Children Believe was formerly called Christian Children's Fund of Canada (CCFC)

Final (Post-Intervention) Evaluation Report

Saving Brains Project: Maternal, Newborn Health and Early Childhood Development in Rural, Low Literacy Settings of Ethiopia

Implemented in Arsi Negele Woreda, Oromia Regional State, Ethiopia

(October 2014 - September 2016)

Submitted To

Christian Children's Fund of Canada (CCFC)

Submitted by

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Acronyms

BBBC Bole Bible Baptist Church Child Care and Community Development

CCFC Christian Children's Fund of Canada

ECD Early Childhood Development

FGD Focus Group Discussion

HTP Harmful Traditional Practices

KII Key Informants' Interview

LTP Learning Through Play

MUAC Mid-Upper Arm Circumference

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1. Executive Summary

Christian Children's Fund of Canada (CCFC) has been piloting a two-year project titled Maternal, Newborn Health and Early Childhood Development in Rural, Low Literacy Settings of Ethiopia, and commonly known as “Saving Brains Project” from October 2014-September 2016. CCFC designed, planned and provided technical support through the process of implementing, monitoring and evaluating the Saving Brains Project while BBBC was responsible for direct implementation of the project. The Saving Brains project was implemented/piloted in Arsi Negele Woreda (Woreda), West Arsi zone, Oromia Regional State in Ethiopia The collaborators for the project were government office mainly District Health Office and expert (professional) from Addis Ababa University. The project was also technically supported by the Hincks-Dellcrest Centre in Toronto, Canada. The project was undertaken with financial support of Grand Challenges Canada and Government of Canada.

The project was piloted with a proof-of- concept to test the feasibility and effectiveness of two knowledge delivery mechanisms: 1) Pictorially illustrated Learning Through Play (LTP) calendar and 2) audio-visual early brain development education program in rural, low-literacy communities, whether the knowledge delivery mechanisms are effective in improving parents’/caregivers’ knowledge, skills and behavior in child-rearing, as well as to demonstrate if this has a positive and measurable change on physical, cognitive, language and socio-emotional development of children 0-3 years of age.

The goal was to improve the health, and physical, cognitive, linguistic and socio-emotional development of 3,000 children 0-3 years of age in 2,500 households by enabling parents to protect and nurture early brain development during both the prenatal and early childhood periods.

The final evaluation (the post-intervention evaluation) applied both quantitative (household surveys) and qualitative (Focus Groups Discussions and in-depth interviews) data collection method. It also collected data on key physical measurements/ anthropometry/ including height, weight and head circumference and MUAC from all children during the data collection in both control group (non-intervention areas) and intervention groups (in the communities where the project interventions have been taken place). The evaluation took place in the last months of end of the project period, August-September 2016. The result of the evaluation shows the project achieved its objectives and the knowledge delivery mechanisms, namely the Learning Through Play (LTP) and audio-visual early brain development education program was effective in improving

parents'/caregivers' knowledge, skills and behavior in child-rearing. This has been evidenced by positive on physical, cognitive, language and socio-emotional development of children 0-3 years of age.

- The proportion of parents who answered correctly to more than 50% of the LTP (Learning Through Play) questions on parental knowledge assessment was 51.80% and 99.40% in the control and intervention kebeles (sub-districts), respectively, which showed statistically significant difference in the knowledge of parents related to antenatal care, delivery and postnatal care between the control and intervention groups.
- About 9.54% of parents in the control area and 97.09% of parents in intervention area practiced proper parenting (early stimulation and attachment) for their children.
- The proportion of children under 3 years of age who showed normal problem solving ability (cognitive function of a child) was significant between the control group (31.5%) and intervention (63.9%) areas.
- The communication skills of children in the intervention areas (84.90%) as compared to the control areas or groups (46.9%).
- The proportion of children with normal gross motor skills in the control groups was 36.40% as compared to the intervention groups which was 68.2%.
- About 17.0% and 46.20% of children (0-3 years of age) had normal fine motor skills in control and intervention areas, respectively. However, there was no significant difference between the control and intervention groups concerning wasting and underweight prevalence among children.
- The proportion of children with normal personal-social development skills was 42% in control and 74.4% in the intervention groups.
- The proportion of children with normal social-emotional skills in the control groups was 51.5% and that of in the intervention groups was 83%.

Based on the findings of the evaluation, it has been recommended that the knowledge delivery approach: Learning Through Play and dissemination of audio-visual massages should be scaled up in other part of the country to make early child development program more effective and impactful.

2. Introduction

2.1. Overview

Christian Children's Fund of Canada (CCFC) is a child centered international development organization devoted to addressing the needs of children and youth. CCFC has been working globally for more than 50 years. In Ethiopia, CCFC has been operational for the past 28 years, making it one of the oldest and creditable INGOs working in the country. Education; Early Childhood Care and Development; and Maternal, Newborn and Child Health are among key program components of CCFC in Ethiopia.

Christian Children's Fund of Canada also strongly believes Early Childhood Development (ECD) interventions in early years is crucial to help children achieve their full potential. In line with this, Christian Children's Fund of Canada (CCFC) involved its local partner (NGO) known as Bole Bible Baptist Church Child Care and Community Development (BBBC) in implementing a Project called Maternal, Newborn Health and Early Childhood Development in Rural, Low Literacy Settings of Ethiopia (Saving Brains Project) with the financial support from Grand Challenge Canada and the Government of Canada. The Project was implemented from October 2014 to September 2016 in rural and underserved communities in Arsi Negele district, of the Oromia National Regional State of Ethiopia.

The Project used the Learning Through Play (LTP) program which was complemented using audio-visual communication technology that was used in cost-effective and interactive ways to increase the knowledge and skills of parents and caregivers. The Project targeted at enabling parents to protect and nurture early child brain development during both the prenatal and early childhood periods. Project reached 3,000 children 0-3 years of age from 2,500 households within the last two years.

2.2. Project Area

Arsi Negele Woreda is located some 200 km south of Addis Ababa. It is located in the West Arsi Zone of the Oromia National Regional State, Ethiopia. The Project was implemented in seven kebeles (sub-districts) of Arsi Negele. These areas were selected because of the challenges the communities face in areas of maternal newborn, and early childhood care and development. Administratively the Arsi Negele district is divided into forty-eight kebeles (forty-five rural and three urban kebeles). The majority of the kebeles are found in lowlands areas where malaria is highly prevalent. According to the Central Statistical Agency (CSA) the total population of the district in 2014 was 320,384 (158,131 males and 162,253 females).

Agriculture is the main livelihood activity and the backbone of the area's economy. Farmers widely cultivate maize, haricot beans, wheat and sorghum. Livestock rearing is also another agricultural activity in the district. Livestock is an important household resource that plays a significant role in meeting households' food security, income generation, food supply (milk and meat) and ploughing. However, most of the Project areas are located in semi-arid climatic type of environment that makes them highly vulnerable to natural disasters like drought that affects the performance of rain-fed agriculture: crop and animal production.

The rural area is also characterized by traditional living conditions. For example, the majority of the families own houses with roofs constructed with thatch and reed grass, and have mud walls, which are not very durable. Very few families in rural areas own radios. Since there is no electricity supply in most rural villages, the households use firewood and animal dung as domestic fuel and light source.

There are two Health Extension Workers (HEWs) assigned to each kebeles who are responsible for undertaking the day-to-day health extension program. These community health workers are selected from the rural areas they come from. After receiving training, they return to their communities to provide healthcare services.

2.3. The Rationale of the Project

Young children (0-3 years of age) need proper and high level care for their healthy growth and development. The psychosocial component of early child development requires proper cognitive, linguistic and social-emotional development needs to be nurtured. However, this aspect of child care and support was largely ignored especially among many rural communities in Ethiopia, including the targeted sub districts in Arsi Negele prior to the Project intervention. To address this challenge much was required by the Project to improve parental education in a continuous way. Many parents need to be educated about early brain development and what is needed to be done to enhance brain development of their children, especially those in their early age (0-3 years) of a child using simple techniques such as play, touch, eye-to-eye contact, smiling, love and proper nutrition.

Before the implementation of Saving Brains Project, the knowledge and skills of parents on early brain development, child feeding practices and prenatal nutrition was low. There was a particular need to promote early initiation and exclusive breastfeeding. This is because traditional beliefs prevalent in the area prevented newborns from having colostrum (first milk), which is rich in nutrients and has maternal antibodies that

protect the newborn from infection. Mothers would also feed their children solid food early and give them other drinks like water before they reach six months of age. Another challenge was majority of the women in the area often did not make four or more visits for antenatal care, as recommended by the World Health Organization (WHO) and give birth in health facilities where they can receive proper care. This made it difficult to detect and manage maternal and neonatal complications early on time.

At the start of the Project, a baseline survey was conducted to collect preliminary data around key child development domains including social emotional, cognitive, language and physical growth of children under the age of three years. Similarly, this final evaluation (survey) was designed to capture the status of knowledge and practices on early child development of parents/caregivers in the control groups or kebeles (sub districts) and intervention group. A total of 610 respondents were interviewed from both intervention and control groups; the majority of them were mothers.

3. Project Goal and Objectives

Goal: To improve the health, and physical, cognitive, linguistic and socio-emotional development of 3,000 children 0-3 years of age in 2,500 households in Arsi Negelle District, Ethiopia.

Project Objectives:

1) To improve knowledge and skill of 2,500 parents on Learning Through Play (LTP) early brain development, attachment, promoting early stimulation, producing playing materials, the developmental needs of their children in sense of self, physical, cognition, communicative development and relationships to enable them nurture their children 0-3 years of age (total of 3,000 children) using LTP.

2) To improve knowledge of 2,500 parents/caregivers on maternal, neonatal and child health: through watching and reflecting on video messages (audio-visual education program) focusing on nutrition- early and exclusive breastfeeding, complementary feeding, immunization, preventing harmful cultural practices and infections, sanitation, hygiene, and maternal health.

3) To improve Knowledge and skill of intermediaries: 60 front-line community health promoters (social workers, health extension workers and Health Development Army) able to deliver Learning Through Play (LTP) and audio-visual education program on early brain development, maternal and newborn health and nutrition, and provide home-to- home technical support (advice) to parents.

4. Rationale for Final Evaluation

The overall purpose of this evaluation was to find out whether project's approaches that were used during the implementation of the project were effective in terms of 1) improving the knowledge, skills and practices of parents (caregivers) of young children 0-3 years of age 2) the parents/caregivers' proper nurturing of their children resulted in contributing to children's holistic development (physical, cognitive, communication, social and emotional development). The findings of the final evaluation are used to draw recommendations – what works and what doesn't work in terms of supporting early childhood development programs in the country.

5. Definition of the two knowledge delivery approaches

a) ***Learning Through Play (LTP):*** The LTP is a program focusing on an early brain development through increasing knowledge and skills of parents (caregivers) on early stimulation and psychosocial support using LTP Calendars which are pictorially illustrated showing the successive stages of child development with descriptions of simple play activities to enable parents easily understand age appropriate care and supports for their young children (0-6 years of age), and guideline for parent group leaders and health promoters and social workers to enable them provide technical support to parents on early child development. For this particular project, LTP was focused on parents (caregivers) of children 0-3 years.

b) Audio-visual early brain development education: This is complementary knowledge delivery approach. It is a community-led, participatory approach that is applied in production and dissemination of an audio-visual education messages that can facilitate discussions and learning among parents in order to enhance adoption of best practices for health and early brain development. Trained social workers produce locally contextualized scripts and videos involving model mothers and fathers who are already using best practices in early childhood care. The video messages focusing on exclusive breastfeeding, immunization, promoting early stimulation and maternal health is disseminated by trained social/health extension workers using a portable, rechargeable battery-operated device (once charged the device can serve to show video for 8 hours in rural areas where there is no electricity). Parents are organized in groups to watch these videos and are engaged in discussion and sharing experiences after the video is played.

The two approaches have been selected based on scientific evidence and proven experience suitable for the local context where is low infrastructure (no electricity, no TV) and in low-literacy communities. Using pictorially illustrated LTP calendar complemented by audio-visual aids the project delivers practically oriented interactive training and education to enable rural and low-literacy parents to practice consistent and appropriate nurturing and protection of their young children starting in the prenatal period.

6. Study Methodology

The project applied both quantitative (household surveys) and qualitative (Focus Groups Discussions and in-depth interviews) data collection method. It also collected data on key physical measurements/ anthropometry/ including height, weight and head circumference and Mid-Upper Arm Circumference (MUAC) from all children during the data collection.

A total of 610 children and their parents/caregivers were involved in the survey. The sample size was determined with the use of the optimal Design Software for Multi-level and Longitudinal Research (Version 3.01). Based on effect sizes provided in the previous studies (10), with three measurement points significant level of $\alpha = 0.05$, level-2 variability of ($\sigma 2 = .10$), and standardized effect size on the linear growth parameter of ($\delta = .30$) and no attrition, we can assume 520 participants (260 per each intervention and control) are needed for a desirable power level of ($\sigma 2 > 0.80$). To account for 17% average attrition, we recruited 88 additional participants for a total sample of 610 (originally planned for 608) for this two-level person randomized trial. [1]

In order to ensure that participants felt comfortable with the questionnaires and interview process they were given the option to skip any question should they decide that they did not want to provide an answer.
Data collector from the local areas were recruited and received training on data collection. The data that was collected included parent' (caregivers') knowledge and practices on early child development, and key child growth and development.

- Changes in Parents' (caregivers') knowledge and practices on early child development using Learning Through Play Knowledge Questionnaire and matrix.
- Changes in Parents' (caregivers') knowledge and utilization of maternal and newborn health practices and services (breastfeeding, immunization, antenatal care, skilled deliver and postnatal care) using questionnaires developed to capture the information on maternal and newborn health.

[1] CCFC Application for seed Grants – Saving Brains project proposal to Grand Challenges

- Cognitive function of children using *Ages and Stages Questionnaire.*
- Communication (receptive and expressive language) using *MacArthur Child Development Inventory (CDI).*
- Socio-emotional capacities of children using *Ages and Stages Questionnaires – Social Emotional assessment tool.*
- Physical development of children: Direct child measurement of height, weight and head circumference and MUAC, and gross and fine motor skills assessment using *Ages and Stages Questionnaire.*

The survey was conducted in 14 kebeles (sub-districts) of Arsi Negele district (seven intervention & seven control kebeles) in West Arsi zone of Oromia region, Ethiopia. The seven intervention kebeles (sub-district) and the seven control group kebeles had similar socio-economic, ecological and demographic characteristics. The intervention and control groups were selected to be geographically distant enough so that parents or caregivers would not be likely to interact or share information. A total of 610 children with their 610 parents (caregivers) were involved in the study (310 from each intervention and control groups).

The project developed data management system and entered data on the knowledge and practice of parents around child development as well as the key child development domains. The data system exported data into excel dashboard and further was exported to SPSS Version 20. Univariate analysis using frequency tables was used to estimate the proportion and prevalence of the different parameters within the study groups and bivariate analysis was done to find out if there

Ethical considerations

CCFC and its local partner obtained permission from the Health Office to undertake the study/evaluation before the field visits. Consents obtained from all survey, KII, FGD respondents before the start of data collection. The consultant and data collectors ensured a proper explanation on the purpose of the study, confidentiality and respondents' right to accept or refuse to participate, in advance. All measures were in place to assure the respect, dignity and freedom of each participating individual in the evaluation. During training of data collectors, emphasis paid on the importance of obtaining informed consent and avoiding coercion of any kind.

7. Study Findings

7.1. Implementation of Project Intervention Approaches

The Saving Brains Project provided parents with LTP calendars to improve parental knowledge on child development. The LTP program and materials used by the Project were developed by the Hincks-Dellcrest Centre and the Toronto Public Health office. The LTP pictorial calendars show the successive stages of child development. They also have brief descriptions of simple play activities that show parents what they can do to promote healthy child development. These materials were translated into Oromiffa, the local language that is widely spoken in Arsi Negelle district. The illustrations used by the calendar were also adapted to the local context.

The Project provided two days training for the target 2,500 parents with the purpose of improving their understanding on the concepts of LTP and about how to make use of the LTP calendars to support the growth and development of their children. Parents in the target community were also encouraged to have regular group discussions twice a month on child growth and development based on the LTP calendars.

Utilizing the Learning Through Play Calendar

The Saving Brains Project made use of the LTP calendar developed by the Hincks-Dellcrest Centre and the Toronto Public Health office. The calendar served as a guide for parents on the developmental stages of the child. It also recommends the appropriate activities parents can do with their child at each stage, using play as the main technique. The calendar focused on five areas of development which are Sense of Self, Physical Development, Relationships, Understanding and Communication.

A parent in Gubeta sub district using the LTP calendar

“Initially when Saving Brains Project was introduced to our community, understanding the objectives and ideas from the project were difficult” says Gemeda Gajji a father of three children who had initially very minimal participation in taking care of his children. Gemeda, who lives in Buku walda sub district is a teacher at an elementary school. Before the Project was introduced in his community his wife Amane Abdalla used to be the only one responsible for taking care of the children.

Gameda seeing the LTP calendar on the wall of his house

After receiving training from the Project on how to use the LTP calendar and how fathers can play a positive role in the growth and development of their children, both Gemeda and Amane started to apply the principles they were educated on.

“The training helped us to know the development stages of children especially at their early ages. So, we are now able to understand what kind of support and motivation our children need at different stages of their lives. We are trying to meet their growth needs by referring to the calendar”, explains Gemeda, who is now very active in raising his children. “Although I was the one responsible for taking care of my children, I was never aware that there are development stages in the growth of a child”, says Amane.
“For instance I used to think that by not allowing my child to move around freely, I would be protecting her from falling and getting injured”, she explains.

On the walls of Gemeda and Amane home we find the LTP calendar properly displayed in a place where they can always see it. “We help our children understand that we love them so much as most parents do. We give them all our love through hugging, kissing and spending time with them as guided by the calendar. They feel safe and comfortable when we make them close to us. We are also careful about things that make them angry.” Physical development is addressed as part of the calendar that Amane and Gamada follow to support the growth of their children. Gamada and his wife are excited to see the day-to-day physical changes that their children are experiencing. “We support and encourage our children by holding their hands to move here and there. We help them to hold things and try to see what they can do with their hands and legs,” Gamada said.

Thanks to his regular use of the LTP calendar, Gamada is now more connected with his children and is helping them develop their physical, emotional and communication skills. He also says he hears frequently the positive responses of parents from the community about the changes they have seen from applying the LTP calendars in their lives.

Early Brain Development

A child’s brain undergoes significant development from birth up to three years of age. This growing brain is influenced by many factors including a child’s relationships, experiences and environment. Saving Brains project has been promoting the importance of early child brain development. One of the beneficiaries of the project is three-year-old Demitu Hussen. Her mother Ruqiya Megarsa, who lives in Gubeta sub district, has been trained by the Project on the importance of early child brain development.

Demitu playing with her Mom

The training she received was aided by using short educational videos. “I was surprised to learn from the Project that most of the development of the brain takes place during the early years. The video films showed

me that I can improve my child's growth by simply talking and playing with her. That is why I started to give Demitu my utmost attention and care" says Ruqiya. "I talk to my daughter about whatever routine thing I do including changing her clothes, feeding her, cleaning the house or washing clothes. I also point out different parts of the body, things in our house and names of people", she adds.

The Saving Brains Project social workers have trained Ruqiya and continually came to her home to follow up on the development of Demitu. The progress they saw with the child was encouraging. The social workers encouraged Ruqiya and her husband, Hussen Washo, to continue taking time to talk to Demitu, tell her stories, sing and even play to make her a happier and active child.

"I'm so surprised how fast her mind is developing. Once Demitu is told the name of a person she does not forget. She has become a happy and confident child as a result of our interactions", says Ruqiya. "Through the Project training I learnt about the importance of showing love, attention and communication to my daughter to encourage her to try different things. I also learnt that children come to understand the world around them through their five senses. Unless we give due attention to what our child sees, hears and touches, we cannot be sure that she gets the best things from the environment around her. That is what me and my husband are doing for our daughter. I can confidently say that all the people who received training with me are implementing the principles of the Project and are witnessing excellent progress with their children", explains Ruqiya.

Audio-visual Education on Early Brain Development

The Project used audio-visual education messages to facilitate discussions and create awareness on early brain development among parents. The videos were used to encourage best practices among parents. The videos were produced using parents from the same communities, who can serve as model mothers and fathers and who have good practices of raising children. The video messages, which were developed in Oromiffa- the local language in the area, focused on promoting early brain stimulation; enhancing parent to child interactions; attachment and maternal health exclusive breastfeeding and immunization.

Trained social workers of the Project used portable devices to show the videos to the parents. During the Project implementation period parents came as groups to watch these videos. After watching the videos, the parents engaged in discussions and shared experiences reflecting on what they had learnt.

Parents group in Haramgama sub district attending educational session supported with video

Participatory Multi-Stakeholder Involvement

The Project engaged influential people (community leaders, elders and religious leaders) to create awareness about early childhood development and maternal health. This played a major role in influencing the community to address existing harmful traditional practices. Government offices, especially the District Health Office and Women, Children and Youth Affairs Office were key Project stakeholders who have shown their engagement through follow up and support of the project.

The Project also actively engaged professionals from the Addis Ababa University for technical support. The technical support included reviews and suggestions on the implementation modalities of project intervention approaches, recommendations on study tools, data analysis and reporting mechanisms. The Project also engaged with other actors in the district and sub-district levels, particularly in the formulation of the Early Childhood Care and Development (ECCD) committee

7.2. Key Results: Knowledge and practices of Parents and Child Development

7.2.1. Parents' Knowledge and Practice on Child Development

The Saving Brains Project worked to improve parent's understanding and skills on early brain development of children and utilization of key maternal and child health services including antenatal care, delivery and postnatal care as well as immunizations. The antenatal period presents important opportunities for reaching pregnant women with interventions that are vital to their health and well-being and that of their unborn child. When pregnant women receive Antenatal Care (ANC) early it can be beneficial in preventing adverse pregnancy outcomes. Under normal circumstances, the World Health Organization (WHO) recommends that a woman without complications should have at least four ANC visits.

The project also teaches the community about the importance of skilled delivery and encourages women to utilize the service. It also promotes other maternal and child health care services including postnatal care, exclusive breast feeding and immunizations. The project applied Learning Through Play program and audio-visual education materials and disseminated key messages to parents of children 0-3 years of age around positive parental practices on early child brain stimulation and development through parent to child interactions and attachment.

Figure 1 below shows the results of the surveys conducted at the beginning, middle and end of the project on parental knowledge around early brain development and maternal and child health. The findings of the surveys show there is significant improvement in parental knowledge and practices related to early brain development and maternal and child health issues during the life of the project.

During the baseline survey, parents who responded to more than 50% of the LTP questions on parental knowledge assessment was 47.94% and 46.40% in the intervention and control kebeles respectively, which showed no significant difference in the two groups perceptions (P=0.345). This proportion at the final evaluation showed 99.40% of parents in the intervention groups and 51.80% in the control groups responded to more than 50% of the questions which implies that there was significant difference in the knowledge and practice related to antenatal care, delivery and postnatal care in between the intervention and control groups. ($P<0.05$).

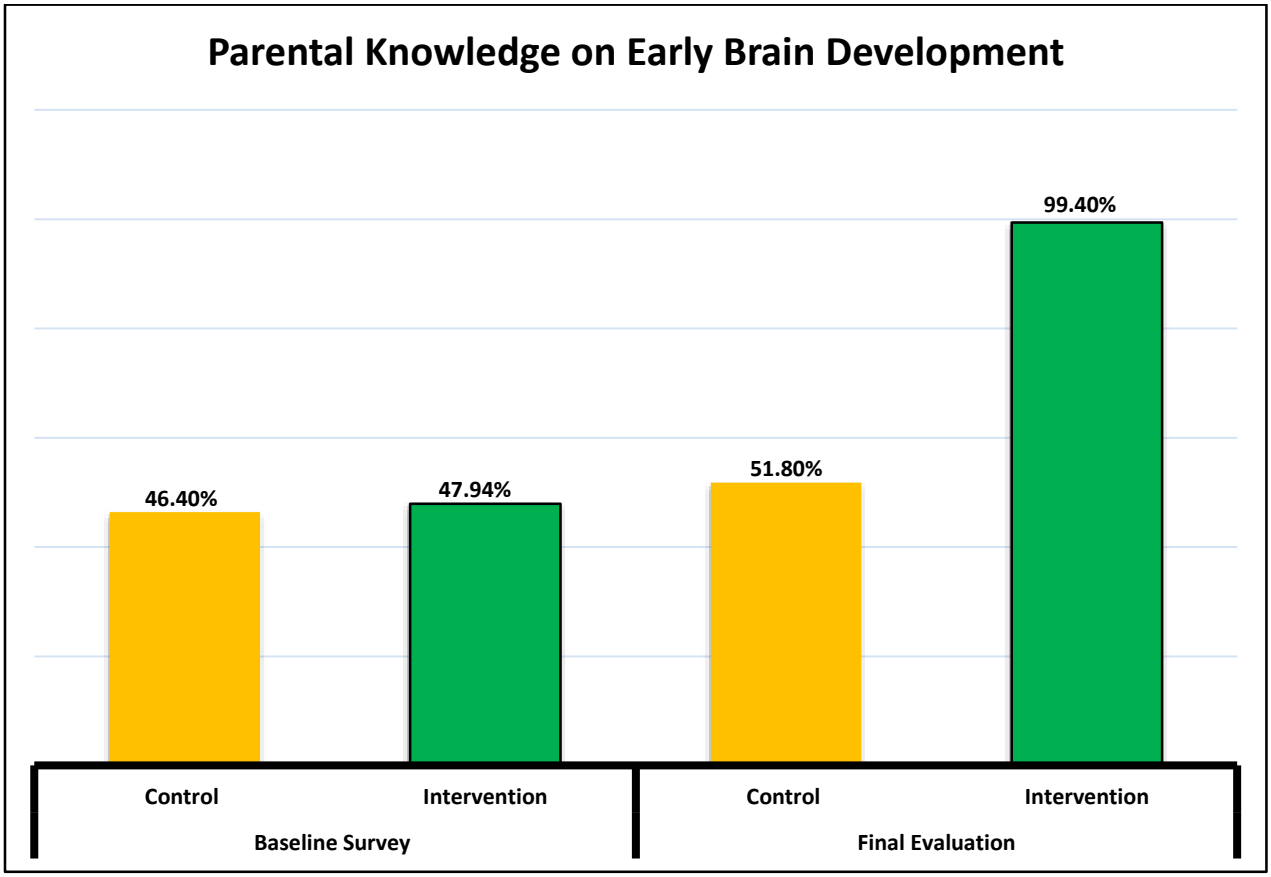

Figure 1. Proportion of parents who responded correctly to more than 50% of the questions on LTP assessment on early child brain development and maternal and child health.
Source: CCFC baseline survey (2014) and post-intervention evaluation result (2016).

Similarly, the study indicated statistically significant differences between the two groups- the control and intervention groups in terms of parenting and maternal and child health practices. About 9.54% of parents in the control area and 97.09% of parents in intervention area practiced proper parenting (early stimulation and attachment) for their children. The study also indicates that 40.12% of parents in the control area and 82.62% of parents in the intervention area utilized basic maternal and child health services including antenatal care, skilled delivery, postnatal care, neonatal care and immunization.

Figure 2 shows that there is significantly higher proportion of parents in the intervention group who practiced both proper parental skills and basic maternal and child health service utilization as compared to parents in the control group.

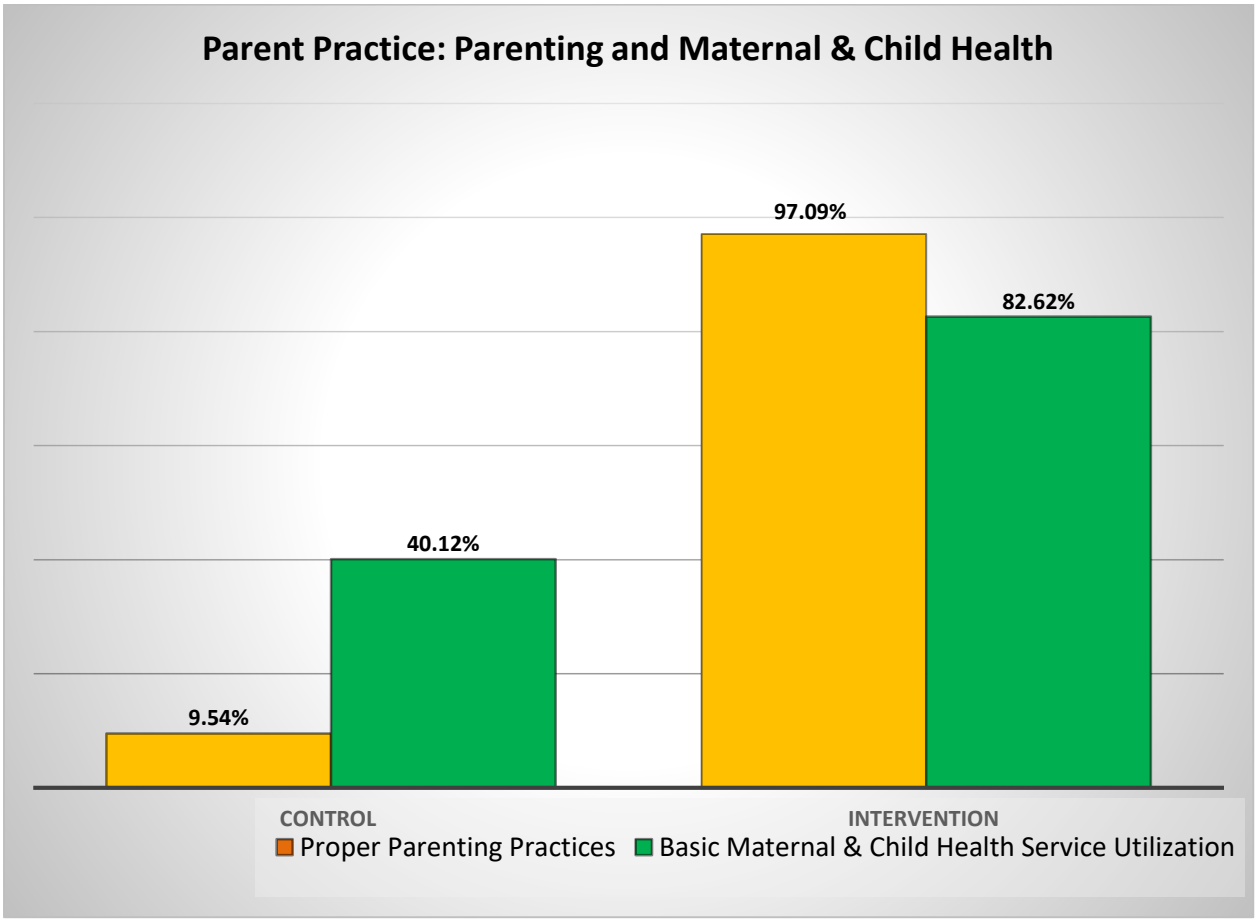

Figure 2: Proportion of parents in the intervention and control groups who practiced proper parenting and utilized maternal and health services.
Source: CCFC baseline survey and post-intervention (final) evaluation result, 2016.

Majority of parents who were involved in focus group discussion expressed that training on Learning Through Play (LTP) as well as the messages from the audio-visual education materials were very helpful to facilitate their understanding about proper child care and development. They mentioned that the sessions gave them the skills to play with their children by preparing locally available toys from the different items including used clothing, papers, mud, and wood and cow dung. They stated that as the playing with children and showing them love increase their happiness, develop the gross and fine motor skills and cognitive function of their children.

7.1.2. Child Development

a) Child Communication

The project promotes interaction between parents and children and encourages parents to talk to their children, sing to them and encourage them to repeat words after them. Communication in the project refers to both receptive (ability to understand what is said) and verbal (the ability to express needs.

The percentage of children with normal communication skills in the baseline survey was 61.4% and 56.70% in the intervention and control groups respectively with no significant difference (P>0.05). The post-intervention evaluation shows significant improvement in the communication skills of children in the intervention groups (84.90%) as compared to the control groups (46.9%) with P<0.05.

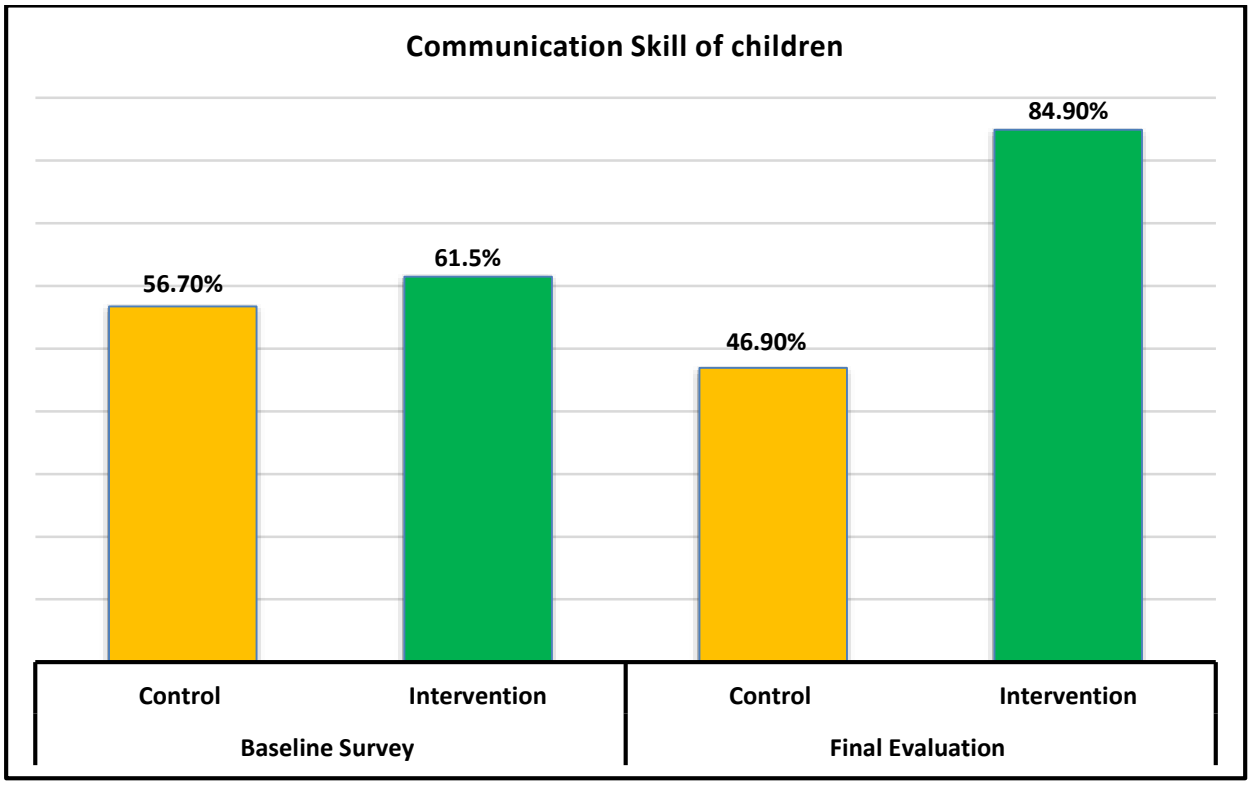

Figure 3: Proportion of children (0-3 years of age) in the intervention and control groups with normal communication skills.
Source: CCFC baseline survey (in 2014) and post-intervention (final) evaluation result (in 2016).

b) Problem Solving Ability of Children

In the baseline study, it was noted that the difference in the proportion of children under 3 years of age who showed normal problem solving ability was not statistically significant between the control and intervention

groups. However, the difference in the proportion of children who were categorized under norm ability to problem solving was found to be statistically significant, higher in the intervention groups as compared to the control group (Figure 4) at the post-intervention study. Problem solving ability is related to cognitive function of a child. The project provided training to parents on early brains development and encouraged them to play with their children, touch and carry a child in a proper way, make eye-to-eye contact, and show smiling face, provide unconditional love and proper nutrition.

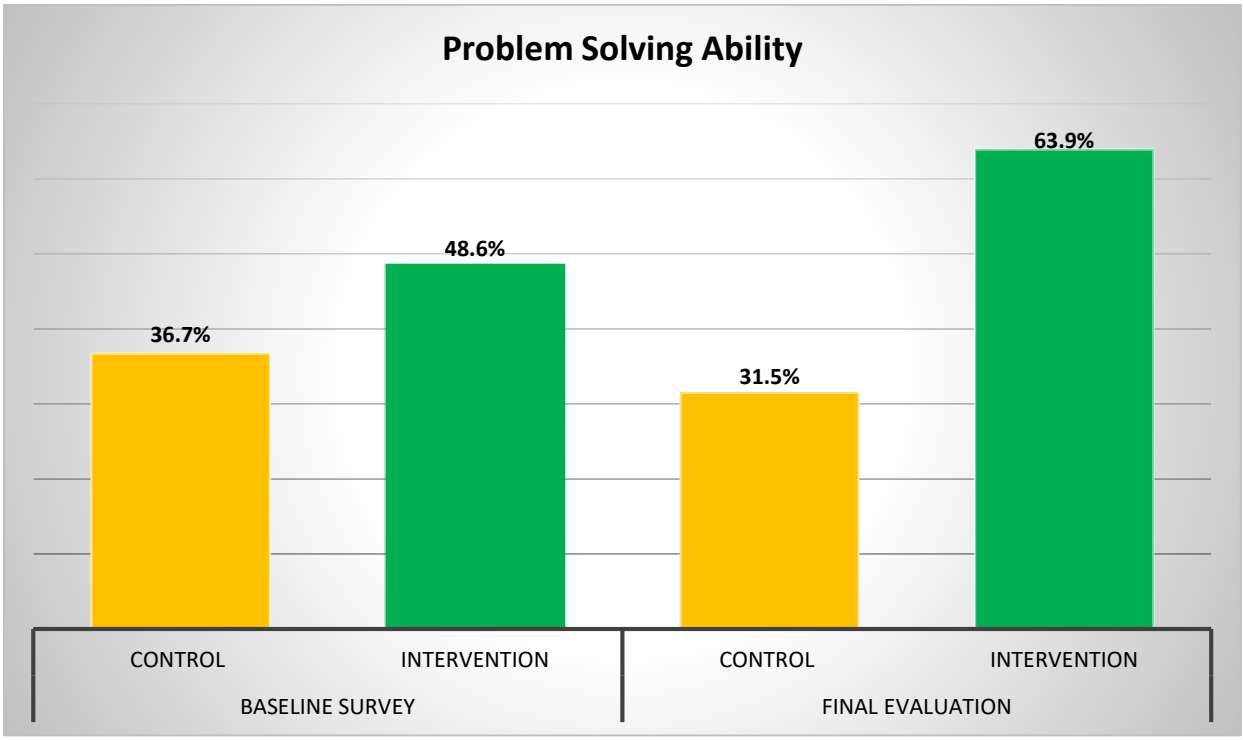

Figure 4: Proportion of children (0-3 years of age) in the intervention and control groups with normal problem solving ability.
Source: CCFC baseline survey (in 2014) and post-intervention (final) evaluation result (in 2016).

c) Personal Social Development

Personal-social skills are the skills children must develop to care for themselves (dragging toy, drinking and feeding) and interact with others (playing games, understanding others feelings). Personal development is about how children understand themselves and what they can do. Social development includes how children understand themselves in relation to their interactions with others.

Saving Brains project encouraged positive parental roles in improving personal- social skills of children. The project educated parents to create opportunities for their children to play either alone or in groups and in turn learn about interacting with themselves and with others.

Figure 5 shows proportion of children with normal personal-social development skills was 57.1% in the intervention and 48.4% in the control group during the baseline survey, in which there was no significant difference between the two groups (P>0.05). A significant difference was observed during the post-intervention study of the project between the intervention and control groups where 74.4% of children in the intervention group had normal personal social development skills (P<0.05).

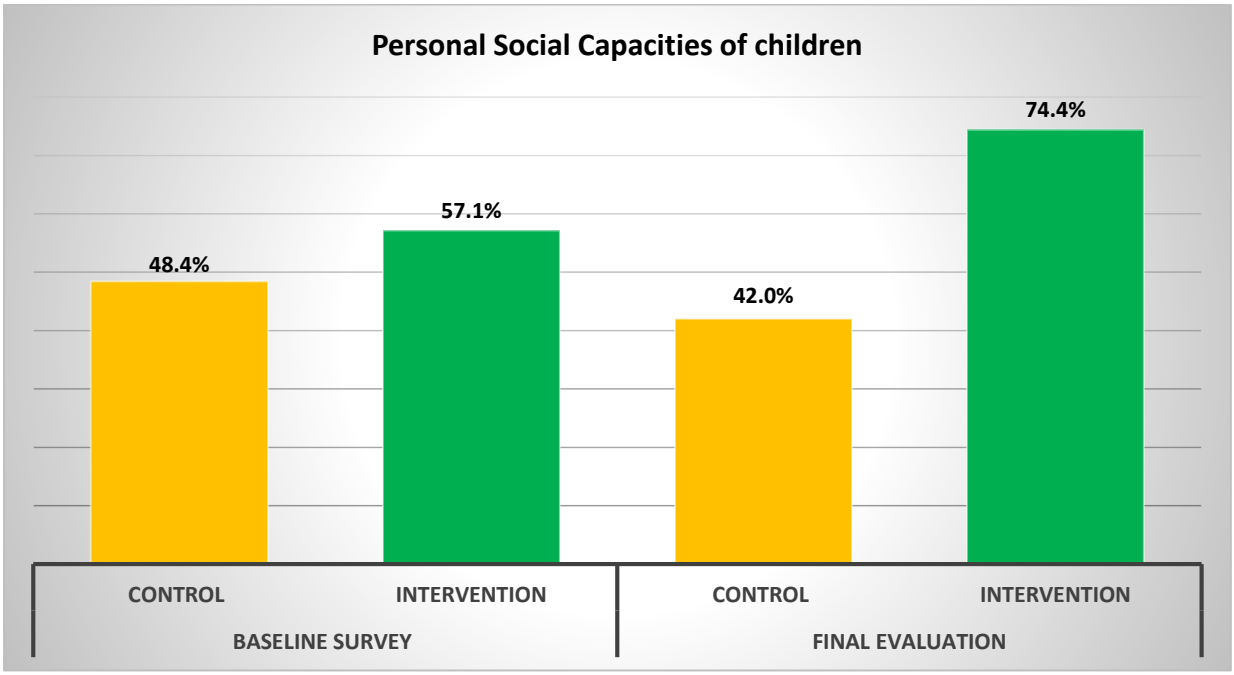

Figure 5: Proportion of children (0-3 years of age) in the intervention and control groups with normal personal social abilities. Source: CCFC baseline survey (in 2014) and post-intervention (final) evaluation result (in 2016).

d) Social Emotional Capacities

One of the areas where Saving Brains Project has made improvement is social emotional development of children. Babies feel secure when they get lots of affection from their parents/caregivers and it is the love and trust their parents/caregivers share that helps them learn that they will always be there for them. Loving relationships give young children a sense of comfort, safety, confidence, and encouragement. Parents teach

young children how to form friendships, communicate emotions, and to deal with challenges. Strong, positive relationships also help children develop trust, empathy, compassion, and a sense of right and wrong.

At baseline there were similar findings between the intervention and control groups where the proportion of children with normal social- emotional skills was 51.9% and 57.7% in the intervention and control groups respectively (P>0.05). This has shown significant improvement during the final evaluation with children in the intervention groups where 83% of children that show normal social-emotional development. The proportion of children in the control groups still remains 51.5% (P<0.05).

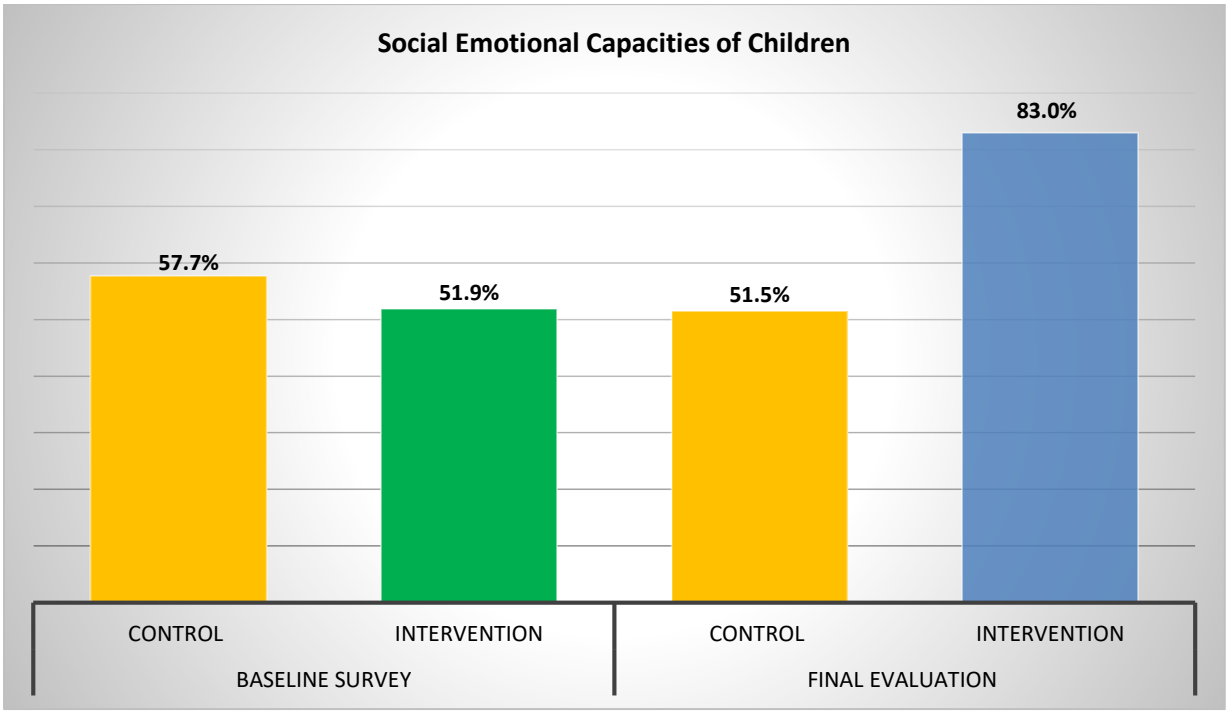

Figure 6: Proportion of children (0-3 years of age) in the intervention and control groups with normal social emotional. Source: CCFC baseline survey (in 2014) and post-intervention (final) evaluation result (in 2016

Parental Attachment with Children

In the rural communities of Arsi Negelle parents have started to reach out to their children in a responsive manner that is promoting attachment with their children. The parents in this community have come to learn that the attachment a child has with his/her parents impacts the child's future mental, physical, social and emotional health.

"What I learnt is very different from the way I raised my first son", says Abdurahman Jaldo, a father of three children, who lives in Haramgama sub district. "I used to think that if a child is not hungry and has clothes to wear that was enough. This was how I was raised and it used to be true to everyone else in the community.

Just like most fathers in my community, I never encouraged and engaged with my eldest son because I believed this would make him a spoilt adult later", he explains.

Abdurahman with his son Haramgama sub district

Abdurrahman is one of the parents that have been trained by the Saving Brains Project on how parents can promote and secure attachments with their child. This is a new concept for Abdurahman who was raised in a community where fathers had very little physical and emotional contact with their children. This is why Abdurahman says he found it very strange when the Saving Brains Project came to his community and started teaching families about the importance of brain development and early childhood care. In fact, Abdurahman says "I used to think that a father's role was to be only a provider to the family. If anything more, I thought my role had to do with disciplining the children."

At first when the Project social workers approached Abdurahman, he says he thought it was a waste of time. It took a lot of convincing from the social workers for Abdurahman to sign up for the training of the Project. The Project made use of videos for educating parents. To Abdurahman's surprise he enjoyed the training and was able to pick up skills to help advance attachments with his children. In particular, he was able to improve his ability to perceive, interprets and react promptly to his children's needs to influence the Abdurahman with his son Haramgama sub districtquality of his relation with them.

"Today my interaction with my youngest son is very different. I make efforts to spend a lot of time with him to just play or even hear what he has to say. I try to help him understand what he is doing. When he is sick, hurt or scared I embrace him closely which makes him calm", says Abdurrahman.

Abdurrahman and his wife Medina Gudaat who have three children are now witnessing confidence, security and trust on their last two children. With the consistent and timely response to their children, they have noticed the fast growing minds of their children. The dividend of all these positive feelings has developed the children's interest to understand their environment and beyond.

"It's surprising to see how fast my children's language abilities is improving. Not only that, they are active when they play and communicate with children of their age. All these things are happening as we intensify our attachment with them", remarks Abdurahman.

Abdurrahman notes that he has not even given up on his older child. His wife Medina adds "Our children are now happy more than ever before. That in return is creating a healthy environment in our family. We are enjoying the close relationship we have created with our children improved communication and developed close attachment with their parents. When your children are happy, your life will also become bright." Playing with their children is the other mechanism that Abdurahman and his wife are using to create strong attachment with their children.

f) Physical Development

Nutritional status: wasting and stunting

Although the overall objective of the Project was able to achieve significant results in various areas of child development, one area the Project was challenged to bring about the desired change was in terms of physical growth. The final results from the Project showed that there was no significant difference in the physical growth of children between the intervention and control kebeles. The results for the baseline and final studies showed wasting and underweight also remained similar.

As it can be seen in figure 7 below, the prevalence of wasting was 8.3% and 8.4% in the intervention (5.7 - 12.0 95% C.I.) and control kebeles (5.7 - 12.2 95% C.I.) respectively showing no significant difference between the two groups. Similar to this wasting during the final evaluation slightly reduced to 6.5% in the intervention (4.2- 9.9 95% CI) areas and to 5.8% in the control kebeles (3.6- 9.1 95% CI) with no significant difference between the two groups (P>0.05). This is because the drought situation the communities experienced affected the children's situation to continue being underweight. In particular, in 2015/2016 Ethiopia including the Project area was impacted by the El Niño-induced weather patterns brought about by failed rains in the country that resulted in drought. The drought negatively affected farmers who entirely depend on rain-fed

agriculture. Most of the Project intervention areas as a result faced food insecurity. The impact resulted in malnutrition among children.

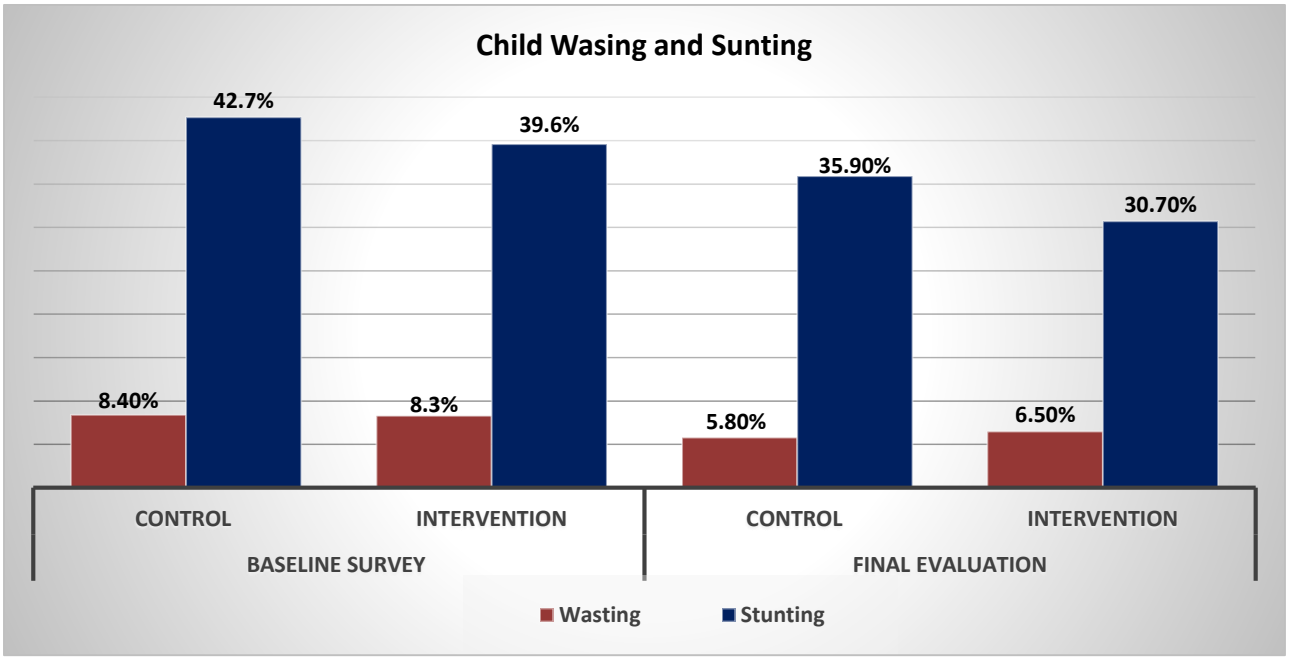

Figure 7: Proportion of wasted and stunted children (0-3 years of age) in the intervention and control groups. Source: CCFC baseline survey (in 2014) and post-intervention (final) evaluation result (in 2016).

Gross Motor Development

Saving Brains Project focused on improving the gross motor development of children through creating awareness among the parents (caregivers) on the importance of assisting and encouraging children play and undertake physical activities in safe environment. The challenges related to gross motor development is often the first noticeable sign of developmental delays in infants and young children. Some important milestones for infants include the ability to roll over, sit up, crawl, stand, cruise furniture and walk unassisted. The project took into account a young child's ability to walk a straight line, skip, and hop on one foot and jump to measure gross motor developmental milestones.

The project promoted play as a central activity of children and encouraged parents to prepare toys and other playing materials from locally available materials including mud, clay, used clothes, tree bushes and other materials. Parents were also encouraged to facilitate their children's play which contributed to the growth and development of their children.

At baseline, 56.8% and 56.7% of children in the intervention and control groups, respectively had normal gross motor skills with no significant difference (P>0.05) between the two groups. However, proportion of children in the intervention groups at the final evaluation showed significant improvement (68.2%) in gross motor skills as compared to the control groups (36.40%) (P<0.05).

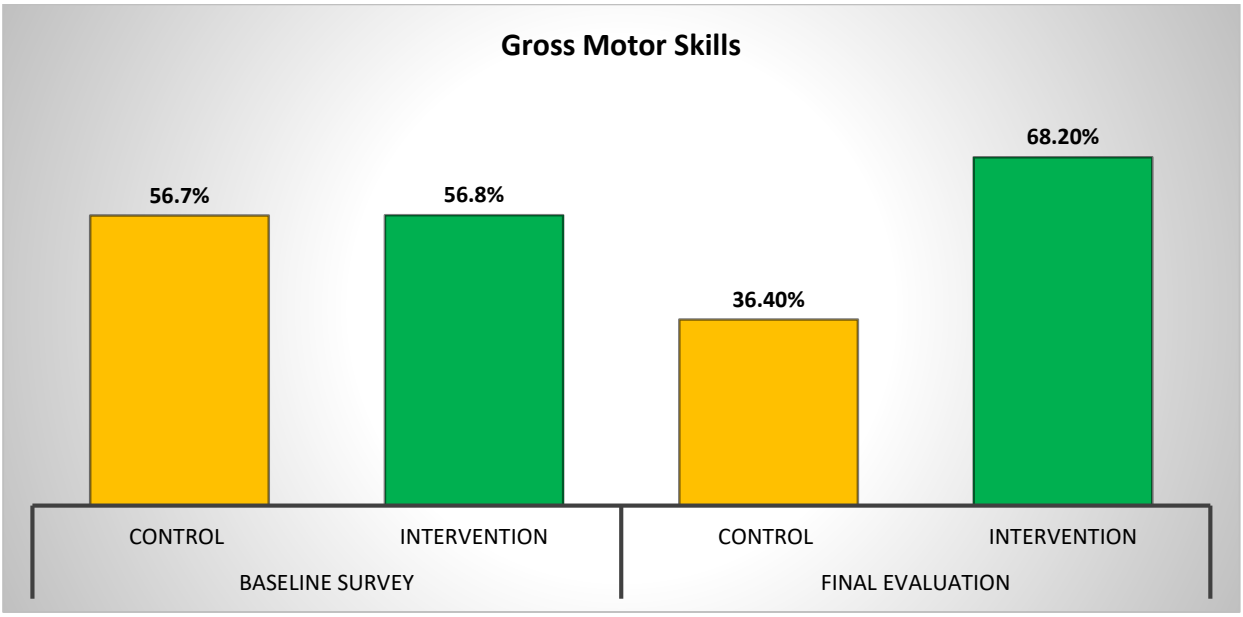

Figure 8: Proportion of children (0-3 years of age) in the intervention and control groups with normal gross motor skills. Source: CCFC baseline survey (in 2014) and post-intervention (final) evaluation result (in 2016).

Fine Motor Skills

The Saving Brains Project has focused to bring about improvements in the fine motor skills of children aged between 0 to 3 years in the Project area. The project provided series of orientation to parents on fine motor skills of their children which often refers to collective skills and activities that involve using the hands and fingers or small muscles of the hand to work together to perform precise and refined movements. Fine motor skills typically develop in a reasonably consistent and predictable pattern in the early years of childhood. The project educated parents to help their children's development of fine motor skills. Parents prepare small toys and encourage their children to grab them through their hands and fingers.

Figure 9 below shows only 33.7% of children and 21.79% of children in the intervention and control kebeles respectively had normal fine motor skills which showed similarities between the two groups (P>0.05) during the baseline survey. The final evaluation showed there is significant difference between the control (17.0%) and intervention (46.20%) respectively (P<0.05).

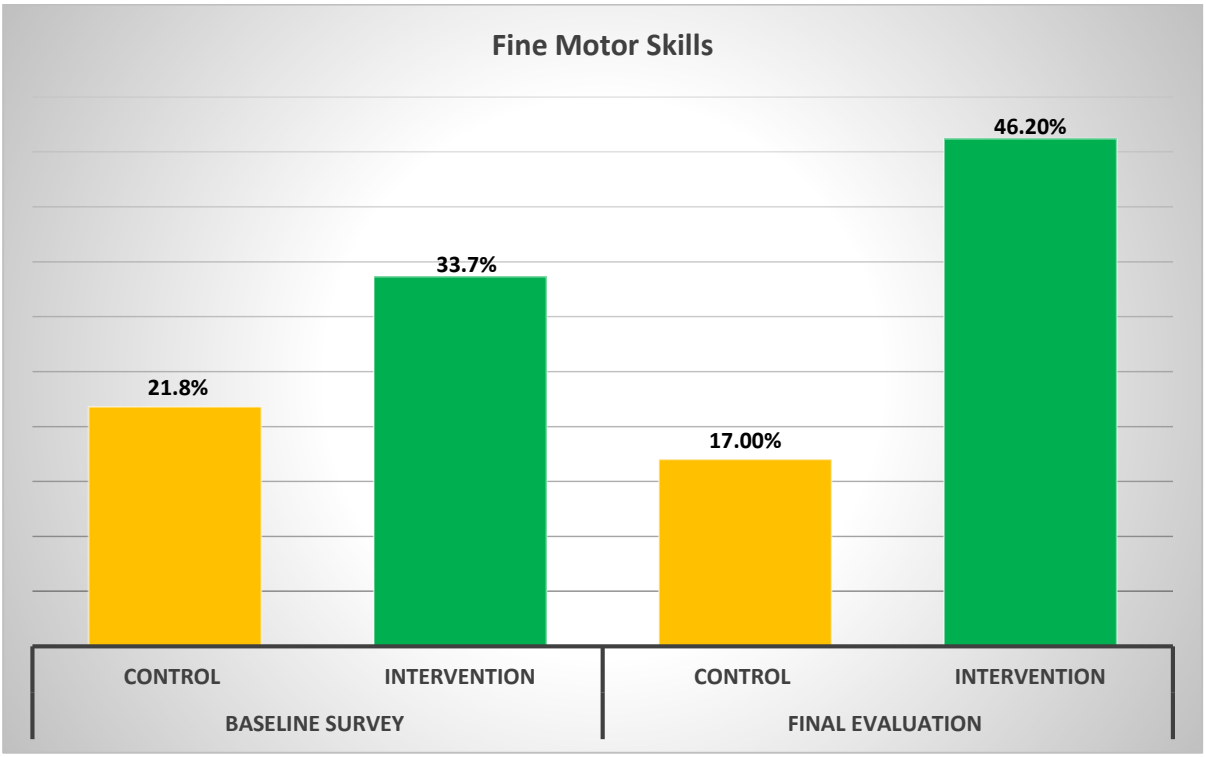

Figure 9: Proportion of children (0-3 years of age) in the intervention and control groups with normal fine motor skills.
Source: CCFC baseline survey (in 2014) and post-intervention (final) evaluation result (in 2016).

Importance of Play

"I used to think playing was a waste of time. I felt doing my household chores was more important. But since attending the Project trainings I have started to value play", says Amarech Wadebo a mother of two children, who lives in Gubeta sub district. The Saving Brains Project has been educating mothers like Amarech on how to use play as a tool to nurture children's growth and development.

Amarech playing with Jabana using a toy she had made

After the training Amarech and her husband Midagso Badaso are helping their kids to play. They also prepare toys their children can play with. "Play helps the children to activate their minds. We have seen how our children are more curious about things and are happy since we started playing with them", says Amarech.

In Amarech's community children have started playing more after the introduction of the Saving Brains Project. There are parental group discussions which take place regularly in her community guided by social workers and health extension workers of the Project. During these parental discussions many of her neighbor are also testifying about the changes they are seeing in their children because of play.

"I have personally witnessed my son's speech and language usage has improved greatly after we started playing with him", explains Amarech about the developments, Jabana, her one-year-old son has made.

Toy and Toy Making

Play is the most important activity in the lives of children. The Saving Brains Project recognizing that play helps children grow physically, mentally, socially, and emotionally has invested in introducing and emphasizing the importance of play to parents.

“I never knew about the importance of toys. Whenever my children got upset I used to try to comfort them with words or food” says Mosho Ulu who lives with her husband Kufa Fayyisa and two children in Kararu village of Arsi Negelle district in Ethiopia.

Mosho encouraging her children to play

Some of the toys Mosho and Kufa have made for their children in Kararu sub district

Mosho’s understanding about the importance of toys changed after she received a training from the Saving Brains Project. The Project focused on explaining to parents about the importance of toy for the brain development of children and how parents can easily make toys from locally available materials. The training also guided the parents about making age appropriate toys that encourage the children to use their sense organs and emphasized that parents when making toys should check that they are clean, safe and of variety. Mosho learnt how to make toys from video sessions the Project has as part of the Project parental awareness raising strategies.

“For both my children I made toys cars, mobile phone, ox and things they can understand from what they see. This is helping them learn different life skills”, says Mosho.
Mosho is now sure that her children are getting important life lessons playing with the toys. The children are also becoming more active and creative children.

“While they are playing together my children interact with each other. They even try to create new toys for themselves. The more they play with the toys, the more their communication skill is developing, they also learn different life skills and understand the environment they are living in”, adds Mosho.

Safety is the first thing that Mosho's and her husband Kufa consider when making toys. "We parents are responsible for the safety of our children. Every time I make toys I avoid sharp edges. I try to make sure that the toys are clean and that they cannot be swallowed by the children. I also do not paint the toys for health reasons" explains Kufa. He also says parents should not bother to buy toys while it is so easy to prepare them at home.

Mosho and Kufa have made a car from an empty can and a ball and a baby doll from worn out clothes. Before investing much time on making the toys these parents said they tried to check if the child is stimulated by such types of toys. Mosho recommends that if parents want to see happy and creative children they need to give due attention for their children to play.

Addressing Harmful Traditional Practices

Before the commencemint of the Project existing harmful traditional practices that affect the growth and development of children in the target areas were identified. Specifically, key issue affecting fathers' engagement and interactions with their young children was one of the barriers to early childhood development. Most of the people in the target communities used to believe that a man touching infant and young child lead to the stunting or reduced growth of the child. This belief resulted in very low involvement and interaction of fathers with their children.

The project challenged the existing beliefs and practices that limited involvement of fathers and contributed to changing their attitude and perception in supporting their wives in caring for their young children. This has contributed much in addressing the inequality issues at the household level and reduced the burden of child caring practices by women and girls.

Joro playing with his daughter

"I would never play or touch my children as infants" says 30 years old Joro Gelegelu. Local beliefs have discouraged Joro and other men in his community, from playing with children. Joro, lives in, Gubeta Arjo Kebele in Arsi Negele district in Ethiopia. Like others in his community he used to believe a man touching a child would lead to the stunting or reduced growth of the child. This belief resulted in very low involvement of fathers with their children. Joro who is a father of two would never pick up and play with his children until he attended a training about the importance of play and parental involvement have on the healthy development of children.

"I made toys for my children from locally available materials and started playing with them on the floor. My children are very happy. I even comfort them when they cry. I also look after the children when my wife goes to the market. I have been able to bond greatly with my children", says Joro. He used locally available materials to make the age appropriate toys. His wife, Shita Feyissa elaborates the changes Joro has shown which has made her very happy.

The Project registered Joro's youngest son. He was also provided with a Learning Through Play (LTP) calendar. LTP groups were also formed in the community where parents have the opportunity to regularly discuss child development with community health workers. Joro has also been trained on how to use the calendar. The training included informing parents about the basics of child brain development. Joro after the training was advised to hang the poster on the wall and to read it regularly. Joro's neighbors have also been trained on how to use the pictorially illustrated, LTP calendars to stimulate the development of their children.

8. Conclusion and Recommendations

8.1. Conclusion

The project successfully implemented two innovative complementary knowledge delivery approaches and assessed their feasibility and effectiveness in changing the attitude and perception of parents/caregivers towards proper child development practices. Improvement in parents'/caregivers' knowledge and practice in nurturing their children positively impacted on their children's development. The project challenged the existing beliefs and norms that limit the involvement of fathers in child caring practices and that impose the burden of child caring practices to women. The project reached 2,500 parents (caregivers) and 3,000 children 0-3 years.

The project shared the findings of the results of the studies to the different stakeholders and emphasized the need for mainstreaming of the project approaches into the existing health extension and education programs.

Actively engaging the government structures at the district and sub-district levels created platform for learning and knowledge sharing. The project used health extension workers as service providers (parent group leaders) who are employees of the existing government health structure. This has created an opportunity to communicate the project's innovation to the local government and jointly design strategies to integrate the project idea into the local health system.

8.2. Recommendations

1) Cost effective and simple techniques such as play, touch, eye-to-eye contact and smiling, and proper nutrition brought about the desired change on cognitive, social and emotional development of children. Contemporary knowledge in harmony with the existing traditional practices can enable parents provide proper nurturing for their young children. Therefore, there is a need to use such simple techniques and build up on existing indigenous practices- folktales, songs and making play toys with locally available materials and continuously challenging Harmful Traditional Practices (HTP) to enhance Early Child Development (ECD).

2) Appropriate and attractive approaches: Learning Through Play (LTP) and Audio-visual education) win the dedication of rural parents and frontline community health workers that promoted nurturing care especially

early brain stimulation. Such effective knowledge delivery to rural and low-literacy communities should be widely used in other parts of the country.

3) ECD program – a widely recognized foundation for sustainable social, economic and political development and for ensuring peace and security of a nation- requires priority and concert commitment of all concerned bodies.

4) This piloted project which has mainly focused on nurturing care has significantly contributed to the physical, cognitive, linguistics, social and emotional development of young children (0-3 years of age) that showed investing in early childhood development is cost effective and crucial intervention to build the foundation of the country- the human capital. Thus, it is recommended that the project to be scaled-up at the national level integrating into the existing health extension system and the national ECCE framework soliciting fund from interested potential donors and mobilizing human resources or jointly working with concerned and like-minded organizations and institutions.

5) The existing government's health sector development plan and early childhood care and education policy framework, along with keen interest of development partners to work on ECD should be considered as an opportunity to scale up and ensure the sustainability of ECD program initiatives.

Annexes

Annex -1:

Christian Children's Fund of Canada (CCFC) Study on Rural and Newborn Health and Early Childhood Development in Rural Low Literacy Settings of Ethiopia (Saving Brains) Project

Household survey for measuring growth and development of children under 3 years of age, parents'/caregivers' knowledge and practices on early child development and maternal health

Warm greetings! My name is_____. I have assigned by Christian Children's Fund of Canada (CCFC) and Bole Bible Baptist Church Child Care and Community Development (BBBC) for a short-term to conduct a study about young children (under 3 years of age).

The objective of the study is to assess/measure the growth and development of children and parents'/caregivers' knowledge and practices on early child development and maternal health that will help us to identify child development status and recommend/ plan needs to be addressed in collaboration with local parents, communities and local governments. Whatever information you provide will be kept strictly confidential. The survey will not take too long to complete. Participation in this survey is voluntary and you can choose not to answer any individual question or all of the questions. However, we hope that you will participate in this survey since your views are important.

I kindly request your consent to provide us information we request using the study questionnaires (Note: proceed only if you get consent from the interview). I would very much appreciate your participation in this survey.

Some of these questions might not apply to you, and we apologise for this, however it is important that we ask everyone the same things so please bear with us on this. Please try to attentively listen to the questions. Please don't hesitate to ask if a question is unclear to you and please try to be as truthful as possible when answering these questions.

At this time, do you want to ask me anything about the survey?

May I begin the interview now?

Identification	**Code (#)**
Questionnaire ID #	
Location: Country: Ethiopia Region: Oromia Regional State Zone: West Arsi District: Arsi Negele	
Kebele:	
Gote:	
Village:	
Child's (Baby's) Name (First and last name):_____ *(please choose one of your sons/daughters who is under 3 years of age to speak about)*	
Child's ID #	
Child's Gender 1. Male 2. Female	
Child's Date of Birth: DD/MM/YYYY	
Child's Age (months + days) _____ +_____	
Name of Household Head:_____ 1. Male 2. Female	
Family size of the Household _____ *(including parents, children, relatives/grandmother/grandfather and others who are living in the family permanently)*	
Name of Respondent:_____	
Respondent's Gender: 1.Male 2. Female	
Respondent's Age _____ (years)	
Respondent's relationship to a child: 1. Mother 2. Father 3. Other caregiver (relative/grandmother, grandfather and others)	
Respondent's literacy status: 1. Can read & write 2. Cannot read & write	
Respondent's husband or wife literacy status: 1. Can read & write 2. Cannot read & write	
Interviewer's (Assessor's) Name:_____	
Supervisor's Name:_____	
Date of Interview:(DD/MM/YYYY) / / / /	
Signature of Interviewer (Assessor)_____	
Signature of Supervisor_____	

1. Would you please tell me your marital status?
    1) Married
    2) Separated
    3) Live with partner
    4) Single mother
    5) Widow
    6) Other

2. If you are or were married, age at the time of marriage
    1) Below 16
    2) Between 16 - 20
    3) Between 20 - 25
    4) Above 25

3. If separate, for how many years? _____

4. What is your main occupation?

    1) Farming (crop production and livestock rearing)
    2) Petty Trade
    3) Other (specify)_____
    4) Not employed/no occupation

5. What is your husband's or partner's main occupation?

    1) Farming (crop production and livestock rearing)
    2) Trading
    3) Other (specify)_____
    4) Not employed/no occupation

6. What's your level of education?
    1) Primary incomplete
    2) Primary complete
    3) Secondary incomplete
    4) Secondary complete
    5) Technical incomplete
    6) Technical complete
    7) College or university incomplete
    8) College or university complete
    9) Other (Specify)_____

7. What's your husband's or partner's level of education?
    1) Primary incomplete
    2) Primary complete
    3) Secondary incomplete
    4) Secondary complete
    5) Technical incomplete
    6) Technical complete
    7) College or university incomplete
    8) College or university complete
    9) Other (Specify)_____

8. How many children do you have? _____
   What are their ages? _____

9. Do your family have access to safe drinking water? (Capped/protected spring, piped water, borehole…) 1. Yes ❍ 2. No ❍

10. Did you make visit to health center (health institution) for antenatal care service during the course of your pregnancy? 1. Yes ❍ 2. No ❍

11. How many antenatal visits did you make? 1) Less than four times 2) Four and more times

12. Where was the place of delivery for the child (Name the Child)?
    1) Home
    2) Health post/health center/hospital
    3) Others (Specify)_____

13. Who did provide you care during delivery of your child (Name the Child)?
    1) Skilled health care provider (doctor/nurse/midwife)
    2) Health Extension Worker
    3) Traditional Birth Attendant
    4) Others (Specify)_____

14. Was the child (Name) weighted at birth? 1. Yes ❍ 2. No ❍

15. What was weight of the child (Name) at the time of birth?
    1) I don't know
    2) _____Kg

16. Was there any complication at delivery time? 1. Yes ❍ 2. No ❍
    - If yes, please specify_____
    1) Normal Operation
    2) Major Operation
    3) Others

17. Did you visit health institution (health post/health center/hospital) for postnatal care service? 1. Yes ❍ 2. No ❍

18. Did you start breastfeeding for the child (Name) within one hour of birth?
    1. Yes ❍ 2. No ❍

19. Did child (Name) feed colostrum (first milk)? 1. Yes ❍ 2. No ❍

20. Did child (Name) exclusively breastfeed for six months? 1. Yes ❍ 2. No ❍

21. Did child (Name) fully immunized? 1. Yes ❍ (card seen by interviewer) 2. No ❍

22. How often in the past month did (Name of the child) go without getting enough amount to eat, when she/he wants to eat or have to skip meals?
    1) Almost every day
    2) A few times per week
    3) A few times per month
    4) Almost never

23. Do you have any concerns about your own health or wellbeing? 1. Yes ❍ 2. No ❍
    If yes, please describe_____

24. Do you have any concerns about your child's health? 1. Yes ❍ 2. No ❍
    If yes, please specify_____

25. Do you have any concerns about your child's eating? 1. Yes ❍ 2. No ❍
    If yes, please specify_____

26. Do you have any concerns about your child's sleeping? 1. Yes ❍ 2. No ❍
    If yes, please specify_____

27. Do you have any concerns about your child's behaviour? 1. Yes ❍ 2. No ❍
    If yes, please specify_____

Annex -2:

Maternal and Newborn Health and Early Childhood Development in Rural Low Literacy Settings of Ethiopia: Saving Brains

Assessment of Parent/Caregiver Practice on Learning Through Play (LTP)

Early Years and Brain Development		
Questions	**Choices**	**Response**
1. Select the choice that is true about yourself	a. I frequently talk with and touch (name of child) b. I make eye contacts with (Name of child) c. I make toys and encourage (name of child) to play d. I don't have so much time to play with (name of child)	
2. What do you do to encourage (name of child) brain development?	a. I feed (name of child) balanced foods b. I give bath and touch (name of child) so that he/she feels comfortable c. I talk to and sing for (name of child) even if he/she does not understand d. I wait until (name of child) grows older e. Other (mention): _____	
3. How frequent do you play with (name of child)?	a. Daily b. Frequently c. Sometimes d. No at all e. Whenever I am free	
4. How do you express your love and care to (name of child)?	a. Giving attention b. Consistently responding to his/her cries c. Bathing and changing their wet clothes d. Punishing/ hitting for misbehaving e. Other (mention): _____	
5. How do you stimulate (name of child's) brains?	a. Showing new things b. Encouraging (name of child) to touch new things c. I make toys and give to (name of child) d. I do nothing e. Other (Mention): _____	
Attachment		
1. What do you do when (Name of Children) cries?	a. I pick (name of child) and hug b. I try to understand the cause of the cry c. I hit the child and make him silent d. Other (mention): _____	
2. Select the item which is true about you?	a. I respond to (name of child's) request in a loving and consistent manner b. I help (name of child) feel secure c. I encourage (name of child) to learn new words by talking with him/her	

	d. I am too busy to spend time with (name of child)	
3. How do you react if someone upsets (name of child)?	a. I will comfort (name of child) b. I will hit my (name of child) because of the upset c. I will get angry and shout at the person who upset my child d. I try to understand what caused the upset and react accordingly e. Other (mention): _____	
4. One of the following is true about your practice?	a. I don't touch and bath (name of child) because I believe that it is not my job b. I touch and bath (name of child) because it is my shared duty c. I talk and sing to (child name) to develop his language skills d. It is a taboo for a father to touch or make close connections with children	
5. I believe that my duty as a parent is to discipline my child; there is no need for other attachment as this may make (name of child) to misbehave	a. True b. False	
Child Development/ Physical Development		
1. Do you have Learning Through Calendar at your home? (Please verify)	a. Yes, I have at my home (observed by the data collector) b. I have it but it is at my neighbors' home c. I don't have it (I have never received it) d. I don't know what Learning Through Play calendar is	
2. (Ask this question if the response is a). Where is the Learning Through Play calendar? (Please verify)	a. It is posted on the wall b. It is placed in the table or bed c. It is placed in the floor d. I don't know where it is put	
3. How do you encourage the physical development/ strength of (name of child)?	a. Encourage (name of child) to play on the floor b. Encourage (name of child) to throw and grasp toys c. I don't know my contribution on physical development d. I put toys in front of (name of child) and encourage him/her to pick	
4. How frequent do you use the Learning Through Play (LTP) Calendar?	a. I use it frequently based on the age of my child b. I use the calendar whenever I am free c. I don't use the calendar d. I don't know how to use the LTP calendar	

5. Which of the following is true about your practice?	a. I don't allow (name of child) in trying to crawl because I am afraid he/it may fall b. I don't want to see (name of child) fall while trying to walk c. I allow my child to sit after five months d. I allow (name of child) to be exposed to sun at earlier ages after delivery	
Child Development – Sense of Self		
1. Which one is true about your practice?	a. I respect (name of child)'s individual personality b. I love and care for (name of child) c. I try my best to fulfill the basic needs of (name of child) d. I help (name of child) to achieve its full potential	
2. What do you do to help encourage (name of child) to help your child grow as a respected individual?	a. I understand why (name of child) has hard feelings b. I help (name of child) stay calm in time of emotional stresses c. I help (name of child) learn new things d. I allow (name of child) to make mistakes and learn by himself/herself e. I will be angry when (name of child) imitates words or actions of other people	
3. I help (name of child) understand the body parts by showing and telling	a. True b. False	
4. I make eye to eye contact with (child name)	a. True b. False	
5. I tell (child name) that I love him/her even if she does not understand me	a. True b. False	
Child Development – Relationships		
1. Select the one which is true about yourself regarding relationships	a. I help (name of child) to make relationships with his/her parents b. The way we as parents interact is an exemplary to the (name of child) c. (Name of child) can learn a lot from me on how to relate with others d. I don't allow my child to interact with other children	
2. I tell (name of child) about the items at home and the surrounding	a. True b. False	
3. Select that one that you do:	a. I refer the Learning Through Play calendar and apply to (name of child) to promote his skills on relationship b. I show new people and tell their names to (name of child) c. I don't see the importance of telling the names of the household items to (my child)	

	d. I don't worry if (name of child) does not try to talk to me or make eye contact	
4. I always use corporal/physical punishment in order to discipline my child	a. True b. False	
5. Which is true about your practice?	a. (Name of child) feels safe and secure when he/she is with me b. (name of child) feels secure and safe when he/she is with my spouse c. When (name of child) cries, my first response is to comfort him/her by hugging d. I leave (name of child) to cry and finish when irritated	
Child Development – Understanding		
1. Which of the following is true about your practice?	a. I take (name of child) when I go outside for walk b. I move a toy/playing item in front of my (name of child) to help her/him understand c. I hide a toy from (name of child) and observe when (name of child) tries to find the toy d. I sing or make a different sound to (name of child) and happy to hear his/her imitation	
2. I encourage (name of child) to observe what I do at home by telling him what I am doing	a. True b. False	
3. I always refer to the Learning Through Play calendar and try to promote the understanding skills of (name of child)	a. True b. False	
4. What do you to help build the understanding skills of (name of child)?	a. I put toys around (name of child) and help him/her explore about the toys b. I put a toy in front of (my child) and cover it with a lid and observe (name of child) to uncover it c. I speak to (name of child) as an adult to increase his understanding d. I have not worried about the understanding skills of (name of child);he/she will get it when grow up	
5. I make toys in front of (my child) because it helps him/her understand how things work	a. True b. False	
Communications		
1. I always talk to (name of child) while doing any activities including changing clothes, feeding etc	a. True b. False	
2. I refer to the Learning Through Play Calendar and help our child in the promotion of his/her communication skills	a. True b. False	

3. What do you do to help your child's communication skills?	a. I sing, talk and read to (name of child) even if he/she is very young b. I try to understand what (name of child) needs and responds quickly c. I call (name of child) by his /her name and look for responses d. I don't worry about the communication skills of (name of child)	
4. I continue to smile to (name of child) even if there is no smile	a. True b. False	
5. Which one is true about your practice on communication?	a. I smile to (name of child) even if there is no response b. I repeat the sound (name of child) makes to continue conversation c. Sing to (name of child) and encourage him/her to imitate the song d. I don't worry much on this	
Importance of Play		
1. Which one of the following is true about you on play?	a. I play with (name of child) b. I create an opportunity where (name of child) plays alone with toys c. I support (name of child) playing with others d. I allow my child in playing with others	
2. How do you assist (name of child)'s plays?	a. I observe the play and what (name of child) interests him/her b. I sit with (name of child) and make eye contact c. I don't interfere with the child's play process; I encourage (name of child) to take the lead d. All	
3. I get down to the floor and have play time with (name of child)?	a. True b. False	
4. I have set play time with (name of child) because I incorporated play as one of the household routines	a. True b. False	
5. Please select that is false about your practice around play?	a. (name of child) is very happy when plays b. I am too busy to observe (name of child)'s plays c. (name of child) better communicates after I encouraged his/her play process d. I don't see the importance of play for my child	
Toys and Toys Making		
1. Which one is true about your practice regarding toys?	a. I buy very expensive toys for (name of child) because I like him/her b. I prepare toys from the locally available materials or household items	

	c. I prepare toys in front of /engaging (name of child) to encourage him/her learn how things work d. I don't have so much time to prepare toys e. I don't know on how to make toys	
2. I don't see any problem if (name of child) plays with very small toys including small stones or cents etc	a. True b. False	
3. Select the one that is true about your practice regarding toys?	a. I can play with (name of child) even if there is no toy at home b. I have the confidence to create plays for (name of child) with or without toys c. I can use items at home like plastic plates or cups to facilitate plays d. I can make toys from old clothes and cow dung	
4. I have time and commitment to make toys for (name of child)	a. True b. False	
5. I make toys with because I was told by the project team	a. True b. False	
Guiding Behavior		
1. What do you do when you see (name of child) misbehaving?	a. Immediately respond so that (name of child) understands misbehavior b. I ignore if the misbehavior is mildly irritating c. I give (name of child) physical punishment d. I will shout at (name of child) e. Other (mention): _____	
2. (name of child) misbehaves because he/she is not a good child	a. True b. False	
3. I tell (name of child) that I don't like him/her when misbehaves	a. True b. False	
4. Select the one which is true about your practice on misbehaving	a. I don't know what to do when (name of child misbehaves b. I cannot control myself when (name of child) misbehaves c. I will get relief after I shout and bit (name of child) for misbehaving d. Corporal punishment is the only solution to (name of child) when misbehaves because it is early to advise him/her	
5. I try to prevent (name of child) from misbehavior); by making the home or the outside comfortable to play	a. True b. False	

Annex -3:

Maternal and Newborn Health and Early Childhood Development in Rural Low Literacy Settings of Ethiopia: Saving Brains Project

Assessment of Parent/Caregiver Knowledge on Maternal, Newborn and Child Health

Antenatal Care (ANC)		
Questions	**Choices**	**Response**
1. Any pregnant women should have a visit to a health facility at least four times during her pregnancy period	a. True b. False	
2. Which of the following is false about Antenatal care?	a. A pregnant mother should visit a health facility anytime at her convenience b. Health facilities provide counseling and other health services for pregnant women during ANC visits c. Health facilities do early detection of danger signs and do timely referrals during ANC services d. Antenatal care is a care given to pregnant women before delivery	
3. In Ethiopia almost all people visit health facilities during their pregnancy	a. True b. False	
4. Which of the following is not true about father's role in ANC	a. Accompany the mother to the health facility b. Encourage the mother to go to health facility for ANC visit c. Look for transportation means if the health facility is too far to walk d. Tell the mother to stay at home if the health facility is very far	
5. Mothers should be encouraged to get adequate rest and balanced diet during pregnancy	a. False b. True	
Postnatal Care (PNC)		
1. Which is false about Postnatal Care (PNC)?	a. Postnatal care is a care given to the mother and newborn baby immediately after birth and the first six weeks of life b. In Ethiopia only few women receive postnatal care services c. Ideally postnatal care is best delivered at health facility d. Mothers should not worry about their health immediately after birth as far as they feel no pain	
2. Postnatal care services can reduce maternal and newborn deaths	a. True b. False	

3. What fathers can do to encourage their wives to receive PNC services?	a. Accompany them to the health facility b. Allow a health care provider for home visit for PNC c. Take the wife to the health facility if any danger sign occurs d. All of the above	
4. Mothers can call to a traditional healer and get appropriate PNC services 5. if they see bleeding at home	a. True b. False	
6. Postnatal Care is more important to the mother than the baby	a. True b. False	
Skilled/Institutional Delivery		
1. In Ethiopia, the majority of women give birth to their children at home	a. True b. False	
2. Home delivery has little contribution to maternal and newborn deaths	a. True b. False	
3. Which one is false about institutional delivery?	a. It is delivery assisted by a skilled health professional b. All births should be conducted by a skilled health provider c. It is ok if women give birth at home as far as the health facility is very far	
4. Which of the following is the not the importance of institutional delivery?	a. Provide proper and timely services to the mother b. Do timely referral services to higher service delivery for complications c. Education and counseling for mothers after delivery d. Higher cost to the mother	
5. Traditional Birth Attendants can provide quality delivery services as institutional delivery	a. True b. False	
Neonatal Care		
1. After delivery, there is a need to provide care to the newborn baby by skilled health professional	a. True b. False	
2. Which of the following is NOT true about neonatal care?	a. A newborn baby should be wrapped immediately b. A newborn baby should be dried immediately (not bathed) c. A mother should give breast feeding within one hour after delivery d. Colostrum(first milk) should not be given to the newborn baby	
3. Traditional birth attendants can provide skilled neonatal care services	a. True b. False	

4. Parents need to wait for the approval of the community leader before they get the newborn baby even if they see one of these danger signs (fever, unable to suck on breast, breathing difficulty)	a. True b. False	
5. One of the following is not a danger sign	a. Pus /discharge from Umbilicus b. Weakness c. Fever d. Smiling	
Prevention of Mother to Child Transmission of HIV (PMTCT)		
1. HIV can transmit from mother to child either through pregnancy , delivery and child birth	a. True b. False	
2. What pregnant woman should do to prevent transmission of HIV from mother to the newborn?	a. Screen for HIV b. Protect herself from HIV through staying with one partner or using condoms c. Get counseling from health professional if tested HIV positive d. All of the above	
3. A mother who has already known that she is living with HIV before pregnancy should use family planning to prevent unplanned pregnancy	a. True b. False	
4. Which of the following is true of what couples do?	a. They should be tested for HIV especially if they are planning for baby b. They should immediately start anti-HIV drug if they are tested HIV c. They should remain faithful to each other d. All of the above	
5. A pregnant mother who was tested positive for HIV should get advice from health professional on how to feed her child	a. True b. False	
Immunization for Age		
1. Immunization is given only by trained health personnel and is important to protect children from preventable diseases	a. True b. False	
2. What a mother /father should not do to help their child get immunized?	a. Take the child to the health facility as per the date in the immunization card b. Keep the child home if she thinks her child is very sick c. Keep the immunization card with care and take her child to the health facility as per the schedule in the card	

3. A mother or father should immediately inform a health provider if the time of immunization for their children's age passed	a. True b. False	
4. Which is false about immunization?	a. Immunization prevents children from disease and disability b. All children should start immunization immediately after birth c. A health worker can send a crying child to home if cries strongly	
5. A health provider may visit parent's home and provide vaccination to a child at any time	a. True b. False	