A quantitative study investigating if the life situation is affected in a positive direction by literacy and numeracy training among semiliterate women and men in Uganda

"Health is not bought by a chemist´s pill
Nor saved by the surgeon´s knife
Health is not only the absence of ills
But the fight for the fullness of life"

(By Piet Hein for the 40th anniversary of WHO)

Degree project in Medicine
Emelie Efraimsson
2017

A quantitative study investigating if the life situation is affected in a positive direction by literacy and numeracy training among semiliterate women and men in Uganda

Degree project in Medicine
Emelie Efraimsson

Supervisors
Prof. Henrik Sjövall, Gothenburg University, Sweden
Prof. Aloysius Mutebi, Makerere Univerity, Uganda

UNIVERSITY OF GOTHENBURG

Department of global health,
Sahlgrenska Academy

For correspondents, please contact Emelie Efraimsson, emelieefraimsson@hotmail.com

Entebbe, Uganda
Gothenburg, Sweden
2017

Table of contents

1. ABSTRACT

A quantitative study investigating if the life situation is affected in a positive direction by literacy and numeracy training among semiliterate women and men in Uganda

Degree project in Medicine
Emelie Efraimsson, 2017
Sahlgrenska Academy, Department of global health, Gothenburg, Sweden

Background
Nearly 17% of the world´s adult population is still not literate, two thirds of them being women. People lacking basic skills in reading, writing and arithmetics are very vulnerable in many different ways. They are not only vulnerable to corruption, discrimination, violence and poverty; they are also vulnerable to poorer health and sickness.

It is generally assumed that teaching poor women and men to read and perform simple arithmetics is beneficial for health literacy, quality of life and a cost-effective way of using foreign aid, but this assumption is surprisingly poorly documented. Therefore, it is of great relevance to investigate how women's and men´s lives are affected by reading and writing skills.

Aim
to evaluate the effects of adult literacy training on empowerment variables, socioeconomic situation, quality of life and health literacy among poor semiliterate Ugandan women and men.

Method
This is an observational cohort study comparing an intervention group consisting of 70 former students of a three year long adult literacy course with a control group consisting of 71 current applicants for the same adult education. The study is based on questionnaires covering the topics language skills, empowerment, socioeconomic situation, health and hygiene situation, health literacy, situation of children, future perspectives and assessment of the adult literacy course. The study was conducted in autumn 2017 in the Wakiso district of Uganda.

Results and conclusions
This study showed that literacy training in Uganda results in clear positive effects when it comes to empowerment betterments, socioeconomic situation, situation of children and future perspectives. Regarding health, hygiene and health literacy, there were no measurable effects.

Keywords: Illiteracy, adult literacy, empowering women

2. BACKGROUND

2.1 Introduction

Being able to read is the gate of entrance into modern society. People lacking basic skills in reading, writing and arithmetics are very vulnerable in many different ways. They are not only vulnerable to corruption, discrimination, violence and poverty; they are also vulnerable to poorer health and sickness.

It is generally assumed that teaching poor women and men to read and perform simple arithmetics is beneficial for health literacy, quality of life, children´s health, children´s survival and is a cost-effective way of using foreign aid [1, 2] but this assumption is surprisingly poorly documented. It is largely based on observational studies demonstrating correlations between literacy and positive socioeconomic and health outcomes. However, conclusive evidence regarding a cause-and-effect relationship between adult literacy training and improvements in general psychosocial well being and long term health is largely lacking.

2.2 Global illiteracy

The right to education is part of the Universal Declaration of Human rights. It is a key element of the United Nations Convention on the Rights of the Child. Elementary and fundamental education shall both be free and additionally compulsory. Vocational training should be accessible to all, as well as higher education at upper secondary school, university or other institutes of higher learning. Despite these fundamental rights, an incredibly large group of people never get access to a proper education or even get any education at all. The mechanisms are complex, basic education is generally offered also in low income countries, but many children are nevertheless withheld from school. Illiterate people tend to keep their

children from school, since they cannot afford the school fees, nor help their children with their homework and many simply do not understand the importance of education. The United Nations state that literacy is a prerequisite for achieving gender equality and for creating sustainable, prosperous and peaceful societies. In addition, the United Nations states that poverty cannot be eliminated without schools and proper education [3].

Nearly 17% of the world´s adult population is still not literate, two thirds of them being women [4]. Also the extent of illiteracy among youth is an enormous challenge, an estimated 122 million young people are illiterate globally, 61% of them being women [4].

Formal Education and literacy are known to be correlated with a variety of positive health outcomes [5]. Literacy and education allow people to acquire health information and implement good health practices, it provides opportunities for gaining skills, it promotes getting a better employment situation and raises one´s income. Literacy and education are also believed to decrease the risk of being given away in marriage at an early age or to become a carrier of HIV. The ability to support oneself increases and women who are educated are generally believed to produce fewer children.

According to a survey made in The United States of America, there is a strong inverse relationship between level of education and mortality rates. The survey investigated adults aged 25-64 years. The mortality rate was 650 per 100.000 for those with less education than high school, 478 per 100.000 for those with high school education and 206 per 100.000 for those with education beyond high school. Based on the data collected, the survey stated that social conditions such as education and income were very strongly dependent on one another, but nonetheless, these conditions also act as independent health determinant factors [6].

However, a recent study conducted in Nigeria showed that full reading skills reduced child mortality by 30% while moderate reading skills did not have this effect [7]. Furthermore, a study from Sub-Saharan Africa showed an association between literacy and self-rated health [8].

2.3 Global health inequalities

Health inequalities between men and women pester many societies worldwide. Girls and women are the ones most affected by health disparities. The pattern emanates from cultural ideologies and practices that have stratified society in such a way that girls and women are more prone to be abused and maltreated and makes them more disposed to diseases and early death [9]. Among the poorest of households, girls and women are more likely to be excluded from receiving opportunities such as paid labor or education. Forcing girls and women to contribute to household work prevents them to getting access to education and paid labor, which would in turn help them getting access to better health through knowledge and health care resources and services.

One of the most direct and powerful ways to reduce health inequalities and ensure effective use of health resources is to improve gender equity and to address women´s right to health [10, 11]. By empowering women and assuring autonomy in decision-making by reinforcing authentic participation in the community participation and psychological empowerment, one can improve health and living standard. A review article highlights clear effects regarding improvements in health and children's health through empowerment and adult literacy for women. The study also states that income in women´s hands through microcredits or other means have a strong potential for improving family nutrition and health [12].

2.4 The republic of Uganda

Uganda is a sub-Saharan landlocked country in East Africa with an estimated population of 39 million people. The country is a democratic republic, but one party is dominant. Elections are held every fifth year. The sitting president came to power in 1986 and has been ruling the country since. Uganda gained independence from Britain in 1962 and since then the country has suffered intermittent conflicts and even periods of civil wars.

Uganda has a persistent and steady economic growth, but the prevalence of poverty has varied over time. The World Bank claims that between 2000 and 2003 poverty prevalence increased by 3.8% while the country had an annual economic growth of 2.5% [13]. Nevertheless, the proportion of people living on 1.9 US dollars or less has been reduced from 52% in 2006 to 34% in 2013 [14].

In Uganda, women have a lower social status than men. This reduces their power to act independently, to escape dependence on abusive men and to participate in their community and become educated.

The current illiteracy rate in Uganda is 24%. However, the illiteracy rate is 33% among the female population aged 15 years old and older [4]. Primary and secondary school, that is schooling for seven years, is nominally free in Uganda, resulting in school start for 90% of the population. However, the costs for books, schooling uniforms and extra fees force many families to prevent their children from attending school or drop out. Unfortunately, according to a survey completed by the World Bank in 2013, the quality of primary and secondary education is unacceptably low in Uganda [15]. Therefore, not only more education opportunities are needed, but it is also imperative with further information about the right to

and the importance of education and as well as additional dissemination about gender equality.

2.5 The kingdom of Sweden

Sweden is a democratic country in northern Europe with a population of around 10 million people, 23% of whom have a foreign background [16]. In this case, foreign background refers to people who are either born abroad or are children of international migrants.

Sweden is one of the world´s most highly developed welfare states and provides universal health care and tertiary education for its citizens. According to reports in 2013 and 2014, Sweden has the world's eleventh-highest income per capita and ranks very highly in numerous parameters of national performance, including health and healthcare systems, education, economic variables, prosperity and human development [17, 18].

According to statistics from UNESCO, the literacy rate in Sweden has remained stable at around 99 % between 2008 and 2014 [19, 20]. Moreover, Sweden got ranked 5th place in an American study analyzing large-scale trends in literature consumption in more than 60 countries [21]. The countries that were more highly ranked turned out to be the Nordic neighbors of Sweden; Finland, Norway, Iceland and Denmark. Despite impressive literacy rates and excellent results in these types of studies, illiteracy is not only an issue in developing countries, it is actually also a source of a major concern in industrialized countries. There are in fact a substantial number of people in Sweden who are struggling to survive in a text-based society. When you lack basic insights, like reading and writing, it is virtually impossible to participate in the same type of life activities as the literate population. In Sweden, the greatest amount of illiterate people consists of migrants. Being a migrant is in itself a challenge, being

on top of that illiterate makes integration, employment opportunities and social possibilities even harder to achieve. Despite being offered courses in Swedish for immigrants (SFI) all migrants are not reached and/or fail to attain sufficient reading skills. Therefore, it is highly likely that also in Sweden more education opportunities and programs for integration are needed, to reach one and all.

2.6 Adult Learning and Empowerment Fund and adult literacy training

Adult Learning and Empowerment Fund, ALEF, is a Swedish non-profit organization that offers adult education programs for illiterate youth and adults. ALEF was founded in 2010 and has since then organized projects in several different African countries, for example Congo, Togo, Benin and Uganda. ALEF´s mission is to provide local staff with a method and skills for running adult education programs in their mother tongue, thereby assisting illiterate youth and adults in acquiring skills and knowledge they can use for a variety of purposes. The aim is to improve their living conditions, to help them take control over their economy and health care, to help them understand their Human Rights, to help them gain access to decision making, community services and common arenas, and to help them take action to change the mechanisms behind oppression, discrimination and poverty.

ALEFs strategy is to build partnerships with non-governmental organizations with a passion for reducing poverty, being incorporated in the local culture and speaking local languages. For instance, in this particular case ALEF works in collaboration with Change African Child International (CACI) in order to implement the vision of ALEF in Uganda.

ALEF provides expertise in teaching adult literacy and empowerment, contributes to the economic support of the projects and helps in planning and training of the project staff to

carry out the projects. ALEF also assists in advocacy issues towards authorities and international institutions and implements fund raising to make this work possible.

The ALEF curriculum consists of three consecutive courses running part-time over three years. The first course is mainly devoted to basic literacy training. The second course teaches basic numeracy and continues with reading and writing in the local language. The third course teaches a second language, like basic English, and participants are encouraged to participate in civil society groups. The topics taught are directly related to the everyday situation of the participants rather than being a translation of situations in other parts of the world.

The particulars of the ALEF methods were designed by Hélène Boëthius who is the executive chairman of ALEF, and are based on her long experience of adult literacy programs. The pedagogic principles of the methods are in turn based on Paulo Freires´work Pedagogy of the oppressed as well as textbooks from SFI.

2.7 Change African Child International

Change African Child International (CACI) is a Ugandan non-governmental, non-profit organization that is dedicated to improving the living conditions of children, youth and women in Uganda. The organization was founded in 2012 and has since developed several types of activities to support the efforts of the Ugandan government and other stakeholders to address the plight of children, youth and women.

One of CACIs main projects is to promote adult literacy with the help of the Swedish organization ALEF. So far, 230 women and men have participated in the empowerment groups, learning how to read, write and perform simple arithmetics.

3. AIMS OF THE STUDY

- to evaluate the effects of adult literacy training on empowerment variables, socioeconomic situation, quality of life and health literacy among poor semiliterate Ugandan women and men.

4. MATERIAL AND METHODS

This is an observational cohort study based on questions grouped into a number of domains covering different aspects of the life situation of the participants. The study was conducted between September 25th and November 11th, 2017 in the Wakiso district, Uganda, in several villages inside and outside Entebbe and in the area between Entebbe and Kampala, reaching also some of the outskirts of Kampala. The majority were living in semi urban areas. Many of them were also fishermen's wives living in squatter villages on the Victoria Lake. The majority of the study participants were women and only a few males were interviewed. This is due to the fact that more women are given the chance to take part of the adult education. The organization CACI is primarily aiming to reach women since they are the ones most suffering from inequalities.

The questionnaire was initially written in English (Appendix 1) and was also translated into Luganda, the local language. The questionnaire contained 47 questions divided into nine domains; background information, language skills, empowerment variables, socioeconomic situation, health and hygiene situation, health literacy, situation of children, future perspectives and finally a global assessment of perceived value of the ALEF courses. The respondents replied to the questions after having had them read out loud, first in English, then in Luganda.

The study participants were selected by people working with the adult education who had got meticulous information about randomizing the selection of the participants. The intervention group consisted of people who met the following criteria: (1) 16 years or older, (2) not having completed more than three years of elementary school, (3) having participated at least two years in the ALEF Empowerment program. The control group consisted of people 16 years and older who applied for the ALEF courses.

5. DATA COLLECTION PROCEDURES AND STATISTICAL METHODS

The data was collected by the author in collaboration with locally trained coaches acting as interpreters. All collected data was transferred to and processed in Microsoft Excel 2010. The data was then further analysed in SPSS version 24. Depending on the type of data (nominal, ordinal or continuous) we used different statistical methods. For nominal and ordinal data or non-normally distributed data, we used non parametric tests, like the Chi2-test or the Mann-Whitney U-test. For normally distributed data we used Students T-test. P-values less than 0.05 were considered to be significant. The data was grouped into nine different domains covering various aspects of everyday life and was presented in charts and tables.

To normalise the different variables against a common outcome scale, we used a scoring system were the maximum attainable points in each domain were given a value of 100%. In this way, it was possible to see more clearly the overall patterns across the different domains in one and the same figure.

6. ETHICAL CONSIDERATIONS

All interviews were conducted with the aid of local interpreters. The participants were informed about the purpose of the study as well as the fact that participation was entirely voluntary and that unwillingness to participate did not have any consequences for the subjects including the likelihood for the controls to be accepted to the upcoming ALEF courses. The subjects could end their participation at any time without giving any reason for this decision and likewise the participants were allowed to refrain from answering specific questions without motivating this wish.

Ethical approval was obtained from the Health Department of Makerere University and the Institutional Review Board. Informed consent orally and in writing was obtained from all participants. To guarantee confidentiality of the participants the questionnaires were marked with code numbers that in a separate document were connected with their names and the locations of the interviews concerning the subjects. This key document was safely stored and was only available to the principal investigator. It was made clear to the subjects that after the completion of the analysis these documents will be destroyed, that there is no way individuals can be identified from the data. The participants did not receive any economic compensation for participating in the study. Those who were withdrawn from work were given compensation for their lack of salary.

7. RESULTS

In total, 141 questionnaires were conducted. There were 70 persons in the intervention group and 71 in the control group. Three women belonging to the control group were excluded because of interrupted interviews or communication difficulties.

In the intervention group, 20% had participated in ALEF courses lasting two years and 80% had participated for three years. These groups were pooled.

7.1 Background information

Key elements of background information are presented in table 1. There were 58 women and 12 men in the intervention group and 66 women and 5 men in the control group (P-value=0.0655). The median age of the total population was 31 years and there was a statistically significant difference between the groups (see table 1). Parity ranged from 0 to 10 children, with a median of 3. No intergroup difference was seen (P-value=0.23). The ages of children were similar between the groups and both groups had very high rates of having children old enough to go to school (80% and 82% respectively). There was also a great similarity between the groups when it came to the relationship statuses of the participants and neither here any intergroup difference was seen (P-value=0.715). When it came to the income generation activities of the spouses, there was no statistical significance between the groups (P-value=0.162). The mean of how many rooms there were in their homes was calculated to 1.8 in the intervention group versus 1.3 in the control group and there was a statistically significance between the groups (P-value=0.031). The same goes for how many family members that slept in the same room, the mean was 3.6 in the intervention group and 4.1 in the control group (P-value= 0.047). Both groups had very high rates of being vaccinated (94% and 93% respectively) and the same goes for the prevalence of malaria (80% and 83% respectively).

For other background data, please see table 1.

Table 1. Background information

QUESTIONS -Background information	TOTAL (N=141)	INTERVENTION	CONTROL	P-value
Age (median/mean, (range))	31/31.6 (17-55)	35/33 (17-54)	30/30 (17-55)	0.0254
Gender (number (percent))				
- **Woman**	124 (88%)	58 (83%)	66 (93%)	n.s 0.0655
- **Man**	17 (12%)	12 (17%)	5 (7%)	
Relationship status				
- **Married**	45%	49%	41%	n.s 0.715
- **Boyfriend/girlfriend**	0%	1%	0%	
- **Single**	15%	11%	18%	
- **Divorced/separated**	28%	27%	28%	
- **Widowed**	12%	11%	13%	
Spouses profession	(N = 66)	(N = 37)	(N = 29)	
- **Employed**	42%	41%	45%	n.s 0.162
- **Self-employed**	39%	46%	31%	
- **No income**	18%	14%	24%	
Number of children (median/mean, (range))	(N = 125) 3/3.2 (0-10)	(N = 63) 3/3.5 (1-10)	(N = 62) 3/3 (1-10)	n.s 0.23
Ages of children (mean, (range))	12 (0-41)	13 (0-35)	11 (0-41)	n.s 0.252
Having children old enough to go to school	(N = 125) 81%	(N = 63) 80%	(N = 62) 82%	n.s 0.799
Number of rooms in your home (median/mean, (range))	1/1.6 (1-3)	2/1.8 (1-3)	1/1.3 (1-3)	0.031
Numbers of family members sleeping in the same room (median/mean, (range))	4/3.9 (1-11)	3/3.6 (1-8)	4/4.1 (1-11)	0.047
Vaccinated against several diseases	94%	94%	93%	n.s 0.747
Suffered from malaria	82%	80%	83%	n.s 0.635

n.s = non significant

7.2 Effects on literacy

In the intervention group, 66/70 (94%) could write their name compared to 43/71 (61%) in the control group (P-value<0.0001). When estimating their reading skills in Luganda, 61%, of the people in the intervention group estimated their reading skills in Luganda to be “good”, while the same percentage in the control group stated “no reading skills at all” (P-value<0.0001).

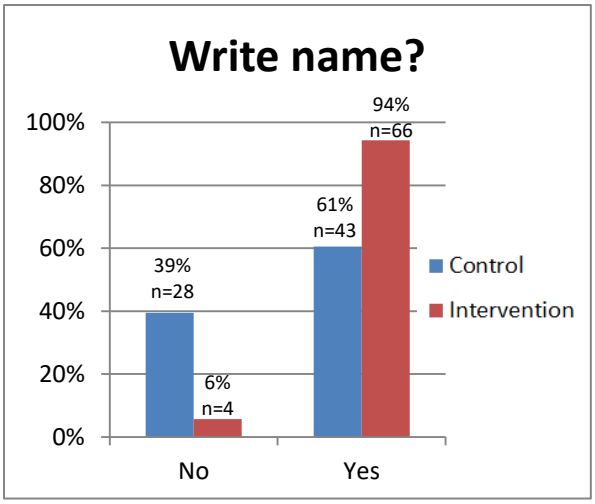

Fig 1. Can you write your name?

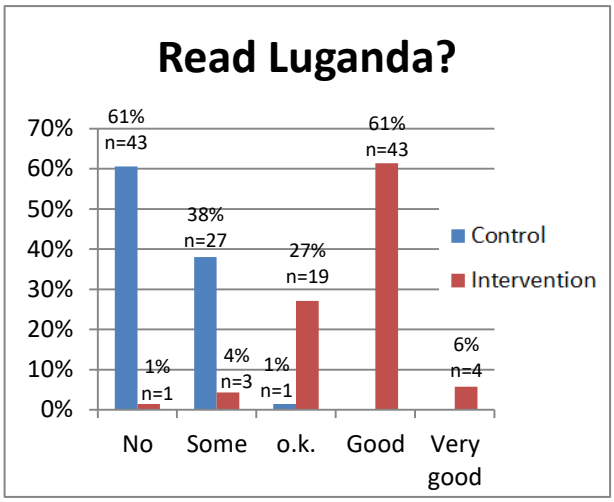

Fig 2. Can you read documents written in Luganda?

When being asked "Do you speak English?", the majority of the intervention group could speak some English, while the majority of the control group could not, see figure 3 (P-value<0.0001). As can be seen in figure 4, 96% of the control group was unable to read English texts. In the intervention group, the distribution change in a positive direction (P-value<0.0001).

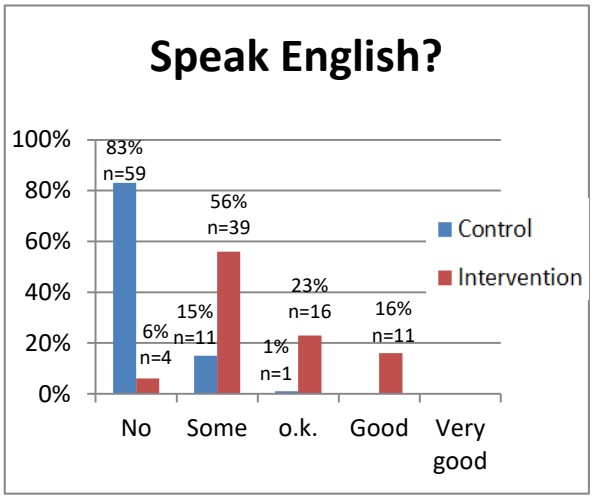

Fig 3. Do you speak English?

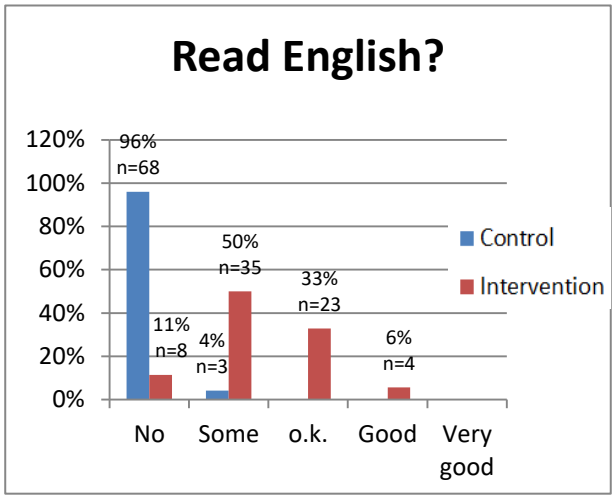

Fig 4. Are you able to read English texts?

For details regarding literacy questions and statistics, see table 2.

Table 2. Questions regarding literacy

QUESTIONS –Effects on literacy		Allocated points	Type of data	Statistical method	Intervention group, % distribution	Control group, % distribution	P-value
Can you write your name?	No	0	Nominal	CHI2	6%	39%	<0.0001
	Yes	1			94%	61%	
Are you able to understand documents written in Luganda?	No	1	Ordinal	Mann-Whitney	1 %	61%	<0.0001
	Some	2			4%	38%	
	O.k.	3			27%	1%	
	Good	4			61%	0%	
	Very good	5			6%	0%	
Do you understand an English text?	No	1	Ordinal	Mann-Whitney	11%	96%	<0.0001
	Some	2			50%	4%	
	O.k.	3			33%	0%	
	Good	4			6%	0%	
	Very good	5			0%	0%	
Do you speak English?	No	1	Ordinal	Mann-Whitney	6%	83%	<0.0001
	Some	2			56%	15%	
	O.k.	3			23%	1%	
	Good	4			16%	0%	
	Very Good	5			0%	0%	

n.s = non significant
Mann-Whitney = Mann-Whitney U-test
CHI2 = Chi2-test

7.3 Effects on empowerment variables

When being asked “Do you participate in any social activity in your community?” approximately one out of three answered “frequently” and one out of three answered “very frequently” in the intervention group, while almost half of the participants in the control group answered “no”, as can be seen in figure 5 (P-value<0.0001). When being asked “Do you participate in decision making processes in your family?” 71% in the intervention group

answered “yes”, while 45% of the people in the control group gave the same answer, see figure 6 (P-value=0.00016).

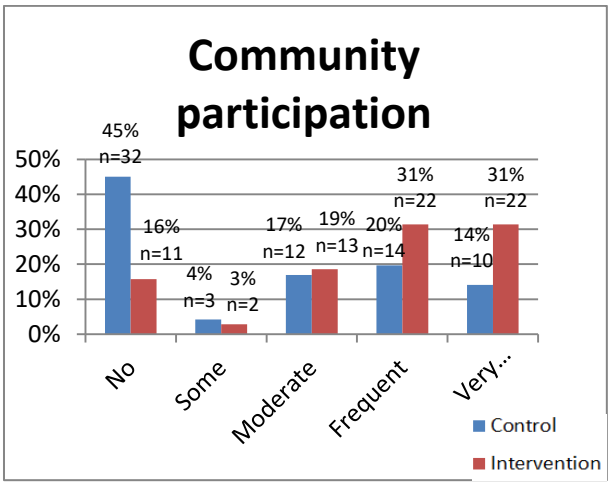

Fig 5. Do you participate in social activities in your community?

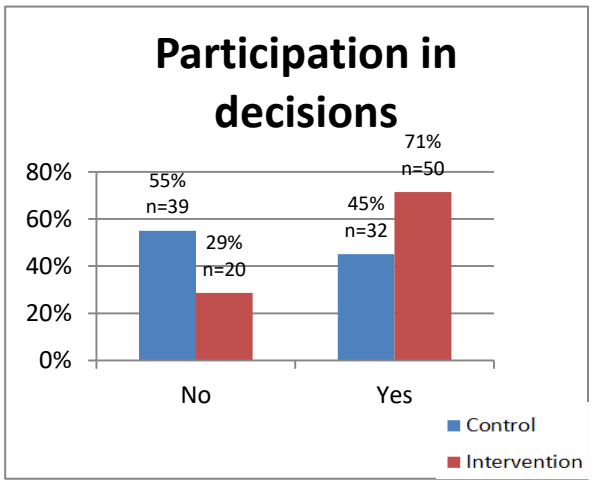

Fig 6. Do you participate in decision making processes in your family?

60 out of 70 (86%) of the participants in the intervention group knew about the meaning of the concept Human rights. Among those, 75% did not think their society treats them accordingly. The corresponding figures for the control group were 17% and 83%. Knowledge about Human rights, but not the subjective experience of the corresponding treatment was statistical significant, see table 3.

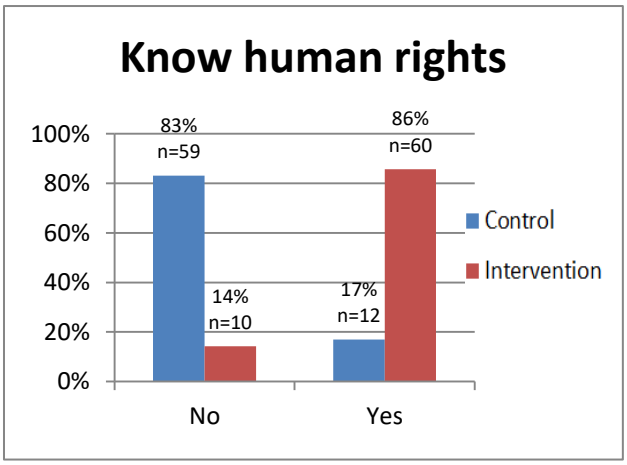

Fig 7. Do you know about Human Rights?

Regarding the wider concept of feeling discriminated, no statistical significance was seen between the groups, but as seen in figure 8, there was a clear difference regarding knowledge about how to claim one´s rights when feeling discriminated, 74% in the intervention group answered "yes" versus 20% in the control group (P-value<0.0001).

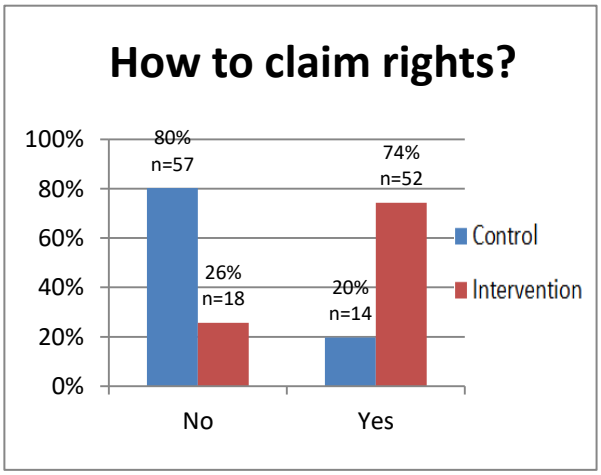

Fig 8. When being discriminated, do you know how to claim your rights?

For details regarding empowerment questions and statistics, see table 3.

Table 3. Questions regarding empowerment variables

QUESTIONS –Effects on empowerment variables		Allocated points	Type of data	Statistical method	Intervention group, % distribution	Control group, % distribution	P-value
Do you participate in any social activity in your community?	No	1	Ordinal	Mann-Whitney	16%	45%	<0.0001
	Some	2			3%	4%	
	Moderate	3			19%	17%	
	Frequently	4			31%	20%	
	Very frequently	5			31%	14%	
Do you participate in decision making processes in your family?	No	0	Nominal	CHI2	29%	55%	0.0016
	Yes	2			71%	45%	
Do you know about the Human	No	0	Nominal	CHI2	14%	83%	<0.0001

Rights?	Yes	2			86%	17%	
If you know about the Human Rights, do you think society treats you according to the Human Rights?	No	0	Nominal	CHI2	(N = 60) 75%	(N = 12) 83%	n.s 0.720
	Yes	2			25%	17%	
Do you ever feel discriminated?	No	0	Nominal	CHI2	40%	31%	n.s 0.263
	Yes	2			60%	69%	
Do you know how to claim your rights?	No	0	Nominal	CHI2	26%	80%	<0.0001
	Yes	2			74%	20%	

n.s = non significant
Mann-Whitney = Mann-Whitney U-test
CHI2 = Chi2-test

7.4 Effects on socioeconomic situation

In the intervention group, 36% had no income. The corresponding figure was 41% in the control group. No statistical significance was seen.

In the intervention group there were 59% having access to electricity in their homes and in the control group this was the case for were 49%. No intergroup difference was seen.

For details regarding socioeconomic issues and statistics, see table 4.

Table 4. Questions regarding socioeconomic situation

QUESTIONS –Effects on socioeconomic situation		**Allocated points**	**Type of data**	**Statistical method**	**Intervention group, % distribution**	**Control group, % distribution**	**P-value**
Do you participate in any social activity in your community?	No	1	Ordinal	Mann-Whitney	16%	45%	<0.0001
	Some	2			3%	4%	
	Moderate	3			19%	17%	
	Frequent	4			31%	20%	
	Very frequent	5			31%	14%	
Do you know	No	0	Nominal	CHI2	14%	83%	<0.00

about the Human Rights?							01
	Yes	2			86%	17%	
Do you think society treats you according to the Human Rights?	No	0	Nominal	CHI2	75%	83%	<0.001
	Yes	2			25%	17%	
Do you ever feel discriminated?	No	0	Nominal	CHI2	40%	31%	<0.001
	Yes	2			60%	69%	
What is your main income generating activity?	No income	0	Ordinal	Mann-Whitney	36%	41%	n.s 0.162
	Self-employed	1			51%	44%	
	Employed	3			13%	15%	
Do you have access to electricity in your home?	No	0	Nominal	CHI2	41%	51%	n.s 0.269
	Yes	2			59%	49%	

n.s = non significant
Mann-Whitney = Mann-Whitney U-test
CHI2 = Chi2-test

7.5 Effects on health and hygiene situation

The markers for health and hygiene were: numbers of rooms, number of persons per room, vaccinations, having suffered from malaria, the use of mosquito nets and the frequency and magnitude of diarrhea. The items number of rooms, number of persons per room, vaccinations and having suffered from malaria were treated as background information, see table 1. The remaining variables were treated as dependent variables. The data are summarized in table 5.

There was a significant difference between the groups regarding the use of insecticide-treated bed nets, 73% in the intervention group versus 48% in the control group (P-value=0.0024). See figure 9.

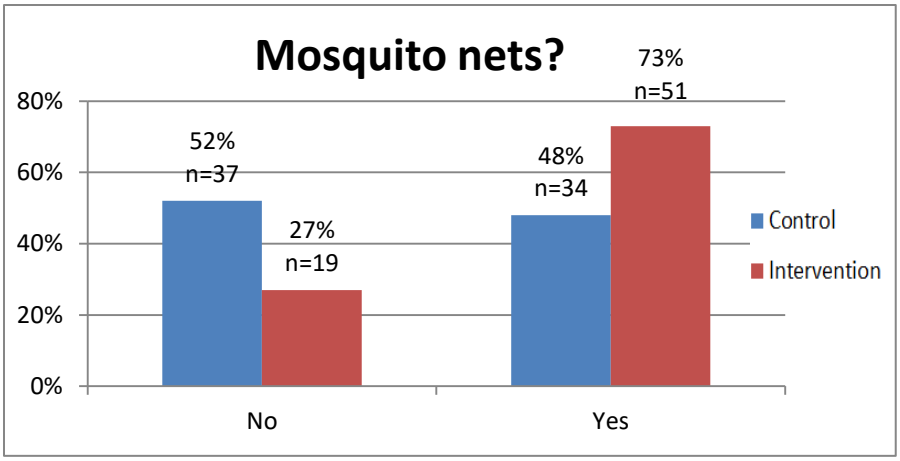

Fig 9. Do you use mosquito nets in your home?

The prevalence of diarrhea (time window last 12 months) was similar in the two groups. Among those having had diarrhea, there was no difference between the groups regarding severity distribution pattern.

For details regarding health and hygiene questions and statistics, see table 5.

Table 5. Questions regarding health and hygiene situation

QUESTIONS –Effects on health and hygiene situation		Allocated points	Type of data	Statistical method	Intervention group, % distribution	Control group, % distribution	P-value
Have you had any vaccinations?	No	0	Nominal	CHI2	6%	7%	n.s 0.747
	Yes	1			94%	93%	
Do you use insecticide-treated bed bets in your home?	No	0	Nominal	CHI2	27%	52%	0.0024
	Yes	2			73%	48%	
Have you suffered from diarrhea in the past 12 months?	Yes	0	Nominal	CHI2	44%	52%	n.s 0.352
	No	5			56%	48%	
How often have you suffered from diarrhea in the	Every day	1	Ordinal	Mann-Whitney	0%	0%	n.s 0.377

past 12 months?	3-4 times a week	2			9%	15%	
	Once every week	3			17%	21%	
	Once every two weeks	4			19%	15%	
	Never	5			56%	48%	

n.s = non significant
Mann-Whitney = Mann-Whitney U-test
CHI2 = Chi2-test

7.6 Effects on health literacy

To evaluate the effects on health literacy, we asked specific questions about HIV, tuberculosis and the importance of clean water.

As expected almost all subjects had fair knowledge about HIV. The only question that discriminated between the groups was how HIV is transmitted (P-value=0.032), see table 6.

Regarding tuberculosis, a substantial number in the control group was ignorant regarding the mechanism of transmission (P-value=0.0013). For the remaining tuberculosis questions there was no statistical significance between the groups.

When being asked ”Why is it important to have clean water?”, 87% versus 86% answered “you may get diarrhea if you drink dirty water” in the intervention group compared to the control group.

For details regarding health literacy questions and statistics, see table 6.

Table 6. Questions regarding health literacy

QUESTIONS –Effects on health literacy		Allocated points	Type of data	Statistical method	Intervention group, % distribution	Contrl group, % distribution	P-value
Do you use insecticide-treated bed bets in your home?	No	0	Nominal	CHI2	27%	52%	0.0024
	Yes	2			73%	48%	
Have you heard about HIV?	No	0	Nominal	CHI2	1%	0%	n.s
	Yes	1			99%	100%	
How is HIV transmitted?	Raw meat	0	Nominal		1%	3%	0.032
	Sexually	1			97%	90%	
	By mosquitos	0			0%	1%	
	Spread through air	0			0%	0%	
	Don´t know	0			1%	6%	
HIV patients sometimes do not have any symptoms at all?	False	0	Nominal	CHI2	19%	17%	n.s 0.765
	True	1			81%	83%	
HIV can be transmitted by shaking hands with an HIV positive patient?	True	0	Nominal	CHI2	7%	13%	n.s 0.284
	False	1			93%	87%	
If the mother has HIV, the child always gets it?	True	0	Nominal	CHI2	32%	37%	n.s 0.555
	False	1			68%	63%	
HIV can be cured?	True	0	Nominal	CHI2	9%	13%	n.s 0.446
	False	1			91%	87%	
If you take HIV medicine, the risk of transmitting the disease is reduced?	False	0	Nominal	CHI2	43%	58%	n.s 0.914
	True	1			57%	42%	
Have you heard about TB?	No	0	Nominal	CHI2	7%	8%	n.s 0.77

							2
	Yes	1			93%	92%	
How is TB transmitted? (n, intervention group = 65) (n, control group = 65)	Raw meat	0	Nominal	CHI2	0%	2%	0.0013
	Sexually	0			3%	3%	
	By mosquitos	0			0%	0%	
	Spread through air	1			94%	74%	
	Don´t know	0			3%	22%	
People may have TB without having any symptoms?	False	0	Nominal	CHI2	42%	49%	n.s 0.378
	True	1			58%	51%	
TB patients are always contagious?	True	0	Nominal	CHI2	74%	78%	n.s 0.537
	False	1			26%	22%	
TB can be treated by medicine, and the patient can usually be cured?	False	0	Nominal	CHI2	8%	11%	n.s 0.545
	True	1			92%	89%	
TB can be transmitted by shaking hands with a TB patient?	True	0	Nominal	CHI2	18%	14%	n.s 0.475
	False	1			82%	86%	
TB is always transfered from mother to child?	True	0	Nominal	CHI2	78%	77%	n.s 0.833
	False	1			22%	23%	
Why is it important to not drink dirty water?	You may get TB	0	Nominal	CHI2	13%	13%	n.s 0.831
	You may get HIV	0			0%	1%	
	You may get diarrhea	1			87%	86%	

Framed box = correct answer
n.s = non significant
Mann-Whitney = Mann-Whitney U-test
CHI2 = Chi2-test

7.7 Effect on children's situation

The subjects of both groups had relatively large families with a parity ranged from 0 to 10 children, with a median of 3. Seven people in the intervention group and nine people in the control group lacked children whereof these persons did not answer the questions regarding children´s situation.

All participants with children in both groups reported that all their children had been vaccinated.

As can be seen in figure 10, when estimating the overall health situation of their children, the participants of the intervention group generally considered their children´s health to be better compared to the participants of the control group, (P-value=0.0005).

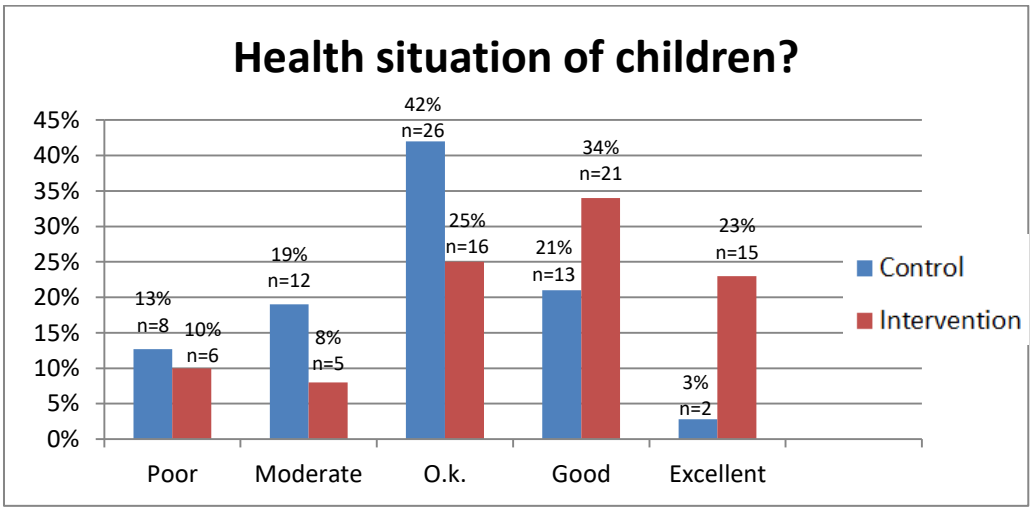

Fig 10. How would you judge the health situation of your children?

Among the people with children old enough to go to school, 71% of the intervention group and 10% of the control group strongly encouraged their children to attend school as can be seen in figure 11 (p-value<0.0001).

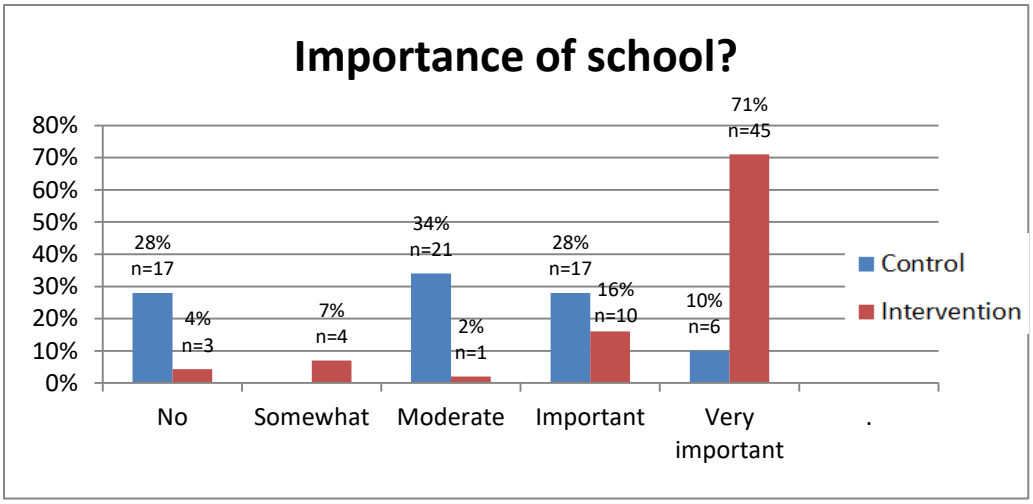

Fig 11. If your children are old enough to go to school, do you/and your partner encourage them to attend school?

For details regarding questions and statistics about children´s situation, see table 7.

Table 7. Questions regarding children´s situation

QUESTIONS –Effects on children´s situation		Allocated points	Type of data	Statistical method	Intervention group*, % distribution	Contrl group**, % distribution	P-value
Have your children had any vaccinations?	No	0	Nominal	CHI2	0%	0%	n.s
	Yes	1			100%	100%	
How would you judge the health situation of your children?	Poor	1	Ordinal	Mann-Whitney	10%	15%	0.000476
	Moderate	2			8%	19%	
	O.k.	3			25%	42%	
	Good	4			34%	21%	
	Excellent	5			23%	3%	
If your children are old enough to go to school, do you/and your partner encourage them to attend school?	No	1	Ordinal	Mann-Whitney	4%	28%	<0.0001
	Somewhat	2			7%	0%	
	Moderate	3			2%	34%	
	Important	4			16%	28%	
	Very important	5			71%	10%	

n.s = non significant
Mann-Whitney = Mann-Whitney U-test
CHI2 = Chi2-test
*63 of the people in the intervention group had children whereof in this domain, n=63 in the intervention group
**62 of the people in the control group had children whereof in this domain, n=62 in the control group

7.8 Effects on future perspectives

When being asked "How do you think your situation is going to change in ten years' time?" there were clear-cut differences in the reply-patterns between the groups. The intervention group had dramatically higher hopes for a better future than the control group. The same pattern applied regarding future and education of children. In both cases P-value<0.0001. See figures 12 and 13.

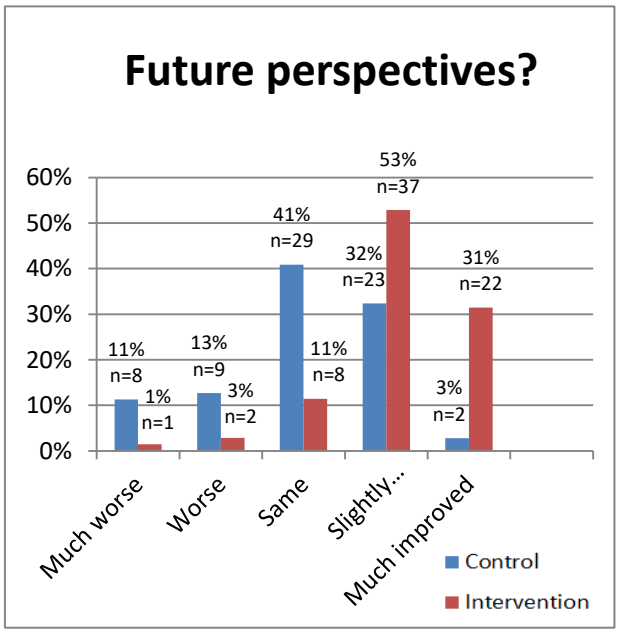

Fig 12. How do you think your situation is to change in ten years' time?

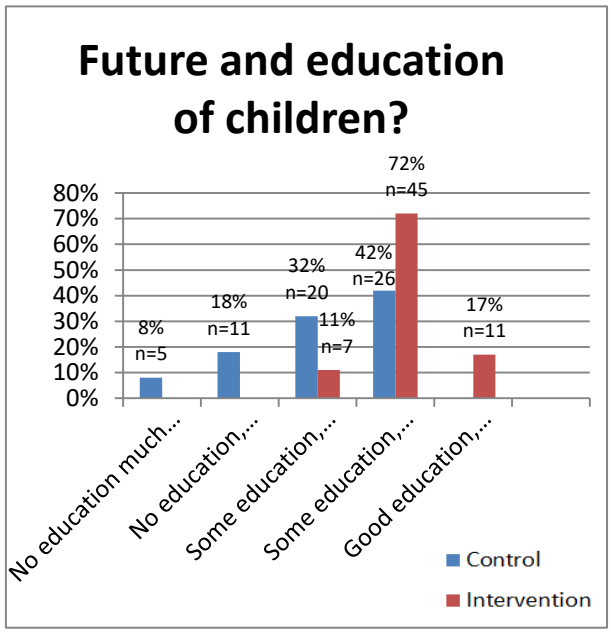

Fig 13. What is your opinion regarding your your children´s future?

For details regarding questions and statistics about future perspectives, see table 8.

Table 8. Questions regarding future perspectives

QUESTIONS –Effects on future perspectives		Allocated points	Type of data	Statistical method	Intervention group, % distribution	Control group, % distribution	P-value
How do you think your situation is going to change in ten	Much worse	1	Ordinal	Mann-Whitney	1%	11%	<0.0001
	Worse	2			3%	13%	
	Same	3			11%	41%	
	Slightly improved	4			53%	32%	

years' time?	Much improved	5			31%	3%	
If you have childen, what is your opinion regarding their future?*,**	No education much lower standard	1	Ordinal	Mann-Witney	0%	8%	<0.001
	No education, somewhat lower standard	2			0%	18%	
	Some education, same standard	3			11%	32%	
	Some education, better standard	4			72%	42%	
	Good education, much better standard	5			17%	0%	

n.s = non significant
Mann-Whitney = Mann-Whitney U-test
CHI2 = Chi2-test
*63 of the people in the intervention group had children whereof in this question, n=63 in the intervention group
**62 of the people in the control group had children whereof in this question, n=62 in the control group

7.9 Assessment of ALEF-courses

99% of the people in the intervention group would without hesitancy recommend others to take the ALEF-courses.

73% of the people in the intervention group gave the maximum score when asked how their quality of life had improved since they learned how to read and write. No one stated that there had been no improvements at all, see figure 14.

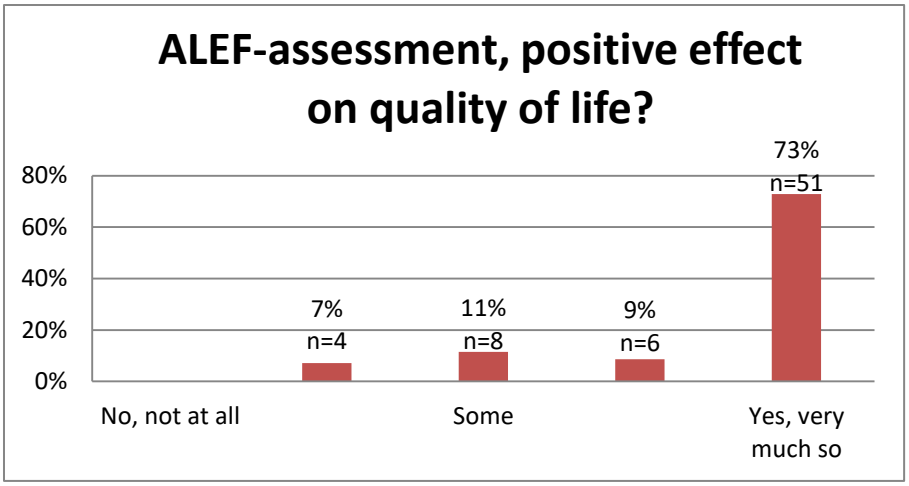

Fig 14. Has the ability to read and write improved your quality of life?

As can be seen in figure 15, 53% of the people in the intervention group gave the maximum score on how their economic situation had improved since they learned how to read and write, while 1% did not notice any differences and 6% hardly noticed any improvements at all.

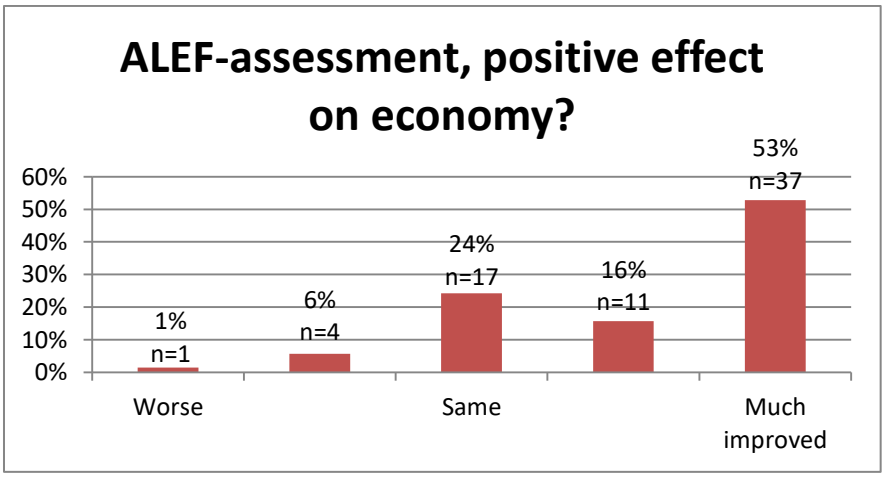

Fig 15. Has the ability to read and write improved your economic situation?

61% of the people in the intervention group gave the maximum score on how the situation for their children had improved since they learned how to read and write. 2% had not noticed any improvements at all, the results can be shown in figure 16.

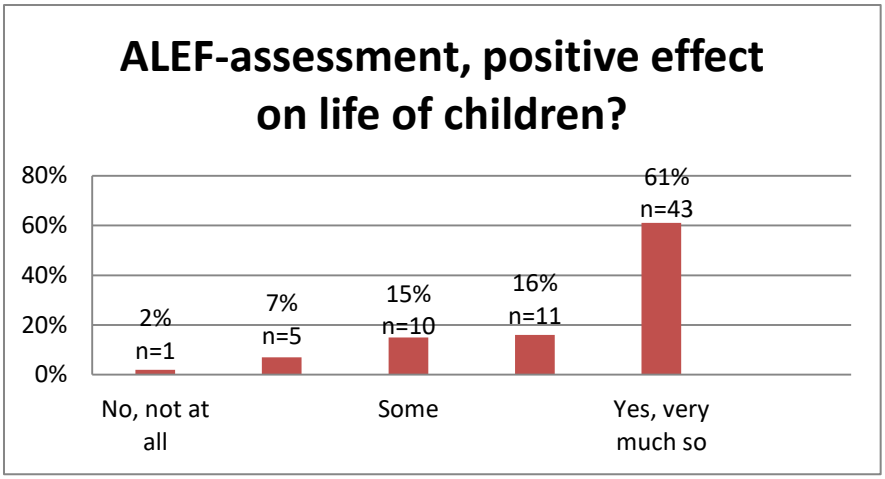

Fig 16. Has learning to read and write improved the situation for your children?

The majority of the people in the intervention group judged that their life situation had improved markedly since having taken the ALEF-courses. As can be seen in figure 17, only 1% had not noticed any improvements at all and no one answered that their life situation had deteriorated.

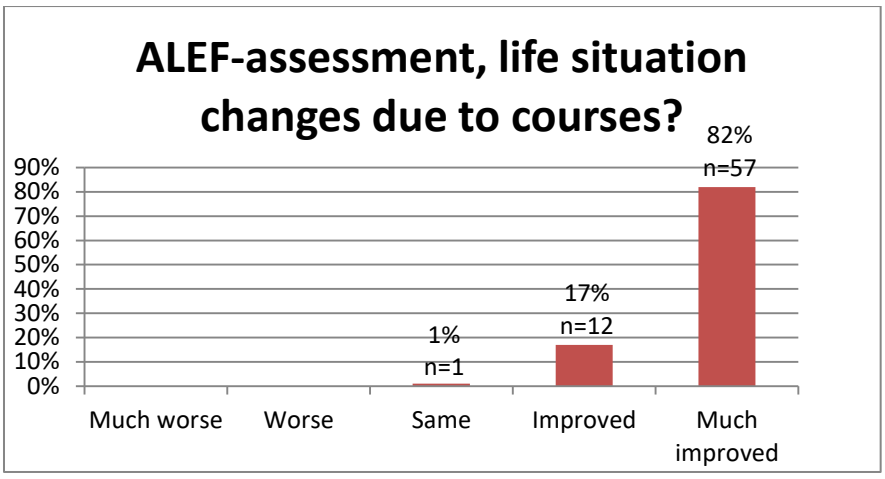

Fig 17. How much do you think the ALEF courses have changed your life situation?

We specifically asked how their partners had reacted to their participation in the ALEF courses. 34 out of 70 respondents had spouses and out of those 76% were moderately positive to their partner´s participation, 9% were neutral, 6% were not against it, but also not very positive and 9% were against their partner´s ALEF participation.

For details regarding ALEF-assessment questions and statistics, see table 9.

Table 9.Estimation of improvements due to the ALEF courses

QUESTIONS –ALEF-assessment		Percent	Mean
Has the ability to read and write improved your quality of life? 1-5 1 = No, not at all 5 = Yes, very much so	1	0	
	2	7%	
	3	11%	
	4	9%	
	5	73%	Mean 4.5
Has the ability to read and write improved your economic situation? 1-5 1 = No, not at all 5 = Yes, very much so	1	1%	
	2	6%	
	3	24%	
	4	16%	
	5	53%	Mean 4.1
Has learning to read and write improved the situation for your children? 1-5 1 = No, not at all 5 = Yes, very much so	1	2%	
	2	7%	
	3	15%	
	4	16%	
	5	61%	Mean 4.3
How much do you think the ALEF courses has changed your life situation? 1-5 1 = Deteriorated markedly 5 = Makedly improved	1 My life situation has deteriorated markedly	0%	
	2 My life situation has deteriorated a little	0%	
	3 Not so much, my life situation about the same	1%	
	4 Much, my life situation has improved somewhat	17%	
	5 Very much, my life situation has markedly improved	82%	Mean 4.8
What did your partner thick about you participation in the ALEF-courses? 1-5 1 = Against ALEF participation 5 = Very positive	1 Against ALEF participation	9%	
	2 Not very positive	6%	
	3 Neutral	9%	
	4 Moderately positive	76%	
	5 Very positive	0%	Mean 3.5

7.10 Global pattern for all studied domains

The global pattern for all studied domains is presented in figure 21. The figure was designed in the following way: for each domain, results were presented as a percentage of the maximal available points within each domain.

The magnitude of the intervention signal was largest for empowerment (P-value<0.001). A smaller but significant effect was seen for socioeconomic situation (P-value=0.046), situation of children (P-value=0.020) and future perspectives (P-value=0.002). No consistent effects on health, hygiene and health literacy were seen.

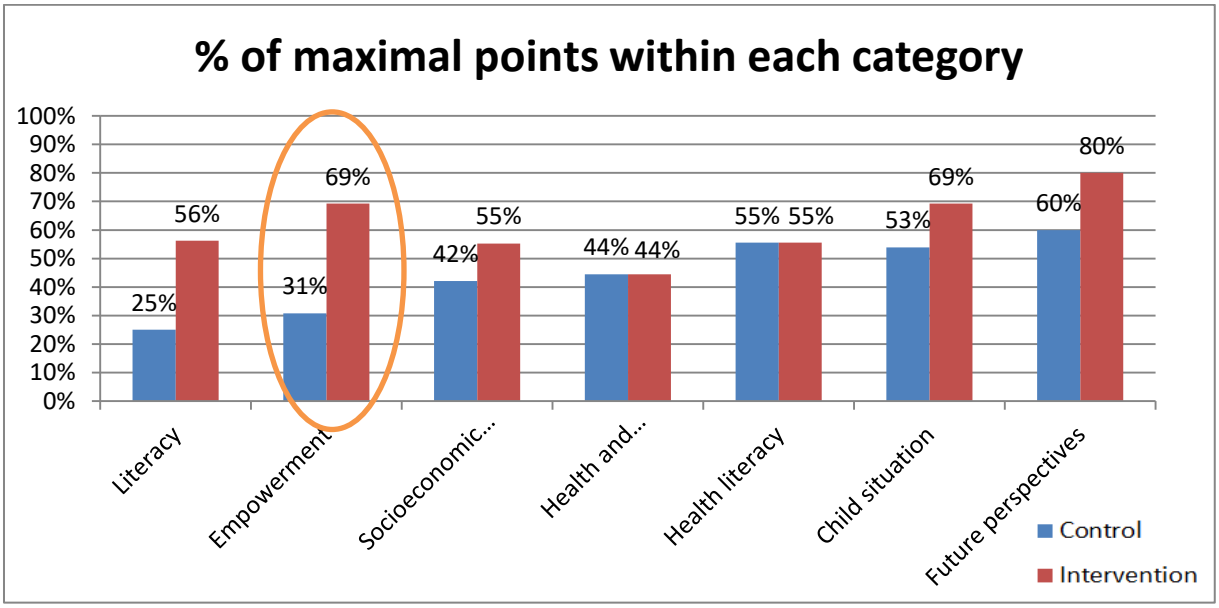

Fig 21. The relative effect of the course in the different studied domains, expressed as a percentage of the maximal response.

8. DISCUSSION

8.1 Background information

To be able to interpret effects of the course per say, the background situation of the two groups has to be similar. All study participants were recruited from the same area, the Wakiso district in Uganda. They were living in the same seven villages in and outside Entebbe, reaching some outskirts of Kampala. The same number of participants from either group was recruited from each village.

Regarding age, there was a slight asymmetry between the groups, with a mean difference of three years, incidentally the duration of the courses as such. We find no reason to assume that this difference in age has influenced the results.

Regarding gender differences, there were only a few males in both groups with an overbalance in the intervention group. This is due to the fact that more women are given the chance to take part of the adult education. The organization CACI is primarily aiming to reach women since they are the ones most suffering from inequalities.

Regarding socioeconomic situation we found no relevant group differences. There was a minimal difference regarding number of rooms and number of persons sleeping in the same room, but this phenomenon was of small magnitude and can hardly have affected the results.

Finally when using vaccination pattern and malaria prevalence as markers for health and hygiene situation the groups were virtually identical.

To conclude, the two groups were recruited from the same area, had similar demographic features, similar socioeconomic situation and similar health situation. One can therefore conclude that there were no major confounding variables.

8.2 Effects on literacy

As expected, the intervention group considered their reading and writing skills to be much higher than in the control group. However, the control group was not totally illiterate; a large proportion of the control group could write their name and read some parts of documents written in Luganda. Furthermore, the impact of the intervention signal was clear-cut and the results on literacy variables very obvious.

8.3 Effects on empowerment variables

The basis for this domain was questions regarding Human Rights, discrimination, impact on family decisions and participation in community activities. We saw a very strong and clear-cut signal that was seen throughout all subdomains. This result is in accordance with several previous studies showing that literacy is a strong catalyst for participation in social, cultural, political and economic activities [22-24].

An interesting subdomain is participation in family decisions were a very strong positive signal was seen. This phenomenon has been reported in several studies conducted in low and mid-income countries like Nepal, Turkey, Bolivia and Senegal [24, 25]. However, there are also one report from Pakistan showing a lack of effect [25].

Turning to the issue of Human rights, our results agree with a study from Nepal which showed that women participating in education programs have considerably more political awareness than women who have not been participating in education programs [24].

To sum up, we saw a very strong empowerment signal. This conclusion fits well with the current global health literature. An example where the evidence is well summarized is the book "Interrogating women's leadership and empowerment". Literacy and education is an important cornerstone for reducing social and political discrimination [26].

8.4 Effects on socioeconomic situation

There was no statistical difference between the groups regarding their income generating activity in this study. This result does not match the general belief that one´s income is positively affected by literacy. A study that shows the opposites to the results of this study is a survey investigating how a three-year long literacy course impact the social and economic situation among women in Nepal, the difference between the intervention group and control group was statistically significant, with advantage to the intervention group [24]. Furthermore, in this study, the participants of the intervention group self-estimated their economic situation to have gotten much better since taken the ALEF-courses. To account for this seeming paradox, one has to postulate that the women remained in the same kind of income generating activity, but after completing the ALEF-courses made more money.

Regarding access to electricity, the results differed with 10% between the groups, where the intervention group scored higher, but with no significant difference between the groups. An article relating to the topics electricity and socio-economic status, does not only claim that education increases the possibility for having access to electricity but also having access to

electricity improves education, by for example extending the time for studying [27]. Our interpretation of this discrepancy is that the time-frame of the course is too short to change the infrastructure of electricity supply.

8.5 Effects on health and hygiene situation

Despite the fact that the government offers free distribution of mosquito nets, according to a survey conducted in northern and central regions of Uganda, only 61% of the studied population used mosquito nets on daily basis [28]. In this study, the numbers were 73% in the intervention group and 48% in the control group. This shows that learning how to read and write increases the use of mosquito nets.

The data regarding prevalence and frequency of diarrhea did not show any consistent difference between the groups. This may be connected with the fact that also the controls were well aware of the importance of clean water.

8.6 Effects on health literacy

It is reassuring to see that almost 100 % of the study participants had heard about HIV. This corresponds to the findings in a study concerning awareness about HIV/AIDS among pregnant women in rural Uganda [29]. In our study, the vast majority in both groups had a fairly good general knowledge about HIV which seems reasonable to the high prevalence and impact of this disease in Uganda. The lack of response fits with a study claiming that health literacy does not get improved much after a three-year education program [24].

Moving on to tuberculosis, more than 90% in both groups had heard about the disease. Knowledge about the routes of transmission differed by 20% to the disadvantage to the

control group. Other aspects of health literacy regarding tuberculosis did not differ between the groups. According to a survey done in several parts of Uganda, tuberculosis is still a very stigmatizing disease and there are still a lot of outdated believes regarding treatment and transmission of the disease [30].

Regarding knowledge about the importance of clean water, both groups scored high on this question, without any intergroup differences.

In summary, in general terms both groups started off at a generally high level of health literacy and the courses did not have any dramatically effects on this domain. This finding is entirely supported by a similar study from another low-income country [24].

8.7 Effects on child situation

It is encouraging to see that all study participants, irrespective of reading and writing skills, had had their children vaccinated against several diseases. This pattern differs from a study showing that mother's schooling is consistently associated with getting her children completely immunized [31]. However in Uganda, vaccination of children has been compulsory for many years, and this may account for the discrepancy.

When estimating the health situation of their children, the participants of the intervention group generally judged their children´s health to be better than the view of the participants of the control group. This fits with a study showing that education programs for mothers are strongly associated with the better chances that the educated mothers will make use of prenatal care, that their births will be attended by trained medical personnel, and that when sick the children will receive timely and modern medical care [31]. In addition, particularly

within developing countries, literacy rates are strongly negatively correlated with child mortality; children of literate mothers are 50% more likely to live past the age 5 than children of illiterate mothers [32]. Furthermore, a survey made in Nigeria claims that developing literacy will bring economic empowerment and will encourage rural women to practice hygiene, which will in turn lead to the reduction of birth and death rates of children [33].

Regarding attitudes to children's schooling, there was a great difference between the groups with markedly higher values for the intervention group. This is in accordance with studies claiming that illiterate parents tend to have lower expectations and aspirations regarding education for themselves and their children. Through adult literacy courses there are great improvements regarding parents‘ attitudes to children´s schooling [34, 35]. Various studies also claim that when illiterate adults improve their literacy skills, there is a flow-on effect to their children by generating better assistance for help with homework, guiding, encouraging and helping their children to get better school results [32, 35].

8.8 Effects on future perspectives

There were clear-cut differences in the reply-patterns between the intervention and control group when it came to hopes for a better future for the subjects and their children. The intervention group had markedly higher hopes compared to the control group. This suggests that when getting more literate you not only improve physical and practical matters of life, but also mental health and your general wellbeing. This is a field that deserves to be further investigated since there is not much literature regarding this topic.

8.9 ALEF-assessment

Regarding the assessment of the ALEF-courses, there were unambiguous positive results for all investigated subdomains; effects on quality of life, effects on general life situation, effects on economic situation and effects on children´s situation. This patter is confirmed by several studies showing that literacy programs for adults generate better self-estimated living conditions [24, 33-35].

8.10 Overall pattern using a scoring system

To clarify the overall pattern across domains a scoring system was designed that made it possible to evaluate magnitude of responses against a common Y-axis. This mode of plotting showed obvious differences between the groups regarding particularly empowerment variables. Furthermore, smaller differences regarding socioeconomic situation, child situation and future perspectives were seen. Regarding health, hygiene and health literacy, there was no obvious difference between the groups.

8.11 Methodological considerations

Finally some comments regarding methodological issues. The questionnaire used was specifically designed for the present purpose, and we did not use a validated survey. The motive was to tailor-make a questionnaire specifically designed for this very specific environment. When preparing and developing the questionnaire, help, suggestions and improvements were obtained from an expert in the field of global health, Dr Leif Dotevall. The questionnaire contained different blocks covering various domains of the life situations of the subjects and was revised and carefully reviewed during the course of the project. The fact that the response pattern both within and across domains was consistent and the fact that there was also negative data implies that the document served its purpose.

It should be mentioned that in addition to the current quantative evaluation, a parallel interview-based qualitative study was conducted to generate a more holistic view and a deeper understanding regarding how one´s life is affected by learning how to read and write. This material is the topic of another degree project thesis written by Emilia Karlsson.

8.12 Limitations of the study

A potential source of error is recall bias. It is easy to forget and remember things incorrectly over time. The participants of the study that were literate may have had difficulties to correctly remember the time periods before they participated in ALEF courses. There is also a risk of participants wanting to please the interviewers and therefor overestimated the beneficial of the courses. However, this hypothesis is to some extend contradicted by the negative data found in some domains.

Finally, the language issue. The questionnaire was originally written in English and was translated into Luganda, generating a risk for misinterpretation. However, the coaches that acted as interpreters were fluent in both languages, that is we judge this risk to be small. All the data processing was done by the author, the coaches had no influences on this process, again minimizing the risk of bias.

9. CONCLUSIONS AND IMPLICATIONS

The main result of the current study was a strong empowerment signal through adult literacy training. There was also a clear-cut effect regarding hopes for the future, applying to both the subjects and their children. Furthermore, clear effects on socioeconomic situation and children´s situation were seen. This pattern is of a magnitude of a highly relevant topic and encourages further support of reading and writing training in illiterate females in low-income countries.

To have the most effective interventions through adult literacy training, there is a need to do more studies to obtain better understanding regarding the effects of adult literacy training. It is also of great need to evaluate and develop effective teaching methods. Additionally, much of the needed research has to go beyond numbers and use competence and methods from several scientific disciplines. To move further towards improvement there must be a deeper insight and more research regarding this interesting and vital topic.

10. ACKNOWLEDGMENTS

I would like to sincerely thank all the people who made this study possible. A special thanks to my excellent supervisors Professor Henrik Sjövall and Professor Aloysius Mutebi for their supervision, assistance and guidance throughout this project. Furthermore, I am very grateful for all the people at Change African Child International, especially Resty Kezabu Mutaawe and Irene Kinayenzire, who were indescribably helpful during the collecting of data. I am also grateful for Hélène Boëthius, Executive Chairman at Adult Learning and Empowerment Fund, who is the founder of the investigated Empowerment groups. Finally, I would like to thank Emilia Karlsson, my dear friend and travelling partner for good collaboration and great company.

11. POPULÄRVETENSKAPLIG SAMMANFATTINING

Utvärdering av hur livssituationen påverkas av läs-, skriv- och räkneutbildning hos fattiga, semiliterata kvinnor och män i Uganda

Rätten till utbildning är en grundpelare i den allmänna deklarationen om de mänskliga rättigheterna samt i FNs barnkonvention. Trots dessa grundläggande rättigheter är 17% av jordens befolkning oförmögna till att kunna läsa och skriva, två tredjedelar av dem är kvinnor. Att inte kunna läsa och skriva i dagens samhälle ger stora konsekvenser. Det ökar inte bara risken för att bli utsatt för korruption, diskriminering, våld och fattigdom, utan ökar även risken för sämre hälsa och sjukdom.

Det är allmänt vedertaget att när man lär fattiga kvinnor och män att läsa och skriva förbättras hälsokunskap, livskvalitét och att det är ett kostnadseffektivt sätt att använda bistånd på, men dessa antaganden är förvånansvärt skralt dokumenterade. Därför är det av stor betydelse att undersöka hur kvinnor och mäns liv påverkas av läs- och skrivkunskaper.

I den här studien har jag tittat på kvinnor och män som har genomgått en treårig vuxenutbildning i läs-, skriv- och räknekunskap och jämfört dem med kvinnor och män som har ansökt om att få delta i samma vuxenutbildning. Studien genomfördes i och runtomkring staden Entebbe i Uganda, där 24 % utav den vuxna befolkningen är analfabeta. Målet var att utreda hur kvinnornas och männens rättigheter, socioekonomi, livskvalitét, hälsa och hälsokunskap har påverkats av vuxenutbildningen.

141 personer deltog i studien, 70 personer i interventionsgruppen och 71 personer i kontrollgrupen. Med hjälp av översättare användes frågeformulär vid insamling av data. Frågeformuläret innehöll frågor om läs-och skrivkunskap, rättigheter, socioekonomiska förhållanden, livskvalitét, hygien och hälsa, hälsokunskap, barnens förhållanden, samt frågor om deltagarnas framtidsperspektiv och utvärdering utav vuxenutbildningen.

Denna studie visade att läs- skriv- och räkneutbildning bland kvinnor och män i Uganda ger tydliga positiva effekter när det gäller deras rättigheter och deltagande i samhället. Även tydliga förbättringar syntes på deltagarna i interventionsgruppens socioekonomi, barnens situation och på deras framtidsperspektiv. När det gäller hälsa, hygien och hälsokunskap var det inga uppmätta effekter utav utbildningen.

För att få mer kunskap och förståelse om effekterna av vuxenutbildning krävs mer forskning. Dessutom bör mycket av den forskning som behövs sträcka sig längre än siffror och procentsatser och använda sig utav metoder från flera vetenskapliga discipliner för att uppnå djupare insikter om detta vitala område.

12. REFERENCES

1. Cutler, D.M. and A. Lleras-Muney, *Education and Health: Evaluating Theories and Evidence.* NBER Working Paper, June 2006. **No. 12352**.
2. JC, C., *Education as a factor in mortality decline. An examination of Nigerian data.* Population studies, 1979. **33(3),** : p. pp 395-413,.
3. UNITED NATIONS, *Universal Declaration of Human Rights,*. http://www.un.org/en/universal-declaration-human-rights/. (Cited 2017-09-30).
4. The World Bank, *Literacy rate.* https://data.worldbank.org/indicator/SE.ADT.LITR.ZS, 2017.
5. Jacobsen, K.H., *Introduction to Global Health,*. June 2015: Jones and Bartlett Publishers Inc.(Cited 2017-09-30).
6. Woolf, S.H., *Social policy as health policy.* Jama, 2009. **301**(11): p. 1166-9.
7. Smith-Greenaway, E., *Maternal reading skills and child mortality in Nigeria: a reassessment of why education matters.* Demography, 2013. **50**(5): p. 1551-61.
8. Smith-Greenaway, E., *Educational attainment and adult literacy: A descriptive account of 31 Sub-Saharan Africa countries.* Demogr Res, 2015. **33**: p. 1015-1034.
9. The World Health Organization, *Women & Health: Today's Evidence, Tomorrow's Agenda.* http://apps.who.int/iris/bitstream/10665/44168/1/9789241563857_eng.pdf, Mars 2013.(Cited 2017-10-15)
10. Gita Sen, Piroska Östlin, and Asha George, *Unequal, Unfair, Ineffective and Inefficient*

Gender Inequity in Health: Why it exists and how we can change it WHO Commission on Social Determinants of Health, September 2007.

11. Sen, G. and P. Ostlin, *Gender inequity in health: why it exists and how we can change it.* Glob Public Health, 2008. **3 Suppl 1**: p. 1-12.
12. Wallerstein, *What is the evidence on effectiveness of*

empowerment to improve health? . The World Health Organization, February 2006.

13. The World Bank, *Uganda.* https://data.worldbank.org/country/uganda?view=chart, 2017. (Cited 2017-10-15).
14. The World Bank, *Poverty assessment 2016 fact-sheet.* http://www.worldbank.org/en/country/uganda/brief/uganda-poverty-assessment-2016-fact-sheet, 2016. (Cited 2017-10-16).
15. The World Bank, *Quality of Uganda's Education and Health Services Poses Serious Risk to Long-Term Economic Progress.* http://www.worldbank.org/en/news/press-release/2013/11/19/quality-uganda-education-and-health-services-poses-serious-risk-long-term-economic-progress, November 2013. (Cited 2017-10-18).
16. Statisitkdatabasen, *http://www.statistikdatabasen.scb.se/pxweb/en/ssd/START__BE__BE0101__BE0101Q/UtlSvBakgFin/?rxid=86abd797-7854-4564-9150-c9b06ae3ab07c9b06ae3ab07,*. (Cited 2017-09-25)
17. OECD Publishing, *OECD Better Life Index, Multilingual Summaries How´s Life? Meassuring Well being* 2013.
18. World Economic Forum, *The Global Competitiveness Report 2014-2015.* 2015.
19. UNESCO, *United Nations Educational, Scientific and Cultural Organization.* http://uis.unesco.org/country/SE, 2017/8. (Cited 2017-10-15).
20. UNESCO, *GLOBAL EDUCATION MONITORING REPORT, Accountability in education: Meeting our commitments.* http://gem-report-2017.unesco.org/wp-content/uploads/2017/10/2017-GEM-Report-Statistical-Tables.pdf, 2017/8. (Cited 2017-10-16).
21. John W. Miller, *WORLD'S MOST LITERATE NATIONS RANKED.* www.ccsu.edu/wmln., 2016/3. (Cited 2017-11-01).
22. UNESCO, *Final Report, The Hamburg Declaration on Adult Learning, The Agenda for the Future, the Fifth International Conference on Adult Education.* 1997.

23. UNESCO, *Mobile phones and literacy: Empowerment in Women´s Hands; A Cross-Case Analysis of Nine Experiences.* 2015.
24. Shirley Burchfield, Haiyan Hua, and et al, *A Longitudinal Study of the Effect of Integrated Literacy and Basic Education Programs on Women's Participation in Social and Economic Development in Nepal.* 2002.
25. UNESCO, I.f.L.L. and Janine Eldred, *LITERACY AND WOMEN´S EMPOWERMENT.* 2013.
26. Omita Goyal, *Interrogating women's leadership and empowerment.* 2015.
27. Andrea Vaona and N. Magnani, *Access to electricity and socio-economic characteristics: panel data evidence from 31 countries.* Working Paper Series Department of Economics University of Verona, September 2014.
28. Clark, S., et al., *A Longitudinal Analysis of Mosquito Net Ownership and Use in an Indigenous Batwa Population after a Targeted Distribution.* PLoS One, 2016. **11**(5): p. e0154808.
29. Josefin Sandqvist, et al., *HIV Awareness and Risk Behavior among Pregnant Women in Mateete, Uganda* 2010.
30. Buregyeya, E., et al., *Tuberculosis knowledge, attitudes and health-seeking behaviour in rural Uganda.* Int J Tuberc Lung Dis, 2011. **15**(7): p. 938-42.
31. Levine, R.A. and M.L. Rowe, *Maternal literacy and child health in less-developed countries: evidence, processes, and limitations.* J Dev Behav Pediatr, 2009. **30**(4): p. 340-9.
32. The World Literacy Foundation, *The Economic and Social Cost of Illiteracy, A snapshot of illiteracy in a global context, Final report from the World Literacy Foundation.* August 2015.
33. Olufemi Onweazu and Olasupo Olutoyin Ladeji, *Influence of adult literacy education on socio-economic empowerment of rural women in Oyo State, Nigeria.* Gender and Behaviour, January 2014.
34. UNESCO, Rodrigo Martinez, and A. Fernández, *The Social and Economic Impact of Illiteracy: Analytical Model and Pilot Study.* 2010.
35. National Research and Development Centre for adult literacy and numeracy, et al., *The impact of family literacy programmes on children's literacy skills and the home literacy environment.* November 2015.

APPENDIX 1

Code number:…….

QUESTIONNAIRE

1. **Gender? (Circle)**
   1. Male 2. Female

2. **Your age (in completed years)?** ☐☐

3. **Have you participated in an ALEF-course? (If no, skip to question 5)**
   1. Yes 2. No

4. **How many years have you participated in ALEF-courses?** ☐

QUESTION 5-8, LANGUAGE SKILLS

5. **Can you write your name?**
   1. Yes 2. No

6. **Are you able to understand documents written in Luganda? (Circle one)**
   a) Yes, without problems
   b) Yes, but slowly and I usually understand most of it
   c) Yes, but with some difficulty and I do not understand it all
   d) Yes, but with much difficulty and I only understand part of the text
   e) No

7. **Do you understand an English text? (Circle one)**
   a) Yes, without problems
   b) Yes, but slowly and I usually understand most of it
   c) Yes, but with some difficulty and I do not understand it all
   d) Yes, but with much difficulty and I only understand part of the text
   e) No

8. **Do you speak English? (Circle one)**
   a) Yes, fluently
   b) Yes, but I can only talk about practical and simple matters
   c) Yes, but only with difficulty
   d) Yes, but only a few words
   f) No

QUESTION 9-14, SOCIAL, FAMILY LIFE, QUALITY OF LIFE

9. Do you participate in any social activity in your community? (Circle one)

a) Yes, regularly
b) Yes, fairly often
c) Yes, occasionally
d) Yes, but very seldom
e) No

	The following statements are about the changes in your life. Read the statements below and circle the most appropriate reaction to each statement.	**No = 1 Yes, very much so = 5**
		Circle the most appropriate code
10.	**Has the ability to read and write improved your quality of life?**	1 2 3 4 5
11.	**Has the ability to read and write improved your economic situation?**	1 2 3 4 5
12.	**How many children do you have?**	0 1 2 3 4 5 or more
13.	**How many children do you want to have?**	0 1 2 3 4 5 or more
14.	**Has learning to read and write improved the situation for your children?**	1 2 3 4 5

15. What is your marital status? (Circle one)

1. Married 2. Single 3. Separated/divorced 4. Widowed 5. Boyfriend/Girlfriend **(Circle one)**

If you have no husband or wife, skip to 18

16. If you participated in an ALEF course, what did your partner think about your participation in ALEF? (Circle one)

a. He was moderately positive
b. He was neutral
c. He was not against it but also not very positive
d. He was against it

17. What is your partner's main income generating activity? (Circle one)

1. Self-employed 2. Employed 3. No income

18. Do you participate in decision making processes in your family?

1. Yes 2. No

QUESTION 19-22, HUMAN RIGHTS

19. Do you know anything about Human rights? (If No. go to Q21)

1. Yes 2. No

20. If yes, do you think society treats you according to the Human rights?

1. Yes 2. No

21. Do you ever feel discriminated?

1. Yes 2. No

22. If you feel/would feel discriminated, do you know how to claim your rights?

1. Yes 2. No

QUESTION 23-27, SITUATION OF CHILDREN

If you have children, please answer the following questions Q23-27:

23. How old are your children?

24. How would you judge the health situation of your children? (Circle one)

a. Excellent, no health problems
b. Good, some minor health problems, nothing serious
c. Occasional health problems, infections etc
d. More serious health problems, needed medical care
e. Poor health status

25. Have your children had any vaccinations?

1. Yes 2. No

26. Are any of your children old enough to go to school? (If No, go to 28)

1. Yes 2. No

27. If yes, do you and your husband/wife encourage them to attend school? (Circle one)

a. Yes, attending school is very important for their future
b. Yes, but sometimes they are needed at home and therefore cannot go to school
c. Yes, but only if we afford and it does not affect family routines
d. Sometimes, but we do not think school is very important
e. No, they have stopped going to school

QUESTION 28-31, ECONOMY

28. What is your main income generating activity? (Circle one)

1. No income 2. Self-employed 3. Employed

29. Do you have access to electricity in your home? (Circle one)

1. Yes 2. No

30. How many rooms are in your home? (Circle one)

1 2 3 4 5 or more

31. How many family members sleep in the same room? (Circle one)

1 2 3 4 5 or more

QUESTION 31-35, HEALTH SITUATION

32. Have you had any vaccinations? (Circle one)

1. Yes 2. No

33. Have you suffered from malaria? (Circle one)

1. Yes 2. No

34. Do you use ITNs (insecticide-treated bed nets) in your home? (Circle one)

1. Yes 2. No

35. Have you suffered from diarrhea in the past 12 months? (Circle one) If No, go to Q36

1. Yes 2. No

35b. If yes, how often?

a. Never
b. Once every two weeks
c. Once every week
d. 3-4 times a week
e. Every day

36. Have you taken antibiotics during the last 12 months?

1. Yes 2. No

36b. If yes, for what reason? ……..

QUESTION 37-43, HEALTH LITERACY

37. Have you heard of HIV?

1. Yes 2. No

- **If yes**, what do you know about HIV?

38. How is HIV transmitted? Choose one option:

a) By eating raw meat
b) Sexually
c) By mosquitos
d) Spread through the air, e.g. when people who have active TB in their lungs cough
e) Don´t know

39. Please choose the correct alternative

a. HIV patients sometimes do not have any symptoms at all 1.True 2. False
b. HIV can be transmitted by shaking hands with an HIV positive patient
   1. True 2. False
c. If the mother has HIV, the child always gets it 1. True 2. False
d. HIV can be cured 1. True 2. False
e. If you take HIV medicine, the risk of transmitting the disease is reduced

   1. True 2. False

40. Have you heard about TB?

1. Yes 2. No

If yes, what do you know about TB?

41. How is TB transmitted? Choose one option:

a) By eating raw meat
b) Sexually
c) By mosquitos
d) Spread through the air when people who have active TB in their lungs cough
e) Don´t know

42. What statements are correct?

a. People may have TB without having any symptoms 1. True 2. False
b. TB patients are always contagious 1. True 2. False
c. TB can be treated by medicine, and the patient can usually be cured
   1. True 2. False
d. TB can be transmitted by shaking hands with a patient 1. True 2. False
e. TB is always transferred from mother to child 1.True 2. False

43. Why is it important to have clean water?

Choose one option:

a) You may get diarrhea if you drink dirty water
b) You may get HIV if you drink dirty water
c) You may get TB if you drink dirty water

QUESTION 44-45, FUTURE PERSPECTIVES

44. How do you think your situation is going to change in e.g. ten years time?

a) The situation will be markedly improved, I will have a much nicer home and will be heathy and able to afford things not absolutely necessary
b) The situation will be somewhat improved, I will have a little more money and better health
c) The situation will be about the same
d) The situation will be worse, maybe I will get get health problems
e) The situation will be worse

45. If you have children, what is your opinion regarding their future?

a) They will get a good education and have a much better life than me
b) They will get some education and will have a somewhat better life situation than me
c) They will get some education but will have about the same living standard as me
d) They will not get any proper education and their living standard will be lower than mine
e) They will not get any proper education and a much lower living standard than me

QUESTION 46-47, ASSESSMENT OF ALEF COURSE

46. Would you recommend someone to take the ALEF courses?

1-5,
1= no,
5 = yes, without hesitancy

47. How much do you think the ALEF course has changed your life situation?

a. Very much, my life situation has markedly improved since I took the course
b. Much, my life situation has improved somewhat since I took the course
c. Not so much, my life situation about the same as before I took the course
d. My life situation has deteriorated a little since I took the course
e. My life situation has deteriorated markedly since I took the course

Thank you for your participation!