food supports (rice, noodles, canned fish)	583 (77.1)	380 (48.3)	3.6 (2.9-4.4)
Clothes and other materials	540 (71.4)	481 (61.2)	1.6 (1.3-1.9)
Financial supports for starting up family business	432 (57.2)	474 (60.3)	1.2 (0.9-1.4)
Psychological supports (home visits, counseling)	81 (10.7)	99 (12.6)	1.1 (0.8-1.5)
Support for child education	345 (45.7)	636 (80.9)	7.2 (5.7-9.1)

Notes: CI, confidence interval; OR, Odds ratio; OVC, orphan and vulnerable children; SD, standard deviation.

3.4. Comparisons of education, nutrition, and health conditions

Table 4 shows the comparisons of education and general health conditions among OVC at midterm and end line. Compared to children at midterm, children at end line were significantly more likely to report that they had attended school regularly (OR= 1.8, 95% CI= 1.4-2.3) and less likely to suspend their study in order to work to help feed the family (OR= 1.7, 95% CI= 1.2-2.3) in the past 12 months. The proportion of children who reported that their family had enough food to eat in the past 12 months was not significantly different. However, children at end line were significantly less likely to report that their family had reduced times for daily meals due to the shortage of food in the past 12 months (OR= 6.5, 95% CI= 4.6-9.3). Regarding their self-rated health, children at end line were significantly more likely to rate their overall health as fair, good, or very good (OR= 3.8, 95% CI= 2.8-5.1) and overall quality of life as fair, good, or very good (OR= 2.9, 95% CI= 2.2-3.8) compared to children at midterm.

Table 4. Comparisons of education, nutrition, and health conditions among OVC at midterm and end line

Variables	Midterm	End line	OR (95% CI)
Attended school regularly in the past 12 months	645 (85.3)	703 (89.6)	1.8 (1.4-2.3)
Suspended study to work in the past 12 months	108 (14.3)	71 (9.0)	1.7 (1.2-2.3)
Had enough food to eat in the past 12 months	697 (92.6)	725 (92.5)	1.0 (0.7-1.5)
Reduced times of daily meals in the past 12 months	196 (25.9)	40 (5.1)	6.5 (4.6-9.3)
Having been seriously sick in the past 6 months	222 (28.4)	265 (33.8)	1.2 (1.0-1.5)
Self-rated overall health as fair or good	574 (86.1)	724 (92.2)	3.8 (2.8-5.1)
Self-rated overall quality of life as fair or good	549 (82.3)	694 (87.7)	2.9 (2.2-3.8)

Abbreviations: CI, confidence interval; IP, implementing partner; OR, Odds ratio; OVC, orphan and vulnerable children; SD, standard deviation.

^a P-value.

4. DISCUSSION

HIV/AIDS introduce unprecedented challenge to OVC in communities, threatening their health, education, and quality of life [5]. Studies in different settings have shown the effectiveness of community-based intervention models in improving access to adequate food, school enrolment, and access to services (including psychosocial support, food, health, schooling) [29]. However, preliminary analyses of a community-based intervention in Zambia and Rwanda indicated that the intervention was not effective in getting children into school at an earlier age, but was successful at keeping children in school longer despite secular trends in the opposite direction [30-32].

This study describes the impact of community-based activities of the SAHACOM in changing education, health, and quality of life of OVC in rural Cambodia. The proportion of OVC households that received basic external support in caring for the children increased significantly from baseline and midterm. However, there was a decrease in the basic support from midterm (84.0%) to end line (76.8%), but it

remained much higher than the life-project target that was set at 50%. This result shows the reality of program implementation as it reduced some activities and supports to OVC in the last period of the project from fiscal year 2012 due to the limitation of the budget. Decline in supports received in the past 12 months from midterm to end line was shown in clothes and other materials, psychological supports, and financial supports to start up family business. The decrease and increase in areas of support are consistent with respondents' answers to what is most important areas of supports needed, demonstrating that needs assessment for this population is continuous and on-going.

Despite the withdrawal of food support from WFP in December 2012, food support was no longer reported as the most urgent need in OVC's daily life among OVC at end line compared to that at midterm. Instead, child education support was reported as the most important need for family daily living. The majority of the respondents reported that their family had enough food to eat in the past 12 months. However, future surveys might need to more carefully define what "enough" food is due to the fact that only 64.8% of respondents reported having three meals a day in the past 12 months, illustrating a slight decrease compared to midterm where 71.3% of the respondents reported having three meals a day. A possible explanation for the slight decrease rather than a dramatic decrease in OVC who had three meals a day could be due to KHANA's continuous efforts to provide food support to the most vulnerable OVC post closure of the WFP's program. These statistics are important to identify that, although almost all respondents said their family had enough food to eat in the past 12 months, more support may be necessary. Additional support may lead to better health for OVC and increase in school attendance, since 9.0% of the respondents reported having to stop going to school in order to work to help feed their family.

A noteworthy accomplishment is the increase of regular school attendance reported among OVC from 85.3% at midterm to 89.6% at end line. This can be attributed to an increase and continuous supports for schooling. Of total, 68.1% of the children received educational support in the past six months, from this 87.2% received this support from KHANA and its implementing partners. Moreover, school material supports in the past 12 months increased from 76.1% at midterm to 81.2% at end line. Children's education seems to be more valued not only due to the increase in school attendance but the substantial increase shown when respondents were asked about the most important needs for daily family living, and school supports were reported at 45.7% at midterm and 80.9% at end line.

The increase value of education could be due to the fact that OVC and their family were receiving social supports, allowing for opportunities that were not previously available. In a complementary in-depth interview, a provincial AIDS program officer reported that, due to the services provided, there had been a decline in people migrating in order to find money or food elsewhere. Less migration may allow families to think more about the future, especially in terms of children's education. In addition, through the SAHACOM, work had been done to reduce discrimination and stigma faced by OVC and increase self-esteem in OVC, which could result in OVC enjoying school more. In turn, their quality of life had also been improved.

Several limitations of this study should be noted. First, as with any self-reported measures, there are inherent biases and potential for both underreporting and over-reporting in the variables. Second, for this end-of-project evaluation, baseline survey was not conducted, and comparisons of key indicators were made using data from desk-review documentation. And only a few indicators for OVC were available. This condition made the measurements of changes of the key indicators from baseline to end line difficult. Third, findings from this study might be limited by unknown reliability and validity of the questionnaire, although it was developed using items adapted from previous studies in Cambodia and carefully reviewed by local and international experts and pretested before the final version was constructed. The final limitation concerns possible recall biases as participants were asked to recall events that had taken place over the past several months.

5. CONCLUSIONS

Findings from this study indicate significant impact of the SAHACOM on education, health, and quality of life of OVC in Cambodia. The increase in perceived importance of school support and materials and increase in school attendance indicates the importance of sustaining this support in the future for OVC

population. In order to continue the increase in value of education and school attendance by OVC, it is also important to consider factors that could potentially keep children from regular attendance including having to work to help feed the family, migration in hopes of financial opportunities elsewhere, and high quality access to health care services to prevent kids from being too sick to go to school.

A challenge that was continuously demonstrated throughout the SAHACOM project was the high turnover of staff of the implementing partners. High turnover rates resulted in additional energy in recruitment and hindered capacity building and integration of services. In order to decrease the rate of turnover in the future, it is necessary to increase incentives for their work. The implementing partners are an important component in serving these populations as they work to organize community awareness-raising and small group sessions to increase their understanding, service uptake, and address the unmet needs of the children.

CONSENT

An informed consent was obtained from each participant after a detailed description of all study objectives and procedures was provided. A copy of the written consent is available for review by the Editorial office/Chief Editor/Editorial Board members of this journal."

ETHICAL APPROVAL

All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

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