FINAL REPORT
ENDLINE SURVEY OF THE EARLY CHILDHOOD CARE AND DEVELOPMENT FOR FLOATING VILLAGES PROJECT, CAMBODIA

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TABLE OF CONTENTS

LIST OF TABLES

LIST of FIGURES

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LIST OF ABBREVIATION

CC	Commune Councils
CCWC	Commune Committee for Women and Children
CDB	Commune Database
CPS	Community Pre-School
CREDI	Caregiver-Reported Early Development Index
DOEYS	District Office of Education, Youth and Sports
ECCD	Early Childhood Care and Development
ECD	Early Childhood Development
ECE	Early Childhood Education
HBP	Home-Based Education Program
HH	Household
ID Poor	Identification of Poor Family
IDELA	International Development and Early Learning Assessment
KII	Key Informant Interview
MEF	Ministry of Economic and Finance
MOEYS	Ministry of Education Youth and Sports
MoH	Ministry of Health
MoI	Ministry of Interior
MoWA	Ministry of Women Affairs
PDO	Project Development Objective
POE	Provincial Department of Education
SC	Save the Children
SPS	State Pre-school
ToR	Terms of Reference
VHV/VSHG	Village Health Volunteer / Village Support Health Group

EXECUTIVE SUMMARY

Background

The development of children has been attributed to the availability of quality Early Childhood Development Centers. Considering that significant number of children in developing countries have no access to Pre-School Centers, the homes also considered to be an important institution that contribute to child development. A combination of Pre-School, and Homes on early childhood development has been considered to be more effective. Control of violence against children and proper care of them are requisite for homes to be effective factor in the development of the child. The parenting skills of caregivers therefore play a very important role in the development of the children. Several tools were used to measure the child developments, notably IDELA and CREDI to provide an understanding of the children's vulnerability and how it impacts early learning and development.

Save the Children implemented Early Childhood Care and Development for Floating Villages project is funded through a grant under the World Bank-administered Japan Social Development Fund (JSDF), implemented over a period of three years (2015 - 2018). The objective of the Project is to improve access to quality early childhood care and development services through community and home-based programs for 0-6 years old, particularly for those from disadvantaged backgrounds, in 137 villages along the Tonle Sap River and Tonle Sap Lake in Kampong Chhnang and Pursat provinces. It has covered a total of 10,840 children; 5,420 of which, are girls.

The objective of the endline study was to estimate the CREDI and IDELA child development outcomes of children, as well as practices of their primary caregivers, in the target village; for comparison with baseline outcomes and between the four different types of villages. The study was conducted in target villages (villages that have project interventions) and non-target villages. The comparison was made of the performance of the children using IDELA and CREDI in Water-based and land-based villages; with community pre-schools (CPS); Home-based education (HBE); and State pre-school (SPS) ECCD intervention. The endline data were compared to the baseline to assess the improvement of the performance of the children.

Survey methodology adopted cross sectional survey design utilizing structured questionnaires. Data were collected using Tablets from 1,680 caregivers and 1,680 children (840 children under 0-42 months and 840 children under 43-72 months). A systematic random sample was conducted to select the respondents from the list of households from each villages representing the different interventions: newly constructed ECCD center, Community-based ECCD, and Home-based ECCD supported by project.

Key Findings

In general, the overall findings show very encouraging results compared to bassline in all domain examined.

IDELA: Overall, the IDELA indicators showed an increase of the performance from 30% to 52%. It was also noted that factors like: child sex, child age, geographic areas, type of ECCD, and literacy of the caregivers have strong influence on the overall development of children. The result indicates that even in poor households, when they will be provided with ECCD services, the children's performance will improve, and will be comparable with the other non-poor households. The child age is positively correlated to the performance (score) although older children are more developed compared to the younger children. The geographic areas also showed to influence the score performance. A comparison of the performance indicate that the ECCD intervention villages have higher IDELA performance (57.6%) compared to control villages (46%). The literacy of the caregiver has significant influence of the performance of the child i.e. the children of literate caregivers have influence on the average score of children. The means of the scores of the children under the different ECCD services showed a significant difference of scores and there is no significant difference among the different ECCD services (i.e. among

the ECCD models the results are not statistically significant , $p > 0.05$). But these interventions are significantly different ($p<0.05$) from the households that are not receiving ECCD services.

CREDI: CREDI provides a promising options of quickly measuring the motor, cognitive, and socio-emotional skills of children using inputs from the caregivers. The introduction of ECCD services have contributed to the overall development of the child. Children who receive a combination of support from three different programmes (center, community, and home-based) are found to have the highest performance in socio-emotional, cognitive, language, and motor domains, whereas those who reside in villages without an ECCD service have the lowest performance score. Age of the children, and the type of ECCD services are found to be statistically significant factor that strongly influenced the overall development of children. Though the age of children is a strong determinant for the development of children but the development is not significantly different between the sex of the child. The geographic areas (i.e. water-based or land-based) have no influence on the overall performance of the children.

Those who take part in the programme from their home, as well as a combination of receiving support from the community and homes are equally performing well on the four domains. Among the different interventions, the Center, Community and Home-based ECCD showed the best performance compared with the other interventions. There is a significant difference of the scores of the children receiving different ECCD services.

Caregivers: The caregivers played a significant role in the development of a child. The project has brought significant changes on the behavior of caregivers which contributed to the development of the child. Among the improvement include, availability and access of books in the family, the exposure of children to the program, the improvement in taking care of children, and ECCD behavior. The practices of the parents in feeding the child with nutritious foods as well as the knowledge on coping during the period of stress are still low which may affect the child performance. Poverty remain the main reasons why children are taken out of school.

Conclusion

The result of the survey using IDELA and CREDI shows its potential of the two tools in capturing the performance of the children. The multiple regression analysis shows that both IDELA and CREDI have consistent result indicating that gender and the type of ECCD services is not statistically significant factor that affect the performance of the child's performance ($p>0.05$). Both IDELA and CREDI however are consistent in terms of detecting the statistical significance of age group. The two tools however are not consistent in its findings with respect to geographic areas, poverty status, literacy of caregivers and the number of parent group meetings (under the 6-12 times category). Some difference of the outcome of the tool may be attributed to the age of the children itself, but the emergent pattern is clearly shown where both tools show the marked improvement of the performance of children compared to the baseline ($p<0.05$), and of their consistency in detecting the improvement of the children's performance in target and non-target villages.

1. INTRODUCTION AND BACKGROUND

The global education community has challenging goals to achieve the aspiration of all young children being on the right track in their development by 2030. The importance of going beyond preschools to reach the most vulnerable children was noted as there are only very few children that have access to preschools. Early learning opportunities should be provided to areas where there are no preschools. There is a need for a continued interventions considering that investments in pre-primary education remains limited for the most deprived children. There is a growing realization of the need to provide a caring and stimulating environments either at homes or in centers to improve child development. The need to support high quality caregiving at homes and in centers as a foundation for young girls and boys was noted. Children's learning and development outcomes are highly correlated with their home environment. Violence against children, including hitting, spanking, and yelling at children has a negative relationship to children's development, while interactions like playing and singing with children and positive discipline have a positive relationship with early learning and development. The stimulating environment covers at home and the neighborhood. Violence needs to be reduced at home to stimulate child development, and parents need to be guided on positive parenting to end violence against children. Social protection programs need to address the specific needs of young children, including building their early learning foundations. Parents' daily interactions with their children are a critical factor impacting a child's development. Thus, the parents should be motivated to be involved in play and learning as part of the daily routine in the lives of young children and their families. Center- based programs for young children need to have a primary focus on the quality of activities and interactions with young children. It was found that center-based programs have better outcomes when combined with parenting programs.

1.1. Project Background

Early Childhood Care and Development for Floating Villages project is funded through a grant under the World Bank-administered Japan Social Development Fund (JSDF), implemented over a period of three years (2015 to 2018). The objective of the Project is to improve access to quality early childhood care and development services through community and home-based programs for zero to five years old, particularly for those from disadvantaged backgrounds, in 137 villages along the Tonle Sap River and Tonle Sap Lake in Kampong Chhnang and Pursat provinces. It has covered a total of 10,840 children; 5,420 of which, are girls. The main components of project are:

- Promotion of access to ECCD services by carrying out of low-cost community and home-based ECCD programs, as well as training for children and parents living in the Target Villages. It specifically focuses on disadvantaged and marginalized children, through: (a) the construction of seven ECCD centers for community-based ECCD programs. This includes three floating and four on-shore centers, of which a selected number of floating centers will be equipped with appropriate waste water treatment systems; (b) the establishment of approximately 635 home-based ECCD programs fostering local participation and recruiting parent volunteers; and (c) the creation of community-based networking for supporting and managing ECCD services in selected communities;
- Provision of quality child-friendly ECCD program by carrying out of activities designed to create an enabling, child-friendly environment that incorporates child participation, play and learning, stimulation, care and protection both at home and in the constructed ECCD centers, through: (a) the introduction of quality community-based ECCD program; (b) the introduction of quality home-based ECCD program; and (c) the improvement of maternal literacy for quality community-based and home-based ECCD related
- Strengthening of the capacity of government and community structures by carrying out of activities designed to strengthen the linkages between government and communities for effective implementation of ECCD policies, focusing on children's holistic development through: (a) strengthening local structures and capacity of government, communities and NGOs to support

ECCD program implementation; (b) strengthening ECCD networking and coordination among all stakeholders; and (c) facilitating advocacy activities.

- Project Management and Administration, Monitoring and Evaluation, and Knowledge Dissemination: Provision of technical and operational assistance for the day-to-day management of Project activities including advocacy, procurement, financial management, and environmental and social safeguards arrangements, development of a Project database and tools for data collection, recording, tracking, and analyzing, and Project monitoring and evaluation, including the development of the monitoring and evaluation plan; and capacity building to staff and other Project partners on the use of the Project database.

Save the Children gives priority to providing girls and boys with an early start in learning and development – be it center-based through kindergartens, learning centers, or preschool, or home-based efforts to create caring, safe, and stimulating home environments.

1.2. Objectives of Endline Evaluation

The specific objective of the endline evaluation was to estimate the CREDI and IDELA child development outcomes of children, as well as practices of their primary caregivers, in the target village; for comparison with baseline outcomes and between the four different types of villages.

2. EVALUATION METHODOLOGY

2.1. Survey Design

Pre-test-post-test design was employed in the evaluation in order to measure changes between baseline and endline. Fifty target villages and 30 non-target villages were selected in order to measure the change between the target villages with programme intervention and non-target villages without programme intervention. Non-target villages in the same districts with similar overall characteristics to the target villages were included at endline evaluation in order to gain more understanding about the magnitude of results. The 30 non-target villages were selected in collaboration with SCI's project team. The following comparison is made:

A. Comparison of Baseline versus Endline
   1. Water-based and land-based villages
   2. With community pre-schools (CPS)
   3. Home-based education (HBE)
   4. State pre-school (SPS) ECCD intervention

B. Comparison between Target villages and Non-target villages

2.2. Method of Data Collection

Survey methodology adopted cross sectional survey utilizing structured questionnaires . The data was collected using tablets. The structured interviews were conducted with caregivers and children using the CREDI, IDELA and Caregivers tools to measure child development outcomes and examine caregiver practices

2.3. Sampling Procedures

2.3.1. Sample Size

Based on the endline TOR, the sample size for this endline survey was 1680. The sample size was determined using the formula ($n= z^2[P(1-P)/D^2]$) which was commonly used by the U.S Department of

Health and Human Services. 'P' is true proportion of factor in the population or the expected frequency value; 'D' is maximum difference between the sample mean and the population mean and 'Z' is area under normal curve corresponding to the desire confidential level. With the proposed sample size, it has confidence level of 95%, standard deviation of -/+3%, and 1.5 of design effect. The sample size calculation in endline survey also considered 5% of non-response rate because in the baseline survey about 7% of sampled caregivers could not be met for interview.

Table 1: Sample size calculation

Factors	Value	Number of Samples
p	50.00%	
D	3.00%	
Confidential level	95%	
Design Effect	1.50	
Non-Response Rate	5%	
Sample Size (Baseline Sample)		1067
Sample Size +Design Effect		1600
Sample Size + Design Effect + Non-Response Rate	5%	1680

Though the endline TOR suggested to classify the sample of caregivers, and children from 0-42 months and children from 43-72 months in equal number (i.e. 1680 Caregivers and 1680 children from two different age groups as shown in the table below). However, during the fieldwork some of the sampled caregivers had two children that qualify for both IDELA and CREDI assessment. In such case both children were selected for interview. This has resulted to the lesser number of Caregivers for interview than originally planned. Therefore, for endline survey, data was collected from 1,033 caregivers and 1,680 children (840 children from 0-42 months and 840 children from 43-72 months).

Table 2: Description of sample

Type of Village	# of Villages	# of HHs sample per village	Sample # of Children by age group		Total children	Total primary caregivers
			0-42 months (10 children per village)	43-72 months (10 children per village)		
A. Newly constructed ECCD center, Community-based ECCD, and Home-based ECCD supported by project	7	30 HHs	105	105	210	140
B. Community-based ECCD and Home-based ECCD supported by project	13	20 HHs	135	135	270	217
C. Home-based ECCD supported by the project (HBE)	30	20 HHs	300	300	600	314
D. Non-target villages (without any ECCD services)	30	20 HHs	300	300	600	314
Total	**80**		**840**	**840**	**1680**	**1033**

All together 80 villages were covered by the endline survey (50 target village and 30 non-target villages).

The 30 non-target villages were selected in collaboration with SCI's project team. The purpose of selecting 30 non-target villages was to compare the findings with target villages. Based on sample size it is estimated that it will give a confidence level of 95%, standard deviation of 4% from all non-target villages.

2.3.2. Sampling Strategy

At the household level, systematic random sampling was used to select respondents from the list of households in each village. A total of 30 HHs were selected from each sampled villages under newly constructed ECCD center, Community-based ECCD, and Home-based ECCD supported by the project. Whereas, 20 HHs were selected from each of Community-based ECCD and Home-based ECCD supported by project; Home-based ECCD supported by the project (HBE); and Non-target villages (Table 2).

Interviews were conducted with primary caregivers along with IDELA and CREDI assessment tools for children, if the caregiver has child between 43-72 months and child between 0-42 months respectively. If the Caregiver had children that qualify both age groups, than both IDELA and CREDI tools were used for that household. If there were more than two children in the same age group, only one child in each age group was selected. In some of the sampled villages there were fewer number of children with 0-42 month and 43-72 month-old for interview. In such case, replacement was done for required sample for each of the two age groups of children from the next sampled villages. The sampling was aimed to achieve close to 50%-50% split of boys and girls. Due to fewer number of villages under newly constructed ECCD center, Community-based ECCD, and Home-based ECCD supported by project, more samples were selected from these villages

2.4. Survey Instruments

The Caregiver Reported Early Development Index (CREDI) was designed to serve as a population-level measure of early childhood development (ECD) for children from birth to age three. The CREDI exclusively relies on caregiver reports, and thus primarily focuses on milestones and behaviors that are easy for caregivers to understand, observe, and describe. The main objective of the CREDI is to assess the overall developmental status of particular populations of interest. As such, CREDI is not meant as a diagnostic or screening tool, and should not be used to make claims about individuals or small groups of children.[1] CREDI was found to be an acceptable tool for use in low-resourced settings. The caregiver-reported items allow for quickly and easily measuring the motor, cognitive, and socioemotional skills of children under three living in low-resourced settings. In particular, the CREDI is designed to be 1) simple and clear enough to be answered by a caregiver with minimal formal education, 2) short enough to be feasibly integrated within large-sample household data collection efforts, 3) sufficiently "culturally neutral" to allow for cross-context comparison, and 4) adequately aligned with "gold standard" direct assessment measures of proven clinical and developmental utility.

The CREDI was used to ask parents or caregivers of 840 children aged from 0-42 months to measure the child's Motor, Cognitive, and Socio-emotional development, along with observations. It is structured in a similar way as IDELA. Primary data was collected through household survey with caregivers and children of age group 0-42 months and 43-72 months. Three different forms of questionnaires were used in this survey. Caregivers were asked to draw up a profile of household socio-economic conditions, education, ECCD practices with children, children's health and nutrition, and disaster risk reduction

[1] McCoy, D.C.; Sudfeld, C.R.; Bellinger, D.C.; Muhihi, A.; Ashery, G., Weary, T.E., Fawzi, W., and Fink, G.. 2017. Development and validation of an early childhood development scale for use in low-resourced settings. Popul Health Metr. 2017 Feb 9;15(1):3. doi: 10.1186/s12963-017-0122-8.

(DRR) practices. In this quantitative survey, 1033 caregivers were interviewed from different groups as mentioned in Table 2.

IDELA (International Development and Early Learning Assessment) was used to assess the performance of 840 children aged 43- 72 months based on six developmental domains (Motor, Literacy, Numeracy, Socio-emotional, Approaches to learning, and Spiritual/moral/cultural), and from their caregivers to gather information about parenting practices and home environment. The data were collected through a questionnaire containing 24 items/questions on tasks to be carried out. Scoring was based on three categories: Yes, No, and No Response.

IDELA[2] was released for public use in 2014 by over two dozen partner organizations in 35 countries. IDELA is a groundbreaking tool to measure child development and early learning outcomes among the 36-72 month-age groups. It measures persistence, memory, and attention, some of the critical cognitive skills that are indicators of later achievement. The data from IDELA can help education and early childhood development stakeholders across countries identify which strategies will most effectively improve results for children. It can be easily translated and administered and has strong reliability and validity.

IDELA provides a better understanding on children's vulnerability and how it impacts early learning and development which allows to identify interventions that serve as protective factors in the lives of children. Interventions are needed to address the various risk factors and support early learning as well as social protection. Based on the lessons from earlier studies, children receiving learning support at home or in centers are less likely to be at risk for poor developmental outcomes.[3]

2.5. Survey Administration and management

2.5.1. Survey team, recruitment and Training

The survey team comprised of international Team Leader, Statistician and national Deputy Team Leader/Field Coordinator for the overall management of this assignment. In addition, four experienced supervisors and 20 enumerators with previous experience in similar survey were recruited. All supervisors and enumerators had hands on skills using Tablet/ODK for tablet-based data collection. A 5-day training including one-day field testing of tools was conducted in Save the Children's training room in Phnom Penh in close collaboration with Save the Children and SBK's team. The in-house training on IDELA and CREDI guideline and HH questionnaire was conducted from 6th to 8th November 2019 to ensure all enumerators and supervisor understand the application of the tools in the field. An additional full day was spent for pre-testing of tools (in Kampong Chhnang province, Chul Kiri District, Koh Thkov Commune, Tamul Leu & Dorng Tung Villages) and another half day for reflection from the pre-test, logistics arrangement, team arrangement and practice questionnaires on Tablet.

2.5.2. Data collection

Tablet-based data collection was used for all three sets of questionnaires using ODK. Data were uploaded by the field supervisors of each survey team each day from the field. SBK's tablet expert checked regularly the quality of data and provided continuous support and feed-back to the survey team

[2] Save the Children. 2017. Windows Into Early Learning and Development: Cross Coutnry IDELA Fiindings Fueling Progress on ECD Access, Quality and Equity. Save the Children International, St. Vincnent's House, 30 Orange St., London WC2H 7HH, United Kingdom. January 2017

[3] *Windows into early learning and development, cross country IDELA findings fueling progress on ECD access, quality and equity, by save the children International, 2017.*

for any issues and discrepancy on data collected. Data from the field was collected over a period of 3 weeks in November/December 2019.

2.5.3. Ethical Consideration

For all children, Human Subject Research ethics was adhered to, including oral consent from the child and oral consent from the child's caregiver. All consultants and field researchers were fully aware on Save the Children's Child Safeguarding protocol and asked to sign of their understanding and agreement to the policy, and data protection awareness. No child was interviewed out of sight of their parents or guardian but in an environment where a child felt comfortable to talk without any fear.

Confidentiality. Efforts were made to protect the confidentiality and the identity of participants. The importance of confidentiality and the protection of the identity of respondents was emphasized to the survey team during the training for data collection.

Informed Consent. Consent was obtained from HH members and individuals prior to conducting interview. An informed consent sheet that includes introduction, and purpose of the study, how questions will be administered, the risks and benefits to those who participate, the confidentiality of the collected data and voluntary participation, was developed which was on the top of each questionnaire.

2.6. Quality Assurance Mechanisms

Structures were established to monitor the activities of field team and to detect instances of data fabrication or misapplication of survey procedures. A separate monitoring team, reporting to the SCI and SBK's senior management were designated to assess the performance of enumerators and supervisors. Monitoring team concurrently performed random, unannounced spot checks to assess the performance of enumerators and supervisors and in case of any doubt the team also performed random, unannounced re-interviews of household members interviewed previously by enumerators. Intensive training for survey team before the survey on caregiver, CREDI and IDELA tools helped to understand the concept and approach to ask and record data of each tools. Every effort was made to ensure the quality of data collected from the field. The SCI MEAL team also provided support to enumerators during data collection to further clarify the questionnaires and respondent selection process. The SCI MEAL team also closely assessed whether the enumerators and/or supervisors were engaged in data fabrication and/or misapplication of survey procedures. On the first week of data collection, both SBK Team and SCI MEAL team made joint visit to assess the performance of survey team on data collection, and provided on-the-spot support and feedback to improve the quality of data collection. In addition, at the end of the first week of data collection, a half day feedback session with data collection team was organized jointly by SBK and SCI team to share their experiences and further clarify any issues and problems the survey team had encountered. All these activities helped tremendously to boost the morale of survey team and ensure quality of data collected.

2.7. Data cleaning, analysis and report writing

Data cleaning and error checking system was developed for verification of data error before creating tabulation for data outputs for the purpose of data analysis and report writing. Endline data sets are available both in SPSS and Excel formats.

The performance of children was analyzed based on the results of IDELA and CREDI. The study focused on the improvement of the performance of the children compared to baseline, the performance of the target and non-target villages, and on the type of ECCD services. The performance was determined by controlling the other factors such as the geographic areas, the poor condition, gender of children, age,

and literacy of caregivers. The comparisons made used a t-test and multivariate regression analysis. The analysis was made for the overall performance as well as for each domain of IDELA and CREDI.

2.8. Limitations

The study encountered some challenges during data collection such as migration (20%). The data collection was conducted during harvest reasons so that there was high percentage of households who left for fishing far away from their hometown. At the same time, there was 5% of duplicate names (both wife and husband) and misspelled names of caregivers in the name list. There was also high number of over-aged children (40%). After 3 years of project implementation, some children have grown up and had crossed the required age group. There were names of the caregivers in the sampling list but some of them never participated in the training (10%). However, these issues were managed by survey team either taking replacement HHs with similar characteristics, and contacting Village Chiefs, village leaders and school teachers.

The logistical challenges encountered by the team include difficulty in reaching some of the water-based villages in remote areas. The survey team had to spend long time travelling through alternate routes by boat to reach to the sampled villages. For some of the villages the only means of transport was by boat, especially target villages in Pursat Province.

3. STUDY RESULTS

3.1. Profiles of child respondents and caregivers

Caregivers and child respondents were assessed using the Caregivers, IDELA and CREDI tools. Table 3 shows the geographic type, ECCD Classification, religion, poverty status of caregivers, and literacy status of respondents. Majority of the schools are located on land (i.e. 63). In the surveyed villages, majority are Khmers (96.2%) followed by Vietnamese (2) and the rest are Muslims. Interestingly, majority of the respondents are classified to be non-poor and literate.

Table 3: Profiles of child respondents and caregivers

Type of Classification		Village		Caregiver		IDELA		CREDI	
		Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Geographic Type	Water-based	18	17	355	210	235	185	223	185
	Land-based	18	63	468	823	302	655	296	655
	Total	**36**	**80**	**823**	**1033**	**537**	**840**	**519**	**840**
ECCD Classification	Newly constructed ECCD Center/Community/Home based ECCD	18	7	465	140	316	105	292	105
	Community, Home-based ECCD	14	30	242	217	146	135	167	135
	Home-based ECCD	4	13	116	314	75	300	60	300
Comparison	Target		50		671		540		540
	Non-Target	-	**30**		**362**		**300**		**300**
Religion	Khmer	36	994	798	994	525	813	8	809
	Muslim	3	18	12	18	6	9	10	12
	Vietnamese	4	21	13	21	6	18		19
Poverty Status of Caregivers	Poor	-	316	314	316	218	219	192	254
	Non-Poor	-	717	509	717	319	621	327	586
Literacy of Caregivers	Can't Read	-	302	357	302	234	243	217	232
	Read	-	731	466	731	303	597	302	608

Figure 1 shows the age distribution of caregivers. It can be seen that there are no changes from the baseline and that most of the caregivers are 26 to 30 years old.

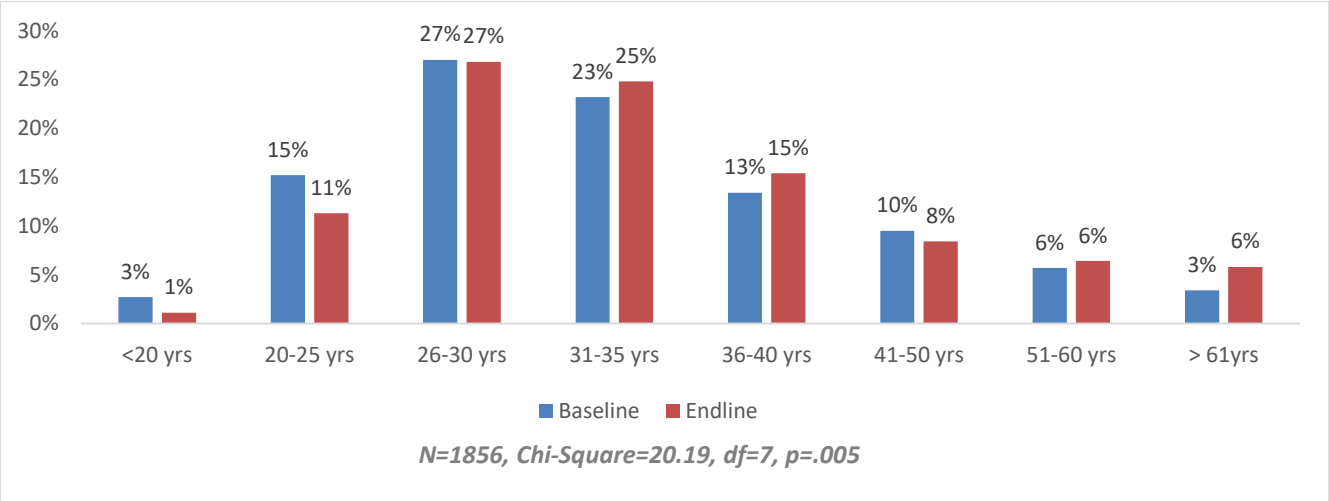
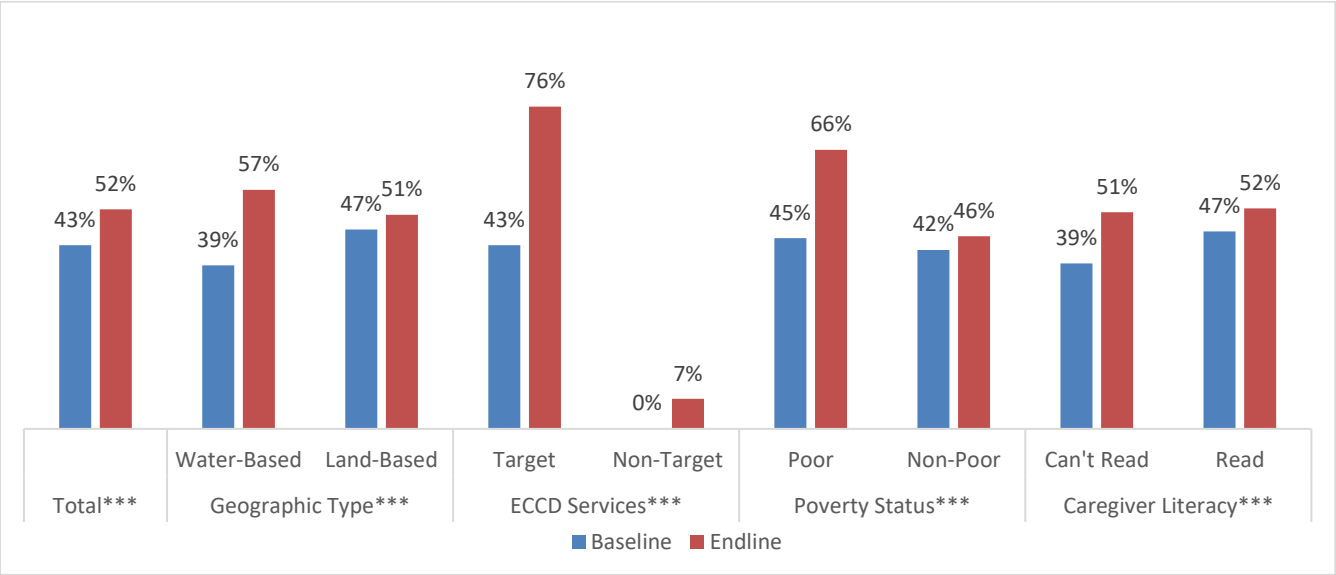


Figure 1: Age Distribution of Caregivers

3.2. Access to ECCD Services

The proportion of children receiving ECCD services has increased from the baseline. From the ecological perspective, increase could be seen in the water-based schools compared to land-based schools. Likewise, the proportion of children receiving ECCD services among poor families has increased from baseline compared to endline (p<0.001). Whereas, among the non-poor children there is only minimal changes. There is also increase in proportion among the category of 'illiterate' compared to 'literate' families whose children received ECCD services (p<0.001).



*Note: * = 0.5 Level; ** = 0.01 Level; *** = 0.001 Level*

Figure 2: Percentage of Children received ECCD Services

The proportion of children who are under 6 years old that received ECCD has increased from 43% in the baseline to 52% (endline), particularly in schools that are land-based (Table 4). There is also a significant proportion of children who received ECCD services during the endline survey (i.e. an increase from 43% to 51%).

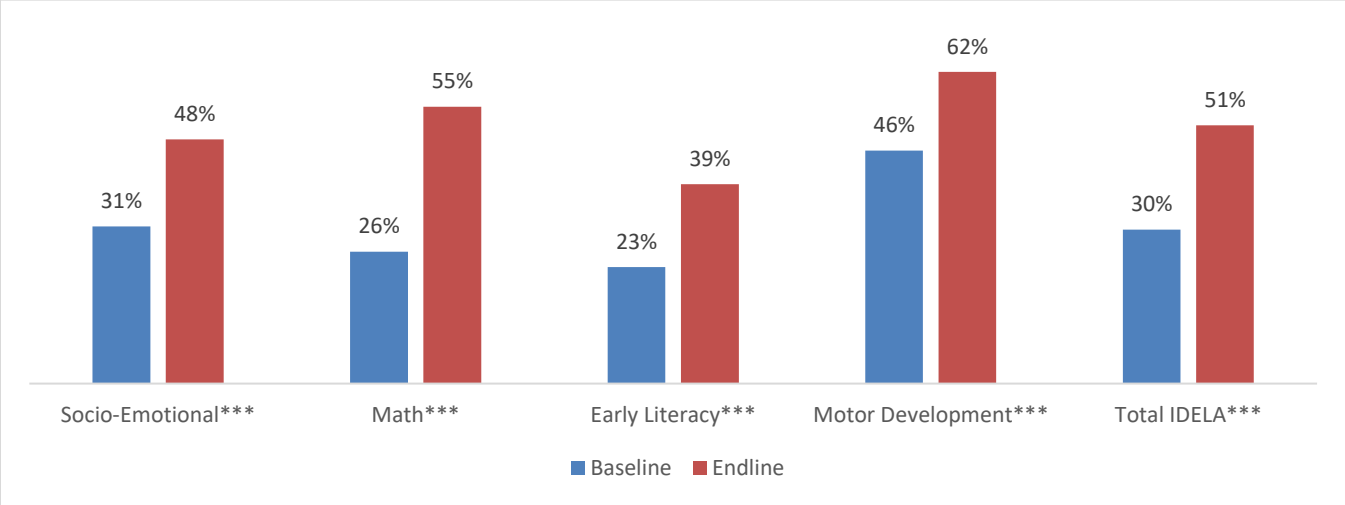
Table 4: Percentage of Children received ECCD Services

Type	Category	Total	Geographic Type		ECCD Services		Poverty Status		Caregiver Literacy	
			Water-Based	Land-Based	Target	Non-Target	Poor	Non-Poor	Can't Read	Read
Baseline	No. of Children < 6 year old	1278	563	715	1278	n/a	501	777	552	726
	%. of Children received ECCD	43%	39%	47%	43%	0%	45%	42%	39%	47%
Endline	No. of Children < 6 year old	1766	382	1384	1145	621	547	1219	507	1259
	%. of Children received ECCD	52%	57%	51%	76%	7%	66%	46%	51%	52%

3.3. Findings from IDELA

3.3.1. Overall IDELA Findings

The overall IDELA score has significantly improved from baseline to endline (30% to 51%, p<.001). This improvement pattern could be observed across domains of the IDELA (Figure 3). Similarly, the average overall IDELA score for endline is about 12.5% higher than the baseline while controlling for other confounding factors in the Multiple Regression modeling (Table 5).



** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Figure 3: Average Score of IDELA Domains

Table 5: Multiple Regressions: Difference in average score of the IDELA between Baseline and Endline

Variable	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Gender (0=male, 1=female)	1.6986	0.8002	2.1200	0.0340	0.1289	3.2684
Age group (month)						
43-47 - *reference*						
48-59	7.3924	1.3301	5.5600	0.0000	4.7831	10.0016
60-72	21.1580	1.2732	16.6200	0.0000	18.6604	23.6557
Geographic area (0=land-based, 1=water based)	-3.2391	0.8919	-3.6300	0.0000	-4.9888	-1.4894
ID poor classification (0=no ID, 1=with ID)	-1.2788	0.8707	-1.4700	0.1420	-2.9867	0.4292
Literacy of caregiver (0=can't read, 1=read)	5.4401	0.8530	6.3800	0.0000	3.7667	7.1135
Comparison (0=baseline, 1=endline)	12.4747	0.8661	14.4000	0.0000	10.7756	14.1738
Constant	14.5103	1.4636	9.9100	0.0000	11.6393	17.3813

N= 1,377, F(7, 1369)= 124.94, Prob > F =0.0000, Adj R-squared = 0.3867

It is interesting to observe that the number of parent group meetings attended by the caregivers has influenced on overall IDELA score of children only when the number of meetings reached more than 12 times. The average IDELA score for children whose caregivers attended parenting sessions more than 12 times is about 4.5% higher than those attended 5 times or less. Attended parenting sessions less 12 times, has no significant effect on the performance of the children. This indicates the importance of a regular participation and involvement of the caregivers in parent group meetings for the development of the children. However, there is no difference between the ECCD services (Newly constructed ECCD centers, Community, and Home-based ECCD). This means that the performance of the children across the three different types of ECCD services are comparable (Table 6).

Table 6: Multiple Regressions: Effects of participation in parenting group meetings and ECCD services on IDELA scores (target villages at endline)

Variable	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Child gender (0=male, 1=female)	0.2653	1.3754	0.1900	0.8470	-2.4366	2.9672
Child age group (month)						
43-47 - *reference*						
48-59	5.2314	2.4461	2.1400	0.0330	0.4261	10.0368
60-72	22.1745	2.3115	9.5900	0.0000	17.6336	26.7153
Geographic area (0=land-based, 1=water based)	-9.3374	1.6293	-5.7300	0.0000	-12.5382	-6.1366
ID poor classification (0=no ID, 1=with ID)	-3.8928	1.5105	-2.5800	0.0100	-6.8601	-0.9256
Literacy of caregiver (0=can't read, 1=read)	6.9855	1.5226	4.5900	0.0000	3.9945	9.9765
Parent Group Meeting						
<= 5 times - *reference*						
6-12 times	0.4061	1.9620	0.2100	0.8360	-3.4481	4.2603
>12 times	4.4574	1.8767	2.3800	0.0180	0.7707	8.1441
ECCD service						
Newly constructed ECCD Center/Community/Home based ECCD - *reference*						
Community & Home-based ECCD	0.1838	2.1500	0.0900	0.9320	-4.0399	4.4075
Home-based ECCD	1.6328	1.8139	0.9000	0.3680	-1.9305	5.1962
Constant	28.8750	3.3253	8.6800	0.0000	22.3426	35.4074

N=540, F(10, 529)= 26.25, Prob > F =0.000, Adj R-squared =0.3190

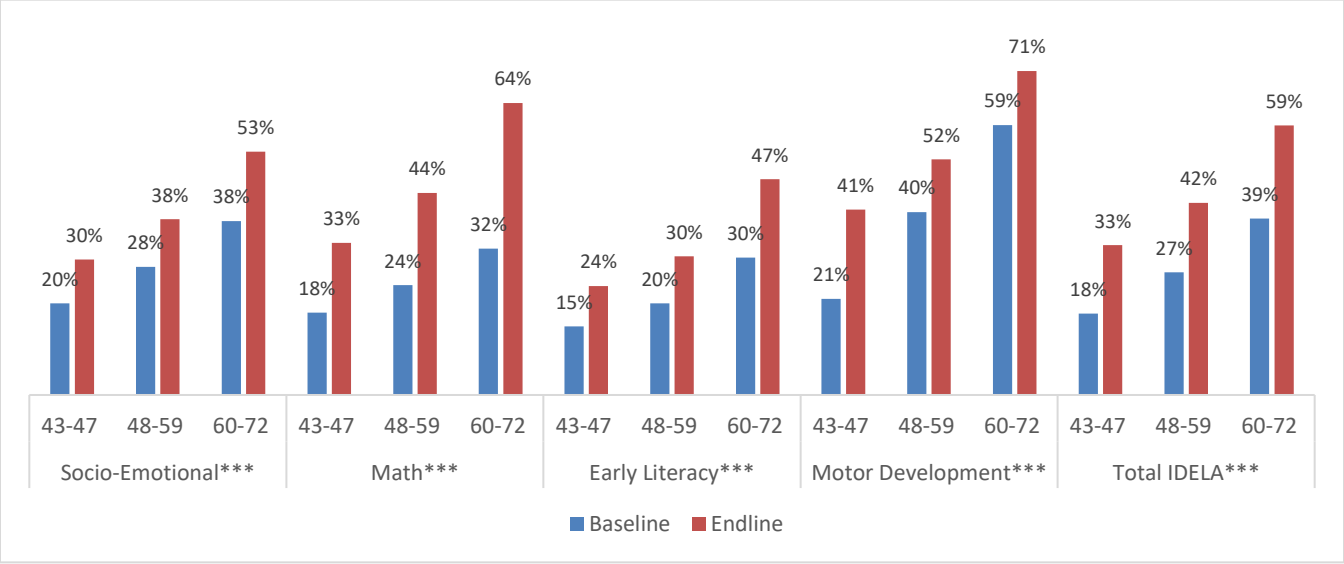
The comparison of the different factors is shown in Table 7. A comparison with the target and non-target villages shows a significant difference of the child performance. It was noted that the time of the type of the performance of the children among the different ECCD services are not significantly different.

Table 7: Comparison of Average IDELA Score by Gender and Other Classification

Type of Classification		Socio- Emotional		Executive Functions		Math		Early Literacy		Motor Development		Total IDELA	
		Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Overal		31%	48%***	26%	31%	26%	55%***	23%	39%***	46%	62%***	30%	51%***
Gender	Boy	29%	46%	26%	31%	26%	54%	22%	39%	46%	62%	30%	50%
	Girl	34%	50%**	26%	30%	27%	56%	25%*	41%*	45%	61%	31%	52%
Age Group	43-47 months	20%	30%	15%	22%	18%	33%	15%	24%	21%	41%	18%	33%
	48-59 months	28%	38%	22%	26%	24%	44%	20%	30%	40%	52%	27%	42%
	60-72 months	38%	53%***	34%	34%	32%	64%***	30%	47%***	59%	71%	39%	59%***
Type of Schools	Water-based	32%	44%	26%	27%	27%	49%	24%	36%	45%	54%	31%	46%
	Land-based	31%	49%***	26%	32%	26%	56%***	23%	41%***	46%	64%***	30%	53%
Poverty Status of Caregivers	Poor	31%	46%	27%	29%	26%	54%	23%	37%	47%	61%	31%	50%
	Non-Poor	31%	49%**	26%	31%	27%	55%	24%	41%***	45%	62%	31%	52%
Literacy of Caregivers	Can't Read	27%	44%	21%	28%	24%	50%	19%	34%	41%	60%	26%	47%
	Read	35%	50%***	30%	31%	28%	56%	27%	40%***	49%	62%***	34%	53%
Parent group meeting	Under 5 times		47%		29%		53%		38%		48%		43%
	6-12 times		50%		31%		58%		42%		56%		47%
	Over 12 times		55%		33%		61%		44%		58%**		51%**
ECCD Classification	Center/Communeity/Home based ECCD		50%		31%		57%		42%		62%		53%
	Community, Home-based ECCD		54%		32%		57%		42%		64%		55%
	Home-based ECCD		52%		32%		58%		43%		65%		54%
Comparision	Target		52%		32%		58%		42%		55%		48%
	Non-Target		42%***		29%**		52%***		34%***		47%***		41%***

** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

As mentioned earlier, the older children have higher performance score compared to the younger children. The result is consistent with the baseline result. Comparatively, the performance of children in the endline survey are higher in all age groups than the baseline.

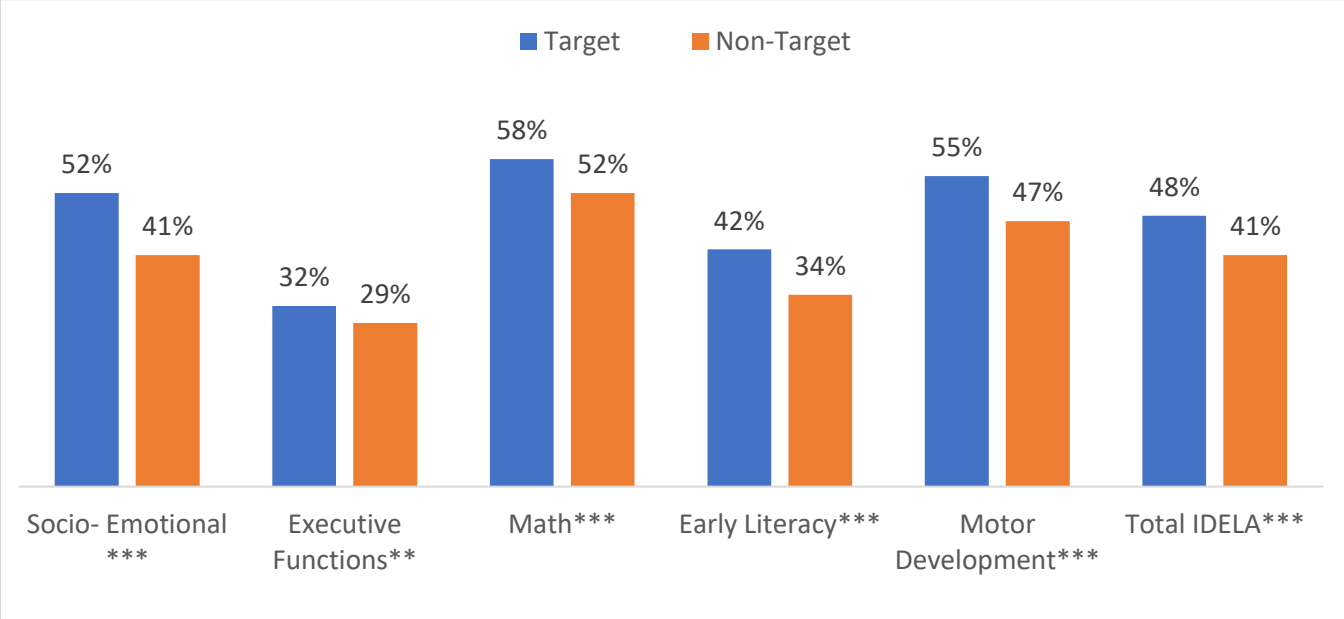


** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Figure 4: Average IDELA Score by age group

On the overall, the children in the target villages have a score of 48% while the children in the non-target villages are lower (41%). A comparison of the performance of the group of children in the target and non-target villages showed that the children in the target villages perform better compared to children in the non-target villages. The higher performance is consistent to all IDELA domains (i.e. Socio-Emotional Development, Executive Function; Emergent Math; Early Literacy; and Motor Skills) (Figure 5).

Notably, the overall IDELA score for children from the target villages are significantly higher than the non-target villages, more than 9% higher while controlling other confounding factors (Table 8).



** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Figure 5: IDELA Average Score by type of survey location

Table 8: Multiple Regressions: Difference in IDELA scores between target and non-target villages (endline)

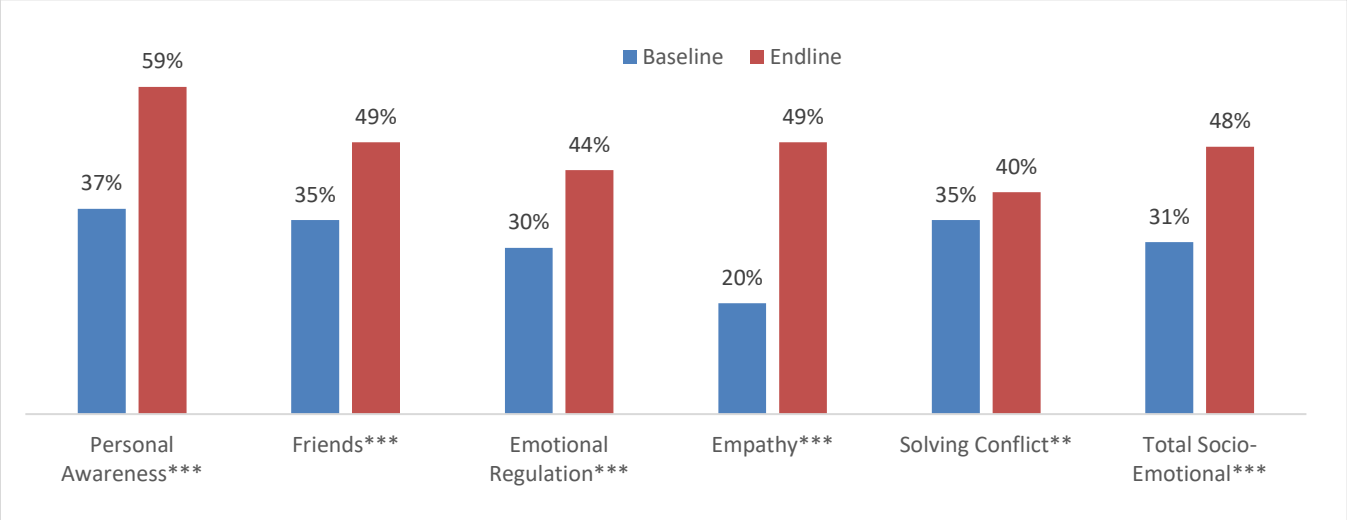
Variable	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Gender (0=male, 1=female)	0.5582	1.0802	0.5200	0.6050	-1.5621	2.6785
Age group (month)						
43-47 - *reference*						
48-59	6.4451	1.9122	3.3700	0.0010	2.6919	10.1983
60-72	22.0905	1.7857	12.3700	0.0000	18.585	25.5956
Geographic area (0=land-based, 1=water based)	-8.2680	1.3305	-6.2100	0.0000	-10.879	-5.6564
ID poor classification (0=no ID, 1=with ID)	-2.7918	1.2358	-2.2600	0.0240	-5.2174	-0.3661
Literacy of caregiver (0=can't read, 1=read)	5.1727	1.1893	4.3500	0.0000	2.8382	7.5071
Comparison (0=non-target villages, 1=target villages)	9.1886	1.1595	7.9200	0.0000	6.9126	11.4645
Constant	23.0671	2.0551	11.2200	0.0000	19.033	27.1008

N=840, F(7, 832)=53.90, Prob > F =0.0000, Adj R-squared =0.3062

3.3.2. Socio-Emotional

The endline result shows that there is a marked increase on the performance of the children compared to the baseline across sub-domains of socio-emotional development. Among the six sub-domains, the children have the highest performance in terms of personal awareness, although in terms of changes,

there is a significantly higher improvement on the child's empathy (Figure 6). Controlling for other confounding factors, significant difference in the overall scores of the socio-emotional development domain between baseline and endline still can be observed, 12% higher than the baseline. Also, it was found that girls performed better than boys for the socio-emotional development, about 4% higher. (Table 9)



** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Figure 6: Average Score in Socio-Emotional Domain

Table 9: Multiple Regression: Difference in average scores of the socio-emotional domain between baseline and endline

Variable	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Gender (0=male, 1=female)	4.0568	1.2151	3.3400	0.0010	1.6731	6.4404
Age group (month)						
43-47 - *reference*						
48-59	9.1704	2.0197	4.5400	0.0000	5.2084	13.1325
60-72	23.3064	1.9334	12.0500	0.0000	19.5137	27.0990
Geographic area (0=land-based, 1=water based)	-2.6708	1.3544	-1.9700	0.0490	-5.3277	-0.0140
ID poor classification (0=no ID, 1=with ID)	-1.6112	1.3221	-1.2200	0.2230	-4.2048	0.9823
Literacy of caregiver (0=can't read, 1=read)	6.3003	1.2953	4.8600	0.0000	3.7592	8.8413
Comparison (0=baseline, 1=endline)	12.2229	1.3152	9.2900	0.0000	9.6428	14.8029
Constant	13.9749	2.2224	6.2900	0.0000	9.6152	18.3345

N= 1,377, F(7, 1369)= 59.60, Prob > F =0.0000, Adj R-squared = 0.2296

The improvement on performance was observed in the areas of personal awareness, friends, empathy and solving conflict. The children who are older 60-72 months have significantly changed their performance in all domains while the younger children are not significantly different. The literacy of caregivers is also an important factor that determines the performance of the children. The result of the survey indicates that only the caregivers who are literate have significantly improved the performance of

their children. Comparing the children in target and non-target villages, the children in the target villages are significantly higher compared to children in non-target villages (Table 10).

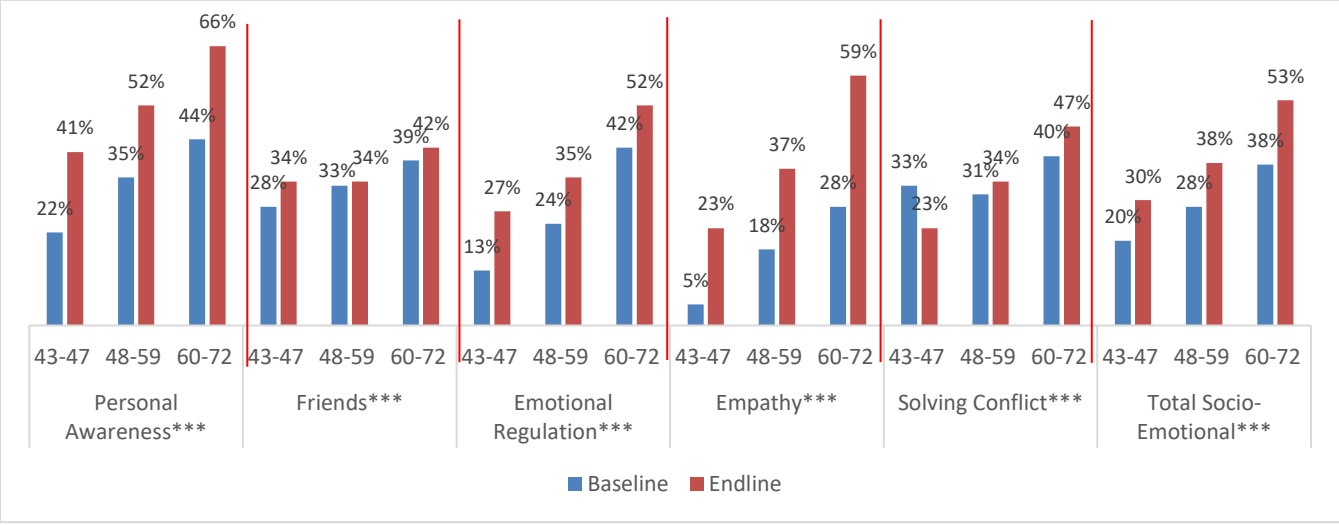
Table 10: Comparative performance of respondents across socio-emotional domain

Type of Classification		Personal Awareness		Friends		Emotional Regulation		Empathy		Solving Conflict		Total Socio-Emotional	
		Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Overal		**37%**	**59%*** **	**35%**	**49%*** **	**30%**	**44%*** **	**20%**	**49%*** **	**35%**	**40%***	**31%**	**48%*** **
Gender	Boy	35%	57%	33%	47%	27%	43%	18%	45%	32%	38%	29%	46%
	Girl	39%	61%*	37%	50%*	32%	45%	22%	53%*	38%	43%*	34%	50%**
Age Group	43-47 months	22%	41%	28%	34%	13%	27%	5%	23%	33%	23%	20%	30%
	48-59 months	35%	52%	33%	34%	24%	35%	18%	37%	31%	34%	28%	38%
	60-72 months	44%	66%***	39%	42%***	42%	52%***	28%	59%***	40%	47%***	38%	53%***
Type of Schools	Water-based	37%	55%	35%	44%	31%	41%	21%	45%	33%	36%	32%	44%
	Land-based	37%	60%***	34%	50%***	28%	45%	19%	50%***	36%	42%*	31%	49%***
Poverty Status of Caregivers	ID Poor	38%	59%	35%	45%	31%	42%	19%	45%	34%	40%	31%	46%
	Without ID Poor	37%	60%**	35%	50%***	28%	45%	21%	50%***	36%	41%	31%	49%**
Literacy of Caregivers	Can't Read	33%	55%	32%	45%	26%	37%	14%	44%	31%	37%	27%	44%
	Read	41%	60%***	37%	50%***	33%	47%***	25%	50%***	38%	43%**	35%	50%***
Parent group meeting	Under 5 times		52%		45%		47%		47%		42%		47%
	6-12 times		62%		53%		42%		51%		41%		50%
	Over 12 times		66%***		53%		53%		56%		50%		55%
ECCD Classification	Newly constructed ECCD Center/Communeity/Home based ECCD		62%		52%		42%		52%		44%		50%
	Community, Home-based ECCD		61%		51%		51%		56%		49%		54%
	Home-based ECCD		62%		51%		49%		51%		45%		52%
Comparision	Target		62%		51%		48%		53%		46%		52%
	Non-Target		54%***		43%***		36%***		41%***		32%***		42%***

(N=1,377, F(1, 1375)=144.94, Prob>F=0.0000, R-Squared=0.0947)

** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Consistent with the overall observation, older children have higher score compared to the younger children in all domains (Figure 7). Apparently, older children also become more conscious of the how to interact and properly behaves, compared to younger children. Among the different domains, the children have better performance on their personal awareness.

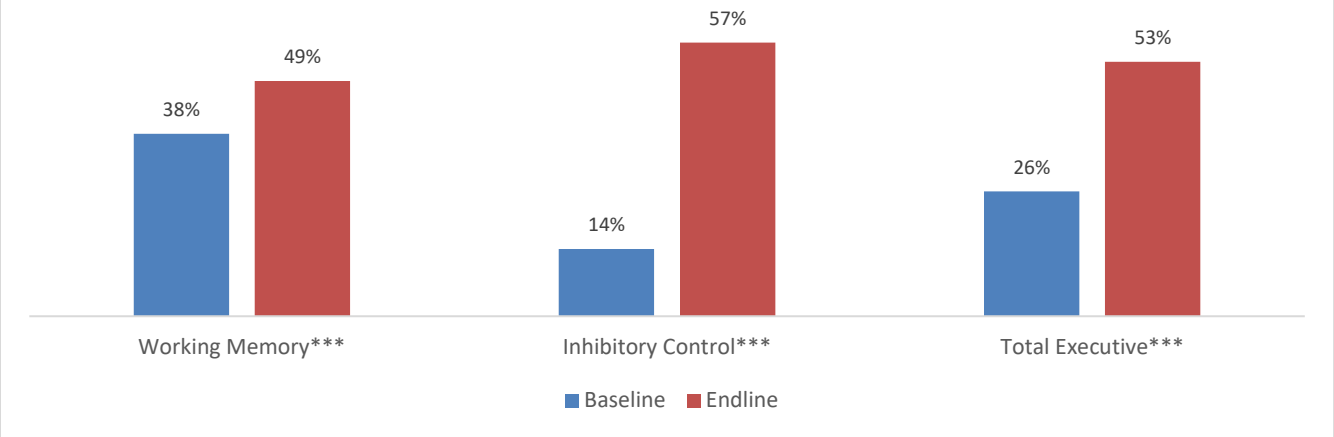


** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Figure 7: Average Score in Sub Domains of Socio-Emotional by age group

3.3.3. Executive Functions

The result indicates that there is a significant improvement of the Executive Function performance of children at the end of the project phase. On the overall, the performance of children has significantly increased from 26% to 53%. The improvement is particularly more pronounced on the inhibitory control function of the child (Figure 8). Controlling for other confounding factors, the average score remains higher at endline compared to the baseline, about 8% (Table 11).



** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Figure 8: Average Score of Executive Functions

Table 11: Multiple Regression: Difference in average scores of the Executive domain between baseline and endline

Variable	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Gender (0=male, 1=female)	-0.1604	0.8090	-0.2000	0.8430	-1.7473	1.4266
Age group (month)						
43-47 - *reference*						
48-59	4.5342	1.3447	3.3700	0.0010	1.8964	7.1721
60-72	11.9922	1.2872	9.3200	0.0000	9.4671	14.517
Geographic area (0=land-based, 1=water based)	-2.3250	0.9017	-2.5800	0.0100	-4.0938	-0.5561
ID poor classification (0=no ID, 1=with ID)	-1.2152	0.8802	-1.3800	0.1680	-2.9419	0.5115
Literacy of caregiver (0=can't read, 1=read)	3.9440	0.8624	4.5700	0.0000	2.2522	5.6358
Comparison (0=baseline, 1=endline)	7.6401	0.8756	8.7300	0.0000	5.9224	9.3579
Constant	12.5355	1.4796	8.4700	0.0000	9.6330	15.438

N= 1,377, F(7, 1369)= 43.61, Prob > F =0.0000, Adj R-squared = 0.1781

The results indicate that the working memory is significantly different for children that are older. It is expected that as the children grow older, the Executive Functions start to develop compared to the younger children. The significant difference was also found between the end line and the baseline scores within the land-based schools. The improvement of the performance of children were observed among children whose caregivers can read or write. There is no significant difference on the score of children

within the ECCD services under the Working Memory sub-domain whose caregivers cannot read (p>0.05) (Table 12).

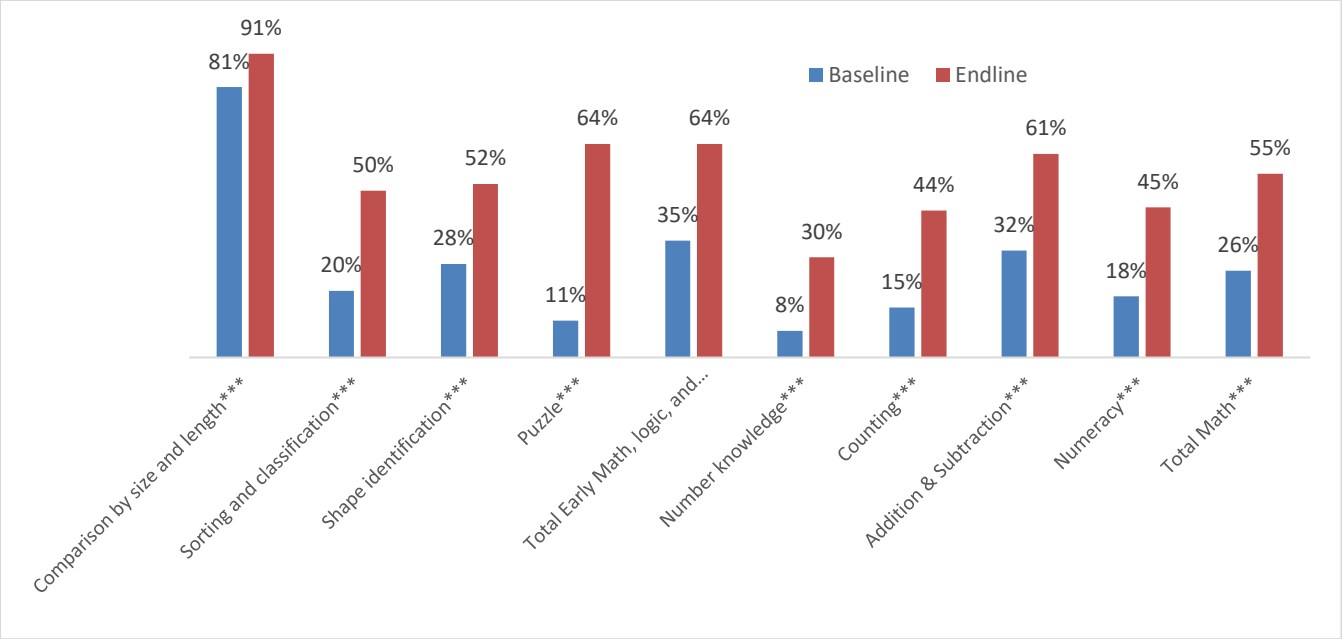
Table 12: Comparison of Average Score in Executive Functions by Gender and Other Classification

Type of Classification		Working Memory		Inhibitory Control		Total Executive	
		Baseline	Endline	Baseline	Endline	Baseline	Endline
Overall		**38%**	**49%*** **	**14%**	**12%**	**26%**	**31%**
Gender	Boy	38%	49%	14%	12%	26%	31%
	Girl	39%	49%	14%	12%	26%	30%
Age Group	43-47 months	24%	31%	6%	14%	15%	22%
	48-59 months	36%	41%	9%	11%	22%	26%
	60-72 months	46%	56%***	21%	12%	34%	34%
Geographic Type	Water-based	39%	43%	12%	10%	26%	27%
	Land-based	38%	51%***	15%	13%	26%	32%
Poverty Status of Caregivers	Poor	39%	47%	14%	11%	27%	29%
	Non-Poor	38%	50%	13%	12%	26%	31%
Literacy of Caregivers	Can't Read	33%	45%	8%	11%	21%	28%
	Read	43%	50%***	18%	13%	30%	31%
Parent group meeting	Under 5 times		46%		12%		29%
	6-12 times		49%		12%		31%
	Over 12 times		54%		13%		33%
ECCD Classification	Newly constructed ECCD Center/Community/Home based ECCD		50%		11%		31%
	Community, Home-based ECCD		53%		11%		32%
	Home-based ECCD		50%		14%		32%
Comparison	Target		51%		12%		32%
	Non-Target		45%*		12%		29%**

N=540, F(10, 529)=7.33, Prob > F =0.0000, Adj R-squared =0.1051
** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

3.3.4. Early Math, Logic, and Reasoning

The total math and numeracy skills of the child was found to be significantly different from the baseline (p<0.05). Among the sub-domains, the comparison by size and length was found to be the highest. But there is a very big improvement of the children in terms of their numeracy and logic and reasoning (Figure 9).
Table 13 indicates that the average score of this domain is higher at the endline compared to baseline while controlling for other confounding factors, more than 19% (Table 13).



** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Figure 9: Average IDELA Score on Math and Numeracy

Table 13: Multiple Regression: Difference in average scores of the Early Math domain between baseline and endline

Variable	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Gender (0=male, 1=female)	0.9100	0.9981	0.9100	0.3620	-1.0479	2.8680
Age group (month)						
43-47 - *reference*						
48-59	6.8439	1.6590	4.1300	0.0000	3.5894	10.0984
60-72	20.8716	1.5881	13.1400	0.0000	17.7563	23.9870
Geographic area (0=land-based, 1=water based)	-3.8809	1.1125	-3.4900	0.0010	-6.0633	-1.6985
ID poor classification (0=no ID, 1=with ID)	-1.1529	1.0860	-1.0600	0.2890	-3.2832	0.9775
Literacy of caregiver (0=can't read, 1=read)	4.9349	1.0640	4.6400	0.0000	2.8477	7.0222
Comparison (0=baseline, 1=endline)	19.2656	1.0803	17.8300	0.0000	17.1463	21.3849
Constant	19.5804	1.8255	10.7300	0.0000	15.9993	23.1614

N= 1,377, F(7, 1369)= 117.08, Prob > F =0.0000, Adj R-squared = 0.3713

The improvement of the performance of the children compared to baseline was observed in all age groups, in geographic areas, in poverty status, literacy of caregivers, and among children whose parents have attended more than 12 times of parent group meetings. Gender is not statistically significant factor that influence the performance of children (p=0.46). In terms of age, only older children and children with caregivers who receive more than 12 times of parental meetings have better performance than the baseline (p < 0.05). The endline result is not significantly different among children who receive different ECCD services (Table 14).

The result of the study indicates a significant increase on the performance of Early Math and numeracy skills of children at the end of the project phase. There is a marked increase on the performance of children across all sub-domains of the Math sub-domain. The summary table also shows that the type of ECCD services have no significant impact to the average math score of children (p> 0.05). The sub-domains under the Emergent Math have indicated that the endline performance of children are significantly higher compared to the baseline. Only the children in the land-based schools respond to the services and this is true to all sub-domains. The literacy of caregivers was found to be an important factor that affect the performance of the children. Specifically, the children whose caregivers can read have improved their performance compared to the baseline. The number of parent group meetings attended by the caregivers have partly contributes to the performance of the child in some aspects of the Emergent Math domain. In this case, only the children that attended more than 12 meetings have made an improvement of their performance. The improvement of the performance of children are significantly higher compared to the non-target villages indicating the contribution of the project to the development of children on math (Table 14).

Table 14: Comparison of Average Score in Math and Numbery by Gender and Other Classification

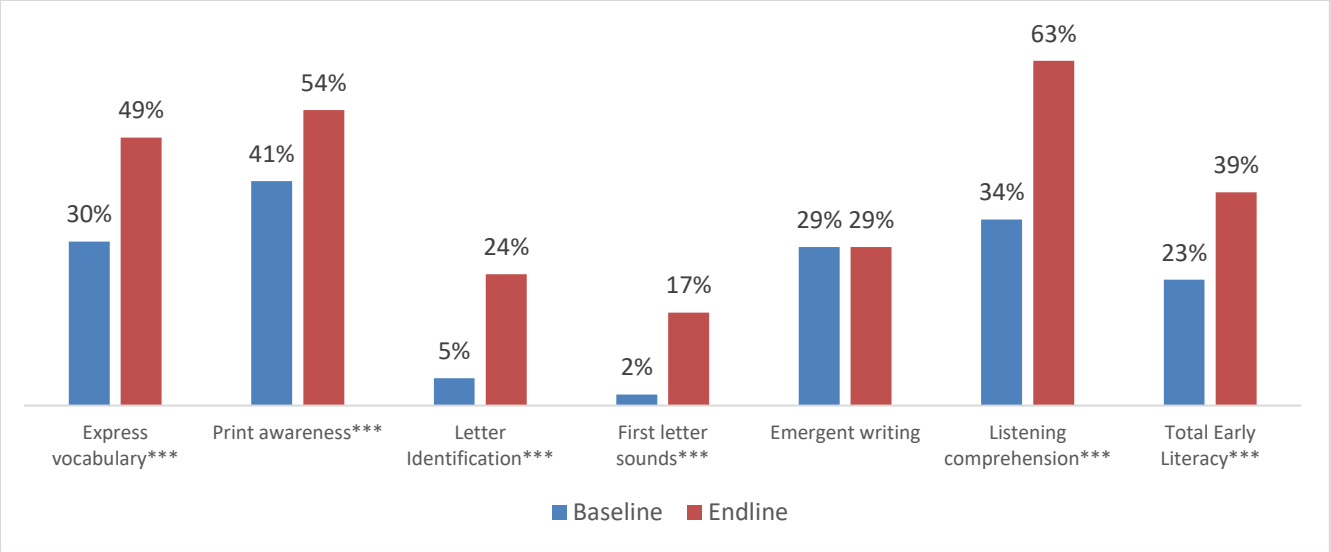
Type of Classification		Comparison by size and length		Sorting and classification		Shape identification		Puzzle		Early_Math, logic, and reasoning		Number knowledge		Counting		Addition & Subtraction		Numeracy		Total_Math	
		Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Overall		**81%**	**91%*** **	**20%**	**50%*** **	**28%**	**52%*** **	**11%**	**64%*** **	**35%**	**64%*** **	**8%**	**30%*** **	**15%**	**44%*** **	**32%**	**61%*** **	**18%**	**45%*** **	**26%**	**55%*** **
Gender	Boy	79%	91%	19%	50%	27%	50%	11%	64%	**34%**	**64%**	7%	30%	14%	43%	32%	59%	**18%**	**44%**	**26%**	**54%**
	Girl	83%	91%	20%	50%	28%	53%	11%	62%	**36%**	**64%**	8%	31%	15%	46%	32%	64%	**18%**	**47%**	**27%**	**56%**
Age Group	43-47 months	63%	76%	12%	31%	18%	32%	4%	39%	**24%**	**45%**	6%	13%	7%	19%	20%	34%	**11%**	**22%**	**18%**	**33%**
	48-59 months	82%	88%	18%	42%	24%	42%	8%	52%	**33%**	**56%**	7%	18%	10%	30%	26%	49%	**14%**	**32%**	**24%**	**44%**
	60-72 months	86%	95%***	24%	57%***	35%	60%***	16%	73%***	**40%**	**71%*** **	9%	40%***	21%	56%***	41%	73%***	**24%**	**56%*** **	**32%**	**64%*** **
Type of Schools	Water-based	80%	85%	21%	44%	25%	45%	12%	57%	**35%**	**58%**	9%	26%	16%	39%	32%	56%	**19%**	**40%**	**27%**	**49%**
	Land-based	82%	93%***	19%	51%***	29%	53%***	10%	65%***	**35%**	**66%*** **	7%	31%***	14%	46%***	32%	63%***	**18%**	**47%*** **	**26%**	**56%*** **
Poverty Status of Caregivers	ID Poor	83%	92%	19%	47%	27%	49%	9%	60%	**35%**	**62%**	7%	29%	13%	46%	31%	61%	**17%**	**45%**	**26%**	**54%**
	Without ID Poor	80%	91%	20%	51%	28%	53%***	12%	64%***	**35%**	**65%*** **	8%	32%***	16%	44%*	32%	61%*	**19%**	**46%*** **	**27%**	**55%**
Literacy of Caregivers	Can't Read	77%	90%	18%	45%	25%	49%	8%	56%	**32%**	**60%**	7%	26%	12%	37%	29%	57%	**16%**	**40%**	**24%**	**50%**
	Read	84%	92%***	21%	52%***	30%	53%***	13%	63%***	**37%**	**65%*** **	8%	32%***	17%	47%***	34%	63%***	**20%**	**47%*** **	**28%**	**56%**
Parent group meeting	Under 5 times		86%		49%		49%		88%		**68%**		28%		41%		61%		**43%**		**53%**
	6-12 times		91%		52%		51%		93%		**72%**		31%		46%		61%		**46%**		**58%**
	Over 12 times		95%***		56%		60%**		91%		**75%** **		37%		52%		71%		**53%** **		**61%**
ECCD Classification	Newly constructed ECCD Center/Community/Home based ECCD		93%		55%		54%		66%		**67%**		34%		48%		60%		**47%**		**57%**
	Community, Home-based ECCD		91%		53%		56%		68%		**67%**		31%		46%		65%		**47%**		**57%**
	Home-based ECCD		92%		53%		54%		65%		**66%**		34%		49%		68%		**50%**		**58%**
Comparison	Target		92%		53%		55%		91%		**73%**		33%		48%		66%		**49%**		**58%**
	Non-Target		90%		44%***		46%***		93%		**68%*** **		25%***		37%***		53%***		39%***		52%***

N=540, F(10, 529)=20.81, Prob > F =0.0000, Adj R-squared =0.2687

** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

3.3.5. Early Literacy

The performance of children in terms of literacy has significantly increased compared to the baseline. Under the emergent literacy domain, the children have highest performance on listening comprehension (63%) followed by Print Awareness (54%) (Figure 10). As the children grow older, their literacy are becoming more advanced compared to the younger children. The result also showed that there is parallel development among the girls and boys (i.e. there is no significant difference between these two groups). Similar pattern of significant improvement can be observed in Multiple Regression modeling, Table 15, revealing that average score early literacy sub-domain at endline is about 12% higher than endline.



** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Figure 10: Average IDELA Score on Early Literacy

The Early Literacy performance of children indicate that the performance has significantly increased among children who are 60-72 years old, for those children living under different geographic areas, children belonging to different poverty status and literacy of caregivers (Table 14). The gender did not significantly influence the performance of the children, as well as the kind of ECCD programme. The emergent literacy of the children is also not affected by the number of Parent Group meetings attended by the caregivers.

Table 15: Multiple Regression: Difference in average scores of the Early Literacy Development domain between baseline and endline

Variable	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Gender (0=male, 1=female)	2.5467	0.9582	2.6600	0.0080	0.6671	4.4263
Age group (month)						
43-47 - *reference*						
48-59	5.5700	1.5927	3.5000	0.0000	2.4457	8.6943
60-72	19.8658	1.5246	13.0300	0.0000	16.8750	22.8565
Geographic area (0=land-based, 1=water based)	-2.1095	1.0680	-1.9800	0.0480	-4.2046	-0.0144
ID poor classification (0=no ID, 1=with ID)	-1.5763	1.0425	-1.5100	0.1310	-3.6214	0.4689
Literacy of caregiver (0=can't read, 1=read)	7.1364	1.0214	6.9900	0.0000	5.1327	9.1402
Comparison (0=baseline, 1=endline)	11.7483	1.0371	11.3300	0.0000	9.7137	13.7828
Constant	8.9100	1.7525	5.0800	0.0000	5.4722	12.3478

N= 1,377, F(7, 1369)= 86.11, Prob > F =0.0000, Adj R-squared = 0.3022

The performance of the children was compared between baseline and endline according to sub-domains. Table 16 shows a summary of the Early Literacy performance of children. The performance of the children was compared between baseline and endline data according to sub-domains. Among the contributory factors that influence the Emergent Literacy of Children are the age of children, the location of the school, literacy of caregivers and the type of ECCD intervention ($p < 0.05$). The endline result showed that there

is an increase on the Emergent Literacy Performance of children in all classes (i.e. Gender, Age Group, Geographic Type, Poverty Status and Literacy of the Caregivers). The overall performance of children in terms of Early Literacy is significant among girls only ($p<0.05$). Older children also showed improved performance. In terms of the geographic areas, only the children in the land-based areas have shown improved performance indicating that the quality of ECCD may differ in these areas. The caregivers who can read are likely to improve the literacy performance of children compared to those children whose caregivers are not literate. Comparatively, the target villages showed higher performance compared to non-target villages (i.e. villages that have not received any ECCD services) ($p<0.0001$).

Table 16: Comparison of Average Score in Early Literacy by Gender and Other Classification

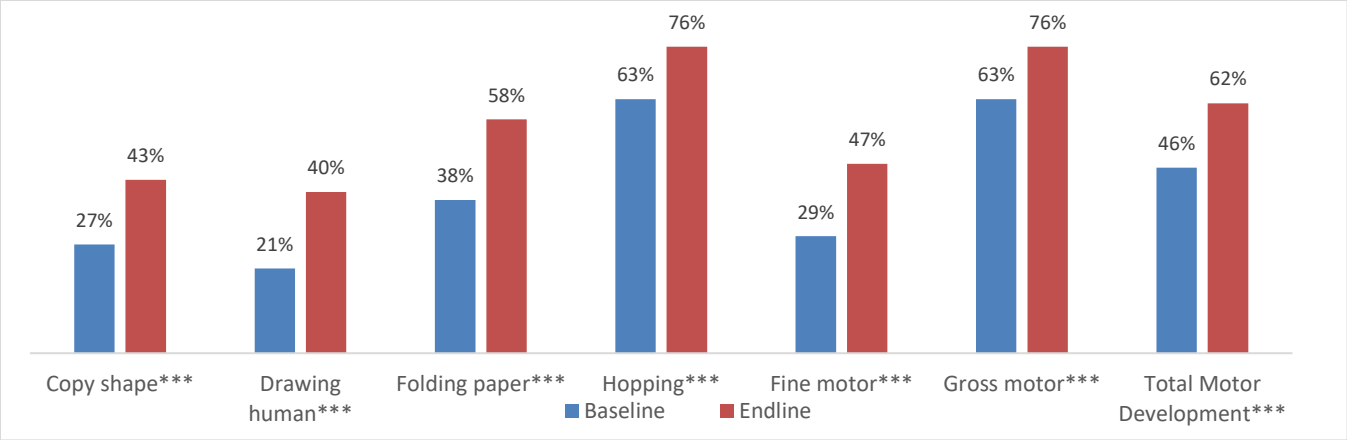
Type of Classification		Express vocabulary		Print awareness		Letter Identification		First letter sounds		Emergent writing		Listening comprehension		Total Early Literacy	
		Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Overal		**30%**	**49%*** **	**41%**	**54%*** **	**5%**	**24%*** **	**2%**	**17%*** **	**29%**	**29%**	**34%**	**63%*** **	**23%**	**39%*** **
Gender	Boy	29%	50%	38%	53%	4%	24%	2%	16%	27%	27%	32%	61%	**22%**	**39%**
	Girl	30%	50%	45%	56%	6%	25%	2%	18%	31%	31%**	37%	64%	**25%**	**41%***
Age Group	43-47 months	19%	33%	27%	31%	1%	10%	3%	7%	23%	18%	17%	44%	**15%**	**24%**
	48-59 months	27%	42%	35%	43%	2%	14%	2%	10%	24%	21%	28%	52%	**20%**	**30%**
	60-72 months	36%	56%***	52%	65%***	9%	32%***	3%	22%***	35%	36%***	46%	72%***	**30%**	**47%*** **
Type of Schools	Water-based	29%	42%	44%	50%	5%	19%	3%	20%	28%	27%	36%	55%	**24%**	**36%**
	Land-based	30%	52%***	39%	56%	5%	26%***	2%	16%	29%	30%	33%	65%***	**23%**	**41%*** **
Poverty Status of Caregivers	ID Poor	31%	47%	39%	51%	4%	23%	2%	15%	28%	27%	34%	61%	**23%**	**37%**
	Without ID Poor	28%	51%***	42%	55%*	5%	27%***	2%	17%*	29%	31%	34%	63%***	**24%**	**41%*** **
Literacy of Caregivers	Can't Read	27%	46%	34%	45%	3%	19%	1%	11%	23%	25%	28%	55%	**19%**	**34%**
	Read	32%	51%***	46%	58%***	6%	26%***	3%	19%***	33%	21%***	39%	66%***	**27%**	**40%*** **
Parent group meeting	Under 5 times		48%		57%		22%		17%		28%		59%		**38%**
	6-12 times		52%		58%		25%		17%		32%		66%		**42%**
	Over 12 times		54%		60%		32%		24%		33%		65%		**44%**
ECCD Classification	Newly constructed ECCD Center/Community/Ho		51%		61%		24%		23%		27%		66%		**42%**
	Community, Home-based ECCD		53%		59%		27%		19%		30%		66%		**42%**
	Home-based ECCD		52%		58%		29%		19%		34%		63%		**43%**
Comparison	Target		52%		59%		28%		20%		31%		64%		**42%**
	Non-Target		45%***		47%***		18%***		11%***		25%*		60%		**34%*** **

N=540, F(10, 529)=19.51, Prob > F =0.0000, Adj R-squared =0.2556

** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

3.3.6. Motor Skills Development

The motor skills of children are higher compared to the baseline (i.e. 62% vs. 46%) (Figure 11). Hopping and gross motor of the children are particularly well developed compared to other aspects of motor skills. All performance of the children was found to be significantly different from the baseline in all sub-domains measured ($p<0.001$). The difference between baseline and endline scores remains statistically significant while controlling for other confounding factors, about 11.5% higher at endline (Table 17)



** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Figure 11: IDELA Average Score in Motor Skills

The performance of the children differs significantly in those who belong to age 60-72 months, in children located in different geographic areas for children who have different literacy, and for children whose caregivers attended more than 12 parent group meetings. The performance does not differ much between boys and girls, among children who are 48-59 months old, with poverty status, to families who attended lesser number of parent group meetings (i.e. 6-12 times only), and to children receiving ECCD services.

Table 17: Multiple Regression: Difference in average scores of the Motor Skills Development domain between baseline and endline

Variable	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Gender (0=male, 1=female)	1.1399	1.1645	0.9800	0.3280	-1.1445	3.4243
Age group (month)						
43-47 - *reference*						
48-59	10.8433	1.9356	5.6000	0.0000	7.0461	14.6404
60-72	29.7543	1.8529	16.0600	0.0000	26.1195	33.3891
Geographic area (0=land-based, 1=water based)	-5.2093	1.2980	-4.0100	0.0000	-7.7556	-2.6630
ID poor classification (0=no ID, 1=with ID)	-0.8382	1.2670	-0.6600	0.5080	-3.3238	1.6473
Literacy of caregiver (0=can't read, 1=read)	4.8850	1.2414	3.9400	0.0000	2.4497	7.3203
Comparison (0=baseline, 1=endline)	11.4966	1.2605	9.1200	0.0000	9.0240	13.9693
Constant	17.5507	2.1299	8.2400	0.0000	13.3725	21.7289

N= 1,377, F(7, 1369)= 85.80, Prob > F =0.0000, Adj R-squared = 0.3014

A detailed comparison of the sub-domains is shown in Table 18. The Table consistently shows an improvement of the Motor Skills of children across all classification of children (by gender, age group, geographic types, poverty status of caregivers, and literacy of caregivers). The older children (60-72 months) are found to have more developed motors skills and responded well to the interventions compared to the children who are younger. The literacy of the caregivers are important factors to be considered in the interventions. The children who have literate caregivers have better performance to ECCD services compared to those whose caregivers are not literate. Motor Skills of children are enhanced when the caregivers attending more frequent parental meetings. Although the type of ECCD

services did not differ in terms of developing the children's motor, the ECCD services have brought significant improvement of the children's motor skills compared to those who do not receive any interventions (non-target villages) (p<0.001).

Table 18: Comparison of Average Score in Motor Skills by Gender and Other Classification

Type of Classification		Copy shape		Drawing human		Folding paper		Hopping		Fine motor		Gross motor		Total Motor	
		Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Overal		**27%**	**43%*** **	**21%**	**40%*** **	**38%**	**58%*** **	**63%**	**76%*** **	**29%**	**47%*** **	**63%**	**76%*** **	**46%**	**62%*** **
Gender	Boy	25%	42%	16%	40%	39%	56%	65%	77%	27%	46%	65%	77%	**46%**	**62%**
	Girl	28%	44%	25%	40%	38%	59%	60%	75%	31%	48%	60%	75%	**45%**	**61%**
Age Group	43-47 months	12%	27%	7%	20%	14%	43%	31%	51%	11%	30%	31%	51%	**21%**	**41%**
	48-59 months	19%	33%	16%	28%	32%	47%	58%	67%	23%	36%	58%	67%	**40%**	**52%**
	60-72 months	39%	51%***	30%	50%***	53%	66%***	78%	86%***	41%	56%***	78%	86%***	**59%**	**71%*** **
Type of Schools	Water-based	29%	34%	20%	31%	44%	52%	58%	68%	31%	39%	58%	68%	**45%**	**54%**
	Land-based	25%	45%***	22%	43%***	34%	59%	66%	79%***	27%	49%***	66%	79%***	**46%**	**64%*** **
Poverty Status of Caregivers	ID Poor	24%	42%	20%	40%	37%	55%	67%	77%	27%	46%	67%	77%	**47%**	**61%**
	Without ID Poor	29%	43%*	21%	40%	39%	59%***	59%	76%	30%	47%***	59%	76%	**45%**	**62%**
Literacy of Caregivers	Can't Read	21%	38%	18%	35%	35%	53%	58%	78%	25%	42%	58%	78%	**41%**	**60%**
	Read	31%	45%***	23%	42%***	41%	59%***	66%	76%*	32%	49%***	66%	76%*	**49%**	**62%*** **
Parent group meeting	Under 5 times		38%		37%		53%		71%		43%		71%		**48%**
	6-12 times		47%		42%		61%		77%		50%		77%		**56%**
	Over 12 times		47%		48%		63%		79%		53%**		79%		**58%** **
ECCD Classification	Newly constructed ECCD Center/Community/Home based ECCD		43%		44%		58%		76%		48%		76%		**62%**
	Community, Home-based ECCD		45%		42%		60%		79%		49%		79%		**64%**
	Home-based ECCD		46%		45%		61%		79%		51%		79%		**65%**
Comparison	Target		46%		45%		60%		77%		50%		77%		**55%**
	Non-Target		38%***		33%***		53%**		73%**		41%		73%		**47%*** **

N=540, F(10, 529)=21.12, Prob > F =0.0000, Adj R-squared =0.2718

** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

3.3.7. Overall observation of children assessed using IDELA

Generally, there was an improvement of the behavior of children compared to the baseline (Table 19). The children for instance have increased their ability to pay attention to the instructions almost double compared to the baseline and this include the other behaves such as having confidence in completing the task, focusing on the task, careful and diligence, enjoyment of the task and interest and curiosity of the tasks. But the child's motivation to complete the tasks have significantly increased by almost four fold.

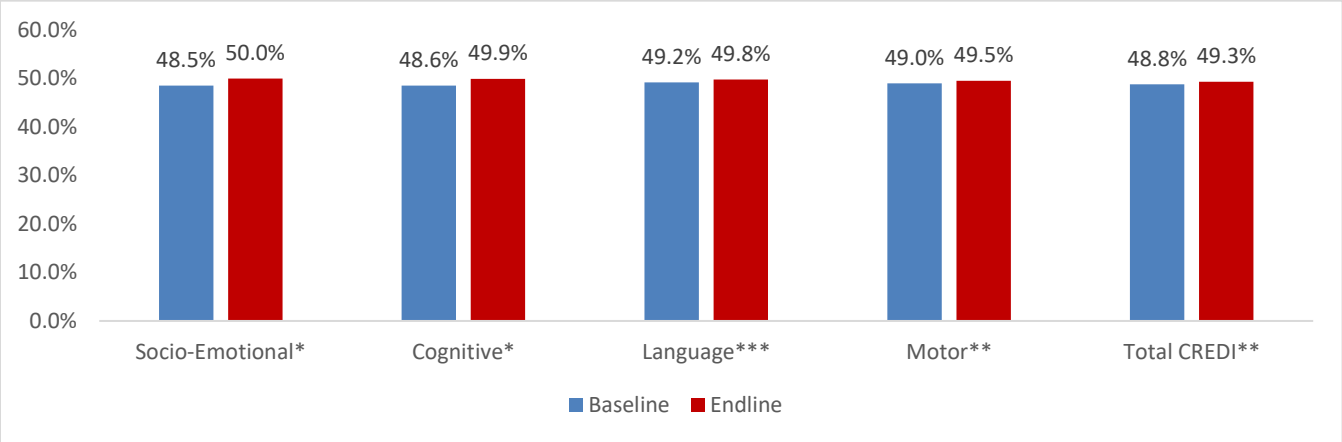
Table 19: IDELA Facilitator Observation

	Never		Sometimes		Often		Always	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Child pays attention to the instructions	1%	3%	40%	30%	45%	42%	14%	26%
Child shows confidence when completing the task	2%	4%	40%	34%	48%	39%	11%	23%
Child stays concentrated on task	2%	4%	38%	30%	50%	44%	11%	23%
Child was careful and diligent on tasks	2%	4%	39%	28%	47%	43%	12%	25%
Child show pleasure in accomplishing specific task	4%	3%	38%	29%	48%	45%	11%	23%
Child was motivated to complete tasks	1%	3%	30%	29%	61%	40%	8%	28%
Child was interested and curious about the tasks	1%	3%	40%	30%	45%	42%	14%	26%

3.4. Findings from CREDI

3.4.1. Overall CREDI Findings

The socio-emotional development, cognitive skills, language, and motor skills of children from 0-42 months were assessed using the CREDI Tool. Generally, it can be seen that there is a slight improvement on their performance in each domain except in socio-emotional (Figure 12). IN some studies, the socio-emotional have reported a low improvement compared to cognitive, language and motor skills of the said children. The outcome was expected since children at this stage are still developing their attention span; ability to process information and verbally express thoughts; ability to manage emotions and capability to establish emotional relationships with others. However, Table 20 reveals that there is no difference between the baseline and endline overall CREDI score, while controlling for other confounding factors.



** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Figure 12: Average Score of CREDI by Domain

Table 20: Multiple Regressions: Difference in average score of the CREDI between Baseline and Endline

Variable	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Gender (0=male, 1=female)	0.0251	0.0848	0.3000	0.7670	-0.1413	0.1915
Age group (month)						
0 -12 - *reference*						
13 - 24	4.2103	0.1090	38.6300	0.0000	3.9965	4.4240
25 - 42	6.3404	0.1037	61.1400	0.0000	6.1370	6.5438
Geographic area (0=land-based, 1=water based)	0.0245	0.0948	0.2600	0.7960	-0.1615	0.2105
ID poor classification (0=no ID, 1=with ID)	0.0732	0.0909	0.8000	0.4210	-0.1052	0.2515
Literacy of caregiver (0=can't read, 1=read)	0.1298	0.0915	1.4200	0.1560	-0.0496	0.3092
Comparison (0=baseline, 1=endline)	-0.0233	0.0909	-0.2600	0.7980	-0.2016	0.1550
Constant	45.1913	0.1281	352.9000	0.0000	44.9401	45.4425

N= 1,358, F(7, 1350)= 546.65, Prob > F =0.0000, Adj R-squared = 0.7379

Table 21 indicates that age of children is a strong determinant for the development of children. It was noted that the type of location (i.e. water-based or land-based) have no influence on the overall performance of the children. Similarly, there is no difference in the overall CREDI score between different services of ECCD. Beside this, difference in the CREDI score between target and non-target villages cannot be observed (Table 22).

Table 21: Multiple Regressions: Effects of participation in parenting group meetings and ECCD services on overall CREDI scores (target villages at endline)

Variable	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Child gender (0=male, 1=female)	0.0311	0.1387	0.2200	0.8230	-0.2413	0.3035
Child age group (month)						
0 -12 - *reference*						
13 - 24	4.3752	0.1907	22.9400	0.0000	4.0006	4.7498
25 - 42	6.6566	0.1777	37.4600	0.0000	6.3076	7.0057
Geographic area (0=land-based, 1=water based)	0.0071	0.1654	0.0400	0.9660	-0.3178	0.3321
ID poor classification (0=no ID, 1=with ID)	0.0396	0.1443	0.2700	0.7840	-0.2439	0.3230
Literacy of caregiver (0=can't read, 1=read)	0.2282	0.1523	1.5000	0.1350	-0.0710	0.5274
Parent Group Meeting						
<= 5 times - *reference*						
6-12 times	-0.1596	0.1931	-0.8300	0.4090	-0.5389	0.2197
>12 times	-0.0596	0.1865	-0.3200	0.7490	-0.4259	0.3068
ECCD service						
Newly constructed ECCD Center/Community/Home based ECCD - *reference*						
Community & Home-based ECCD	0.0819	0.2167	0.3800	0.7060	-0.3439	0.5076
Home-based ECCD	0.1384	0.1844	0.7500	0.4530	-0.2239	0.5007
Constant	44.9813	0.3045	147.710	0.0000	44.3831	45.5795

N=540, F(10, 529)= 143.37, Prob > F =0.000, Adj R-squared = 0.7254

Table 22: Multiple Regressions: Difference in overall CREDI scores between target and non-target villages (endline)

Variable	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Gender (0=male, 1=female)	-0.0162	0.1128	-0.1400	0.8860	-0.2376	0.2052
Age group (month)						
0 -12 - *reference*						
13 - 24	4.4375	0.1504	29.5100	0.0000	4.1423	4.7326
25 - 42	6.5988	0.1394	47.3400	0.0000	6.3251	6.8724
Geographic area (0=land-based, 1=water based)	0.1234	0.1396	0.8800	0.3770	-0.1506	0.3975
ID poor classification (0=no ID, 1=with ID)	-0.0651	0.1253	-0.5200	0.6040	-0.3110	0.1808
Literacy of caregiver (0=can't read, 1=read)	0.1560	0.1267	1.2300	0.2190	-0.0927	0.4047
Comparison (0=non-target villages, 1=target villages)	0.2137	0.1232	1.7300	0.0830	-0.0282	0.4555
Constant	44.8729	0.1742	257.650	0.0000	44.531	45.2147

N=840, F(7, 832)= 329.30, Prob > F =0.0000, Adj R-squared = 0.7326

Children who receive a combination of support from three different programmes (center, community, and home-based) have the highest performance in socio-emotional, cognitive, language, and motor domains, whereas those who reside in villages without an ECCD service are seen to have the lowest performance score (Figure 13). Those who take part in the programme from their home, as well as a combination of receiving support from the community and homes are equally performing best on the four domains. Similarly, those who children the target villages performed slightly better than those from the non-target villages (Figure 14).

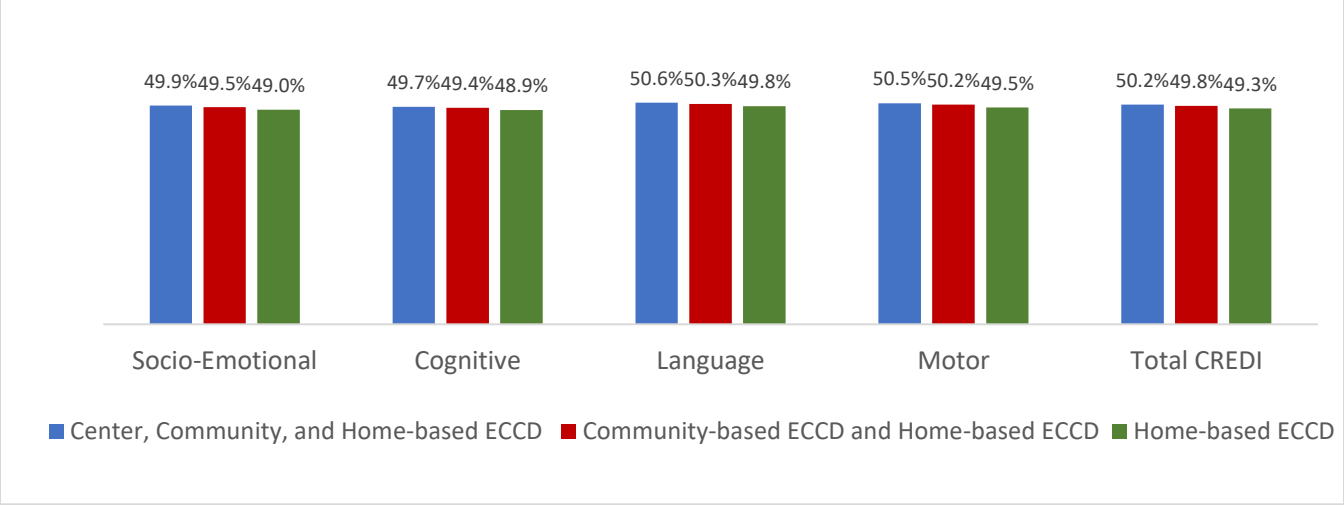
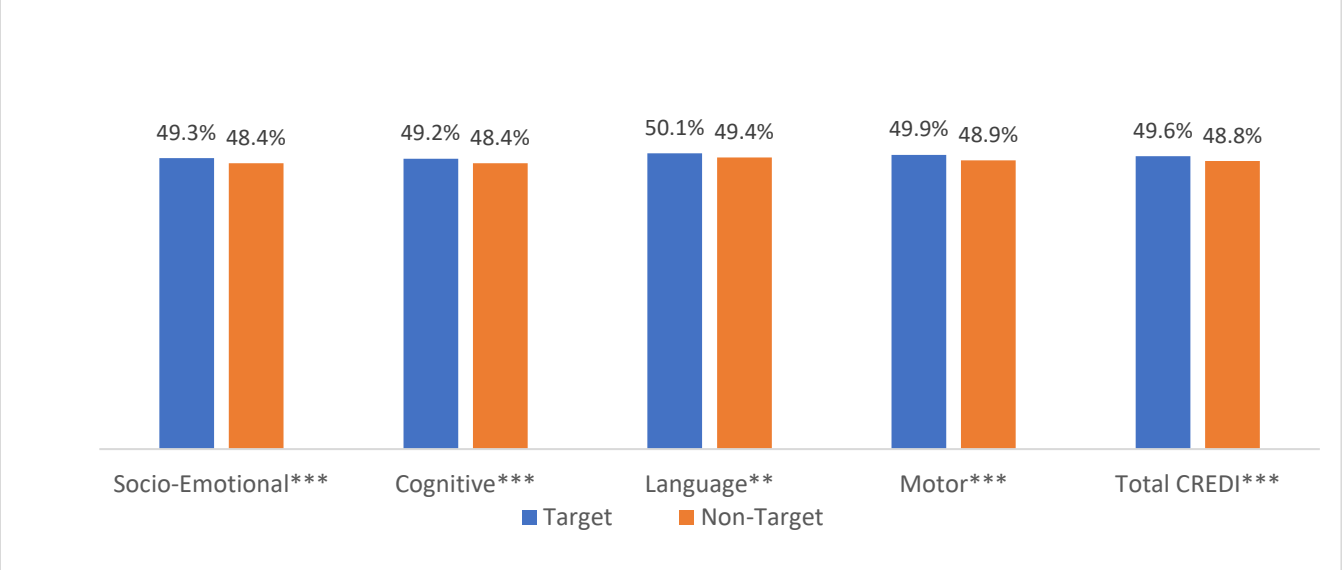


Figure 13: Average CREDI Score by type of ECCD services



** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Figure 14: Average CREDI Score between target and non-target villages

The performance of children only improves among 25-42 months old which is consistent with the children who were monitored using the IDELA tool (Table 23).

Table 23: Comparison of Average CREDI Score by Gender and Other Classification

Type of Classification		Social Emotional		Cognitivel		Language		Motor		Total CREDI	
		Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Overal		**48.5%**	**50.0%***	**48.6%**	**49.9%***	**49.2%**	**49.8%*****	**49.0%**	**49.5%****	**48.8%**	**49.3%****
Gender	Boy	48.5%	49.1%	48.6%	49.0%	49.1%	49.9%	49.0%	49.6%	**48.8%**	**49.4%**
	Girl	48.5%	48.8%	48.6%	48.8%	49.2%	49.8%	49.0%	49.4%	**48.8%**	**49.2%**
Age Group	0-12 months	45.0%	44.6%	45.7%	45.2%	46.3%	46.1%	45.3%	44.7%	**45.6%**	**45.1%**
	13-24 months	49.4%	49.2%	49.4%	49.3%	49.4%	49.8%	49.7%	49.9%	**49.5%**	**49.6%**
	25-42 months	51.3%	51.5%***	50.7%	50.9%***	52.0%	52.2%	52.0%	52.2%***	**51.5%**	**51.7%*****
Type of Schools	Water-based	48.3%	49.1%	48.3%	49.0%	48.9%	50.0%	48.7%	49.6%	**48.6%**	**49.4%**
	Land-based	48.7%	48.9%	48.7%	48.9%	49.4%	49.8%	49.2%	49.5%	**49.0%**	**49.3%**
Poverty Status of Caregivers	Poor	48.8%	49.2%	48.8%	49.1%	49.4%	49.9%	49.2%	49.7%	**49.0%**	**49.4%**
	Non-Poor	48.4%	48.9%	48.4%	48.8%	49.1%	49.8%	48.8%	49.7%	**48.7%**	**49.2%**
Literacy of Caregivers	Can't Read	48.5%	49.0%	48.5%	48.9%	49.2%	49.9%	49.0%	49.6%	**48.8%**	**49.4%**
	Read	48.5%	48.9%	48.6%	48.9%	49.2%	49.8%	49.0%	49.5%	**48.8%**	**49.3%**
Parent group meeting	Under 5 times		49.3%		49.2%		50.1%		49.7%		**49.6%**
	6-12 times		49.5%		49.3%		50.3%		50.1%		**49.8%**
	Over 12 times		49.2%		49.1%		50.0%		49.8%		**49.5%**
ECCD Classification	Newly constructed ECCD Center/Community/Home based ECCD		49.9%		49.7%		50.6%		50.5%		**50.2%**
	Community, Home-based ECCD		49.5%		49.4%		50.3%		50.2%		**49.8%**
	Home-based ECCD		49.0%		48.9%		49.8%		49.5%		**49.3%**
Comparison	Target		49.3%		49.2%		50.1%		49.9%		**49.6%**
	Non-Target		48.4%***		48.4%***		49.4%**		48.9%***		**48.8%*****

N=540, F(10, 529)=143.37, Prob > F =0.0000, Adj R-squared =0.7254

** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

An analysis of variance comparing the means of the different ECCD services showed that there is a significant difference of the scores of the children (p = 0.000 < 0.05) (Table 24).

Table 24: ANOVA of means of score of different ECCD services measured using CREDI

Source	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
3 types of intervention program	-0.4501323	0.1660334	-2.71	0.007	-0.7762856	-0.1239791

N=540, F(1, 538)=7.35, Prob > F =0.0069, Adj R-squared =0.0116

3.4.2. Socio-Emotional

The socio-emotional development of children shows their ability to express, understand, and manage emotions. Table 25 shows the difference in average socio-emotional development score of children between the baseline and endline. Amongst all the factors, only the age group of 13 to 24 months and 25 to 42 months are significantly different. This suggests that children from 13 to 42 months are able to develop their capability in the domain. However, it does not vary across genders, geographic areas, poverty status, literacy of caregiver, frequency of parent group meetings, and ECCD classification.
Table 26 reveals that there is no difference in the score between baseline and endline. Natural growth seems to have significant impact on the development outcomes of children at this age group.

Table 25: Comparative score of Socio-Emotional Development of children using the CREDI Tool

Type of Classification		Attention/ Impulse Control		Adjustment distress		Pro- social		Total Social Emotional	
		Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Overal		**51%**	**51%**	**52%**	**52%**	**50%**	**51%****	**49%**	**49%***
Gender	Boy	51%	51%	52%	52%	50%	51%	49%	49%
	Girl	51%	51%	52%	52%	50%	51%	48%	49%
Age Group	0-12 months		48%		45%		49%	45%	45%
	13-24 months	50%	50%	51%	51%	50%	50%	49%	49%
	25-42 months	52%	52%***	53%	53%**	51%	51%***	51%	52%***
Type of Schools	Water-based	51%	51%	52%	52%	50%	51%	48%	49%
	Land-based	51%	51%	52%	52%	51%	51%	49%	49%
Poverty Status of Caregivers	ID Poor	51%	51%	52%	52%	50%	51%	49%	49%
	Without ID Poor	51%	51%	52%	52%	50%	51%	48%	49%
Literacy of Caregivers	Can't Read	51%	51%	52%	52%	50%	51%	48%	49%
	Read	51%	51%	52%	52%	50%	51%	49%	49%
Parent group meeting	Under 5 times		49%		52%		51%		49%
	6-12 times		50%		52%		51%		49%
	Over 12 times		50%		52%		51%		49%
ECCD Classification	Newly constructed ECCD Center/Community/Home based ECCD		51%		52%		51%		50%
	Community, Home-based ECCD		51%		52%		51%		50%
	Home-based ECCD		51%		52%		51%		49%
Comparison	Target		51%		52%		51%		49%
	Non-Target		**51%**		**52%**		**51%**		48%***

N=540, F(10, 529)=141.96, Prob > F =0.0000, Adj R-squared =0.7234

** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Table 26: Multiple Regression: Difference in average scores of the Socio-Emotional domain between baseline and endline

Variable	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Gender (0=male, 1=female)	-0.0087	0.0922	-0.0900	0.9250	-0.1896	0.1721
Age group (month)						
0 -12 - *reference*						
13 - 24	4.4992	0.1184	37.9900	0.0000	4.2669	4.7316
25 - 42	6.6902	0.1127	59.3700	0.0000	6.4691	6.9113
Geographic area (0=land-based, 1=water based)	0.0754	0.1030	0.7300	0.4640	-0.1267	0.2775
ID poor classification (0=no ID, 1=with ID)	0.1167	0.0988	1.1800	0.2380	-0.0771	0.3105
Literacy of caregiver (0=can't read, 1=read)	0.1565	0.0994	1.5700	0.1160	-0.0385	0.3515
Comparison (0=baseline, 1=endline)	-0.0936	0.0988	-0.9500	0.3430	-0.2874	0.1001
Constant	44.6582	0.1392	320.9000	0.0000	44.3852	44.9312

N= 1,358, F(7, 1350)= 515.54, Prob > F =0.0000, Adj R-squared = 0.7263

3.4.3. Cognitive

Cognitive skills refer to the ability of children to process information. The scores of the children respondents between the baseline and endline in this domain is only significantly different within the age group of 13 to 24 months and 25 to 42 months. This could indicate that as children grow older, they have more understanding on their environment. More so, it does not vary across genders, geographic areas,

poverty status, literacy of caregivers, frequency of parent group meetings, and ECCD classification (Table 27). Similar findings can be observed as well in Table 28, indicating the improvement as age of children increased, and no difference in average score of this sub-domain between baseline and endline.

Table 27: Comparative score of Cognitive Skills Development of children using the CREDI Tool

Type of Classification		Attention		Expressive Language		Receptive Language		Total Cognitive	
		Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Overal		**49%**	**50%***	**49%**	**50%*****	**49%**	**49%***	**49%**	**49%**
Gender	Boy	49%	50%	49%	50%	49%	49%	49%	49%
	Girl	49%	50%	49%	50%	49%	49%	49%	49%
Age Group	0-12 months	46%	46%	47%	46%	46%	45%	46%	45%
	13-24 months	50%	50%	50%	50%	49%	49%	49%	49%*
	25-42 months	51%	51%***	51%	52%***	51%	51%***	51%	51%***
Type of Schools	Water-based	49%	50%	49%	50%	48%	49%	48%	49%
	Land-based	49%	50%	49%	50%	49%	49%	49%	49%
Poverty Status of Caregivers	ID Poor	49%	50%	49%	50%	49%	49%	49%	49%***
	Without ID Poor	49%	49%	49%	49%	48%	49%	48%	49%
Literacy of Caregivers	Can't Read	49%	50%	49%	50%	49%	49%	49%	49%
	Read	49%	50%	49%	50%	49%	49%	49%	49%
Parent group meeting	Under 5 times		50%		50%		57%		49%
	6-12 times		50%		50%		59%		49%
	Over 12 times		50%		50%		55%		49%
ECCD Classification	Newly constructed ECCD Center/Community/Home based ECCD		50%		50%		50%		50%
	Community, Home-based ECCD		49%		50%		49%		49%
	Home-based ECCD		49%		50%		49%		49%
Comparison	Target		49%		50%		49%		49%
	Non-Target		49%		49%*		48%		48%

N=540, F(10, 529)=141.96, Prob > F =0.0000, Adj R-squared =0.7234
** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Table 28: Multiple Regression: Difference in average scores of the Cognitive domain between baseline and endline

Variable	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Gender (0=male, 1=female)	0.0106	0.0869	0.1200	0.9030	-0.1598	0.1809
Age group (month)						
0 -12 - *reference*						
13 - 24	3.9833	0.1116	35.7000	0.0000	3.7644	4.2021
25 - 42	5.4919	0.1062	51.7300	0.0000	5.2836	5.7002
Geographic area (0=land-based, 1=water based)	0.0434	0.0971	0.4500	0.6550	-0.1470	0.2338
ID poor classification (0=no ID, 1=with ID)	0.0951	0.0931	1.0200	0.3070	-0.0875	0.2777
Literacy of caregiver (0=can't read, 1=read)	0.1447	0.0936	1.5500	0.1230	-0.0390	0.3284
Comparison (0=baseline, 1=endline)	-0.0903	0.0931	-0.9700	0.3320	-0.2728	0.0923
Constant	45.2793	0.1311	345.3500	0.0000	45.0221	45.5365

N= 1,358, F(7, 1350)= 397.91, Prob > F =0.0000, Adj R-squared = 0.6719

3.4.4. Motor Skills Development

Table 29 below shows the average score of children's motor skills between the baseline and endline under the CREDI Tool. It can be seen that there is a significant difference only in age group of children from 13-24 months and from 25-42 months, but not between baseline and endline, target and non-target villages, and different types of ECCD services. This could indicate that as children grow older, their motor skills tend to improve regardless of gender, geographic area, poverty status, caregiver literacy, frequency of parent group meeting, and ECCD classification. The same patterns can be observed in Multiple Regression Table 30.

Table 29: Comparative score of Motor Skills of children using the CREDI Tool

Type of Classification		Fine Motor		Gross Motor		Total Motor	
		Baseline	Endline	Baseline	Endline	Baseline	Endline
Overal		**49%**	**50%****	**50%**	**50%****	**50%**	**50%***
Gender	Boy	49%	50%	50%	50%	50%	50%
	Girl	49%	49%	50%	50%	50%	50%
Age Group	0-12 months	45%	45%	47%	46%	47%	46%
	13-24 months	50%	50%	50%	50%	50%	50%
	25-42 months	52%	52%***	52%	53%***	53%	53%***
Type of Schools	Water-based	49%	50%	50%	50%	50%	50%
	Land-based	49%	49%	50%	50%	50%	50%
Poverty Status of Caregivers	ID Poor	49%	50%	50%	50%	50%	50%
	Without ID Poor	49%	49%	50%	50%	50%	50%
Literacy of Caregivers	Can't Read	49%	50%	50%	50%	50%	50%
	Read	49%	49%	50%	50%	50%	50%
Parent group meeting	Under 5 times		50%		50%		50%
	6-12 times		51%		51%		50%
	Over 12 times		50%		50%		50%
ECCD Classification	Newly constructed ECCD Center/Community/Home based ECCD		51%		51%		51%
	Community, Home-based ECCD		51%		51%		51%
	Home-based ECCD		50%		50%		50%
Comparison	Target		50%		51%		50%
	Non-Target		50%		50%**		50%

** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Table 30: Multiple Regression: Difference in average scores of the Motor Skills Development domain between baseline and endline

Variable	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]
Gender (0=male, 1=female)	-0.0071	0.0976	-0.0700	0.9420	-0.1986	0.1844
Age group (month)						
0 -12 - *reference*						
13 - 24	4.9038	0.1254	39.1100	0.0000	4.6579	5.1498
25 - 42	7.2354	0.1193	60.6500	0.0000	7.0014	7.4695
Geographic area (0=land-based, 1=water based)	-0.0168	0.1091	-0.1500	0.8780	-0.2308	0.1972
ID poor classification (0=no ID, 1=with ID)	0.0702	0.1046	0.6700	0.5020	-0.1350	0.2754
Literacy of caregiver (0=can't read, 1=read)	0.1223	0.1052	1.1600	0.2450	-0.0842	0.3287
Comparison (0=baseline, 1=endline)	-0.0604	0.1046	-0.5800	0.5640	-0.2655	0.1448
Constant	44.8666	0.1473	304.5200	0.0000	44.5776	45.1556

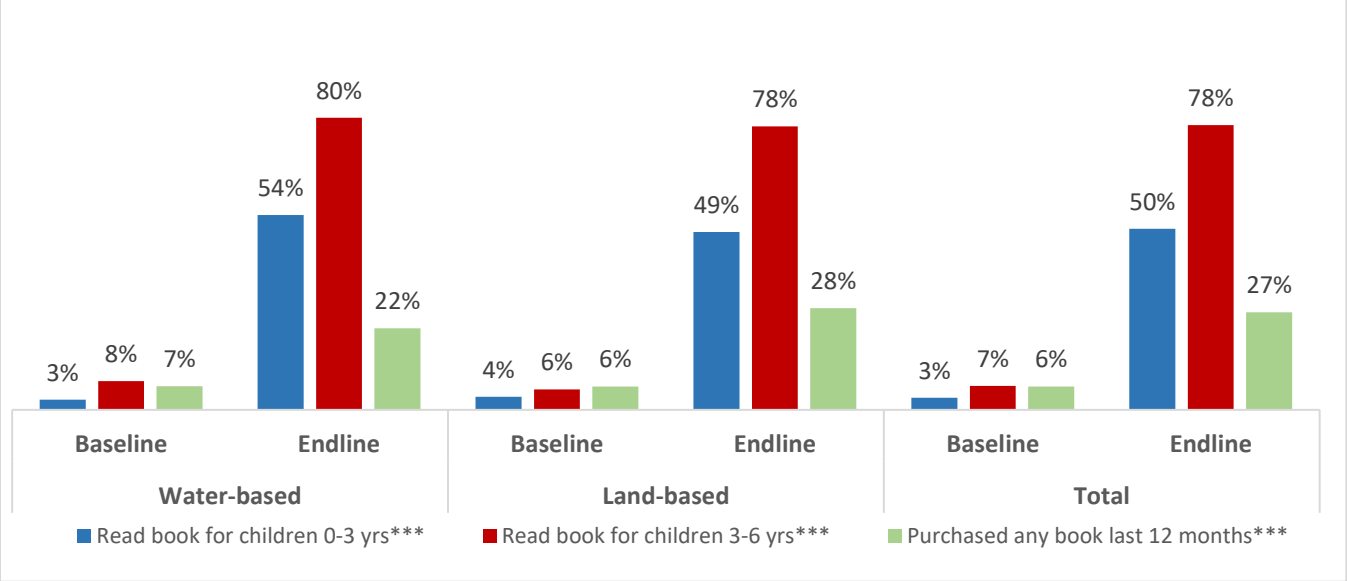
N= 1,358, F(7, 1350)= 539.48, Prob > F =0.0000, Adj R-squared = 0.7353

3.5. Findings from Caregiver/Households

3.5.1. Book Availability and Accessibility

The endline results showed an increase on the availability and accessibility of books in the target households compared to the baseline. Around one third (or 32.9%) of HHs had at least one book available for children aged 0-6 years old. The number of HHs that have at least one book available are higher in land-based than those in water-based villages (33.4% vs 31%). During the baseline, only very few household (less than ten percent) had books available for children 0-6 years old.

The survey results showed that up to half of respondents reported reading books for children 0-3 years old, and more than three fourths (78%) read books for children 3-6 years old. This is a significant increase compared to the baseline. Very few families did the same during the baseline (only around 3 percent read books for children 0-3 years old, and 7 percent to those aged 0-6 years old) (Figure 15).



** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Figure 15: Percentage of Households with Book Availability and Accessibility

More than one fourth (27%) of caregivers said that they purchased any books during the last 12 months, while only 6 percent did the same during the baseline. In comparison between the two geographic areas, a significantly higher percentage of HHs in land-based villages purchase books for children aged 0-6 years old compared to water-based villages (around 28% vs 22%) (Figure 15).

3.5.2 Program Exposure

A significantly higher proportion of caregivers had a chance to attend an ECCD class with their children in the endline compared with the baseline (69% vs 50%). Water-based villagers were able to attend an ECCD class with their children higher than those in the land-based-village (77% vs 67%) (Table 31). However, majority of the caregivers (62.7%) reported having attended the class not very often (approximately one time per month), while a few respondents said that they attended the class regularly-more than twice per week. There is no significantly difference between the two geographic areas, namely land-based and water-based in terms of frequency of attending ECCD class by caregivers.

Table 31: Frequency of attending class with children by Caregivers

	Newly constructed ECCD Center/Community/Home based ECCD	Community, Home-based ECCD	Home-based ECCD	Total
Water-based	**(n=38)**	**(n=18)**	**(n=100)**	**(n=156)**
I have only attended once	2.60%	0.00%	10.00%	7.10%
Not very often maybe once a month	57.90%	38.90%	72.00%	64.70%
Sometimes, once every fortnight	31.60%	38.90%	17.00%	23.10%
Regularly once a week	0.00%	5.60%	0.00%	0.60%
Regularly more than twice a week	7.90%	16.70%	1.00%	4.50%
Land-based	**(n=102)**	**(n=198)**	**(n=214)**	**(n=514)**
I have only attended once	5.90%	4.50%	3.30%	4.30%
Not very often maybe once a month	61.80%	52.50%	71.00%	62.10%
Sometimes, once every fortnight	24.50%	39.90%	22.00%	29.40%
Regularly once a week	3.90%	3.00%	1.40%	2.50%
Regularly more than twice a week	3.90%	0.00%	2.30%	1.80%
Total	**(n=140)**	**(n=216)**	**(n=314)**	**(n=670)**
I have only attended once	5.00%	4.20%	5.40%	4.90%
Not very often maybe once a month	60.70%	51.40%	71.30%	62.70%
Sometimes, once every fortnight	26.40%	39.80%	20.40%	27.90%
Regularly once a week	2.90%	3.20%	1.00%	2.10%
Regularly more than twice a week	5.00%	1.40%	1.90%	2.40%

3.5.3 Taking Care of the Children

The survey found that mothers look after the children aged 0-6 years old more than anyone else in the family, constituting up to 74.4% of the survey respondents, followed by grandparent (around 18%). Only few fathers were reported to look after the children. This could be due to the fact that the male head of families usefully seek income from outside the house for the family. In the study areas, the male head of families mainly get income from fishing. Up to 42.4% of respondents said that they have been a parent member from 1 to 12 months, and 39% being a member longer than one year but less than two years, while only around 18.6% of respondents were likely to be a member longer than two years. There was no significant difference between the two geographic areas (Table 32).

Table 32: No. of Months that the Caregivers have been a member of the parent group

Months	Water-based	Land-based	Total	Statistical Test
1-12	54.3%	38.8%	42.4%	*Chi-Square=12.28*
13-24	30.9%	41.4%	39.0%	*df=2*
25+	14.8%	19.8%	18.6%	*p=0.002*

As of the time of the survey, 48.2% respondents had attended the parent group meetings by at least 1-10 times, but only 28.2% attended the meeting between 11-20 times, and less than ten percent attended the meeting from 21 times (Table 33). Interestingly, up to almost one third of respondents said that they never attended such meetings even though they are parent members. The difference on the attendance of parent members attending the meeting in the two villages is not significant.

Table 33: Frequency of attending parent group meeting

Months	Water-based	Land-based	Total	Statistical Test
1-10	59.3%	44.9%	48.2%	*Chi-Square=10.464*
11-20	22.2%	30.0%	28.2%	*df=3*
21-30	10.5%	15.1%	14.0%	*p=0.015*
30+	8.0%	10.1%	9.6%	
Total	100%			

Majority of the caregivers (78.8%) said that none of their family member ever attended meetings on their behalf, while around one fifth of the respondents said that one or two other family members, such as mothers, fathers, grandparent, sibling and sons/daughters, attended the meetings on their behalf and only a few respondents had at least three members attending the meeting. There are higher proportion of respondents who attended meetings in land-based villages than those in water-based (81% vs 69%).

More than half of the interviewed caregivers did not receive any promotional materials from the project, with no significant difference between land-based and water-based villages. Khmer Consonant book was reported to be received by more than one third (35%) of the respondents, with similar proportion in the two geographic areas. Khmer Vowels book is second largest distribution which was reported receiving by around 31% of the respondents, with similar proportion in the two target villages. Wall Consonant and Vowel and Painting book with 20 pages (color cover) were received by around 17% of the respondents respectively, while Puzzle games (Build House Letter and Picture Made from Wood) was received by around 12% of the surveyed respondents. Other promotional educational materials such as First Reading Leaflet, Baby Toys, What Is Your Name, Poem Books and Sons, were received by only less than ten percent of the respondent each, respectively.

Caregivers were asked to identify the main sources of ECCD information (multiple responses). The survey results showed that parenting session is a main source of ECCD information for caregivers. About 67.4% of caregivers accessed to ECCD information through attending parenting sessions. A significantly lower number of respondents in land-based villages were exposed to ECCD information through parenting session than those in water-based villages (65% vs 76%). TV was the second most important channel for ECCD information exposure, but only mentioned by around one fifth of the respondent (19.5%), with lower in water-based and higher in land-based (13% vs 21%). Interestedly, only a small percentage of respondents (around 4%) have exposed to ECCD information from radio with the similar rates in the two villages (Table 34).

When asked for the most appropriate communication channel they would like to get information regarding ECCD, majority of respondents preferred to get the information through parenting session (75%), while 37% of the respondents suggested to receive information through TV, followed by home visit (30%). Facebook was also a preferred option which was suggested by 18% of respondents, followed by radio (15%). More respondents from water-based villages preferred parenting session than those in land-based villages. In contrast, respondents in land-based villages preferred TV, home visit, Radio and Facebook more than those in water-based villages (Table 34).

Table 34: Source(s) of ECCD information

No	Sources of ECCD information received by caregivers (multiple responses)	Water-based	Land-based	Overall
1	Parenting session	76.2%	65.1%	67.4%
2	TV	13.3%	21.0%	19.5%
3	Facebook	7.1%	6.2%	6.4%
4	Radio	4.3%	3.4%	3.6%
5	Nurse/doctor	1.9%	2.4%	2.3%
6	NGOs	0.0%	1.3%	1.1%
7	Village chief	0.5%	1.1%	1.0%
8	Leaflets	1.9%	0.6%	0.9%
9	Newspapers	0.0%	0.6%	0.5%
10	Neighbor	0.0%	0.6%	0.5%
11	Mouse to mouse	1.0%	0.4%	0.5%
12	Teacher	0.0%	0.5%	0.4%
13	Posters	0.0%	0.4%	0.3%
14	Magazines	0.0%	0.4%	0.3%
15	Kids study club	0.0%	0.2%	0.2%
16	Never heard	12.9%	18.3%	17.2%
17	*Total*	*100.0%*	*100.0%*	*100.0%*
		210	*823*	*1,033*
No	**A main source of ECCD information received by caregivers**			
1	Parenting session	68.6%	61.8%	63.2%
2	TV	7.1%	10.6%	9.9%
3	Home visit	5.2%	2.8%	3.3%
4	Facebook	3.3%	2.1%	2.3%
5	Nurse/doctor	1.4%	1.9%	1.8%
6	Meeting with village chief/NGO/teachers	0.5%	1.0%	0.9%
7	Mouse to mouse	1.0%	0.1%	0.3%
8	Radio	0.0%	0.2%	0.2%
9	Magazines	0.0%	0.2%	0.2%
10	Teacher	0.0%	0.2%	0.2%
11	Child study club	0.0%	0.2%	0.2%
12	Newspapers	0.0%	0.1%	0.1%
13	Not receive all	12.9%	18.6%	17.4%
14	*Total*	*100.0%*	*100.0%*	*100.0%*
		210	*823*	*1,033*
No	**Preferred main source of ECDD information (in the future)**			
1	Parenting session	80.0%	74.2%	75.4%
2	TV	31.0%	38.8%	37.2%
3	Home visit	28.6%	30.6%	30.2%
4	Facebook	13.3%	19.2%	18.0%
5	Radio	6.2%	17.6%	15.3%
6	Leaflet	7.6%	5.5%	5.9%
7	Meeting village chief/in commune	1.0%	3.6%	3.1%
8	Newspapers	0.5%	1.0%	0.9%
9	Magazines	0.5%	0.7%	0.7%
10	Phone call		0.9%	0.7%
11	Don't know	2.9%	5.3%	4.8%
12	*Total*	*100.0%*	*100.0%*	*100.0%*
		210	*823*	*1,033*

When asked to rate the capacity of teachers in the parenting session, most respondents (around 39%) gave "medium," – meaning the capacity of the teacher, neither high, nor low, but average. However, almost one third (or around 32%) of the respondents rated high on the capacity of the teachers, in which around 5% rated very high. Interestingly up to 29% of respondents rated low on the capacity of the teachers and among those rated low, up to 18% of rated very low. No significant differences were observed on the rates of the teacher's capacity in the two geographic areas. Majority of respondents (84%) preferred teachers as the most appropriate person to educate caregivers about ECCD in their villages, with the same proportion in the two geographic areas. Other resource persons for ECCD education including CCWC, monk, nun, were mentioned, but only by small percentages of respondents with no significant difference between the two geographic areas.

3.5.4. ECCD Behavior

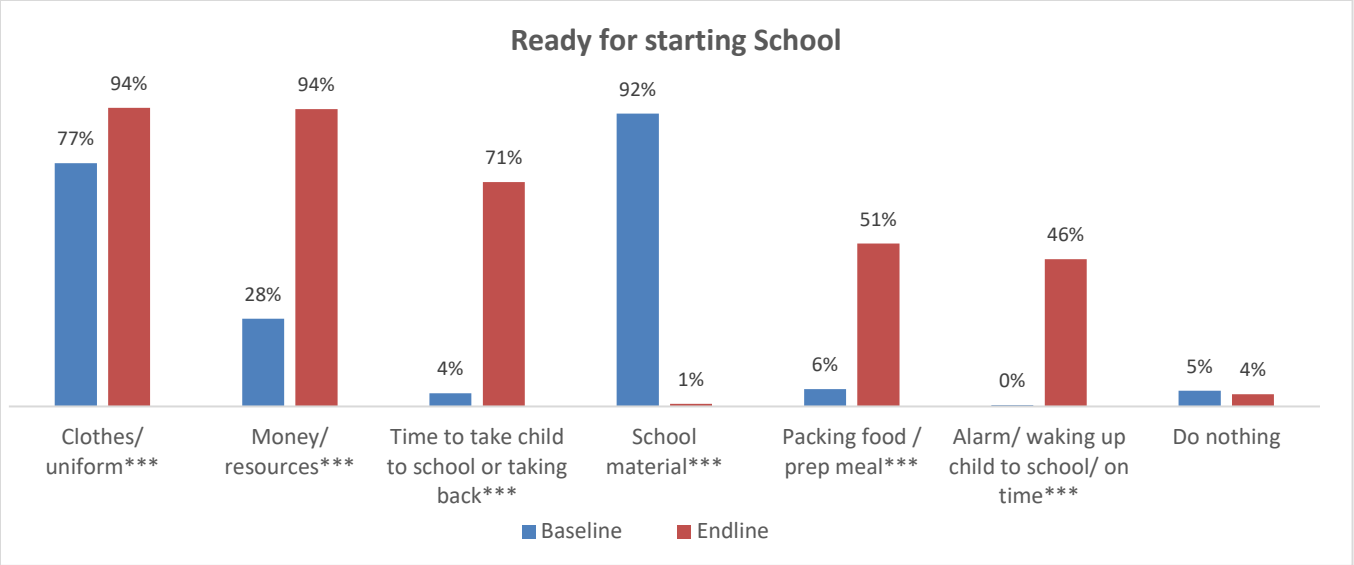
The interest of caregivers in sending their children to pre-school was reported almost the same as in the baseline. During the endline, the majority of caregivers expressed their interest in sending their children to pre-school (98%) which is relatively close to the baseline (94%). There is no significant difference between the two geographic areas in terms of interest in sending children to pre-school.

Poverty is the main reason why the caregivers take their children out of school (41%), which is the same proportion as in baseline (Table 35). Citing poverty as cause of taking children out of school was mentioned more in land-based than those in water-based villages (46% vs 30%). Children who simply stopped going to school was mentioned by 29% of the caregivers (BL: 43%). This meant that children's interest in going to school is higher compared to the baseline. Another cause was being far from school, which was mentioned by more than one fifth (21%) (Table 35).

Table 35: Reasons given for children's out of school

	Ecological System					
	Water-based		Land-based		Total	
	Baseline	Endline	Baseline	Endline	Baseline	Endline
Poverty	33%	30%	47%	46%	41%	41%
Stop by themselves (children)	42%	20%	44%	33%	43%	29%
Help business/ livelihood	37%	30%	36%	33%	36%	32%
Take care home/ children	12%	40%	16%	25%	14%	29%
School to far	12%	10%	9%	25%	10%	21%
Migration	2%	10%	8%	13%	6%	12%
No any means for transportation	9%	0%	9%	13%	9%	9%
School	7%	0%	2%	4%	4%	3%

In terms of preparations for school, caregivers said they will buy clothes/uniform (94%), provide some money for their children's schooling (94%), saving time to take child to and from school (71%) and school materials (5%). Among the practices, the improvement in terms pf buying school uniform, providing money/resources, taking the child to school, packing food and waking up the child are statistically higher compared the baseline ($p<0.001$). However, there is significantly higher proportion of children who did not receive school materials (Figure 16).



** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Figure 16: Percentage of Household Preparation for Starting School

When asked to describe the current practices of caregivers toward the children's health since inception, the most prevalent response was caregivers take good care for themselves during pregnancy, which was mentioned by 85% compared to 60% of baseline, followed by providing health and nutrition care for newborns (EN:70%, BL:41%). More than two thirds of the caregivers had understanding of the benefits of breastfeeding (68%), and more than half of the caregivers knew how to care of a sick child, and importance of child's vaccination, 60.5% and 57% respectively. During the baseline very few understood the benefits of breastfeeding (19%), child vaccination (15%), or care for a sick child (15%) (Table 36).

Table 36: Caregiver's Behavior on Maternal and Child Care (multiple-response)

	Ecological System					
	Water-based		Land-based		Total	
	Baseline	Endline	Baseline	Endline	Baseline	Endline
Know how to establish a good and caring relationship with the children	15%	24%	11%	32%	12%	30%
Understanding letters and the alphabet	10%	21%	12%	26%	11%	25%
Know the importance of positive discipline	10%	1%	5%	5%	7%	4%
Know the importance of establishing routine activities of activities to the child	6%	11%	5%	16%	5%	15%
Know the importance of interaction and communication to child's development	5%	20%	5%	28%	5%	27%
Understand how to read with your child	4%	13%	5%	21%	5%	19%
Know the importance of playing to child development	0%	22%	0%	31%	0%	29%
Know how to make toys for your child	2%	30%	1%	27%	2%	27%
Know how to respond to the child when he/she cries	0%	16%	0%	24%	0%	23%

Caregiver's understanding on the developmental milestones of children has significantly increased compared to the baseline but still low (EN: 31%, BL: 6%). More caregivers knew how to establish a good and caring relationship with the child compared to the baseline (EN:30%, BL:12%) (Table 32). Though it is still low, more caregivers knew the benefits of teaching/instructing the child on letters/alphabet,

compared with the baseline (EN:25%, BL:11%). Interestingly, only few caregivers mentioned the importance of positive discipline, and this rate is lower compared to the baseline (EN: 4%, BL:7%). This indicates poor understanding of caregivers on home-based early child learning and stimulation (Table 36).

3.5.5. Child Health and Nutrition

Early initiation of breastfeeding is very important for the health of children. The result of the survey showed a high level of caregiver's understanding and practice of early initiation of breastfeeding and statistically higher compared to the baseline ($p < 0.05$). Up to 83% of caregivers reported providing immediate breastfeeding after birth (BL:74%) and some caregivers (11%) breasted their children within 24 hours, while 19% of caregivers did the same during the baseline (Figure 17)

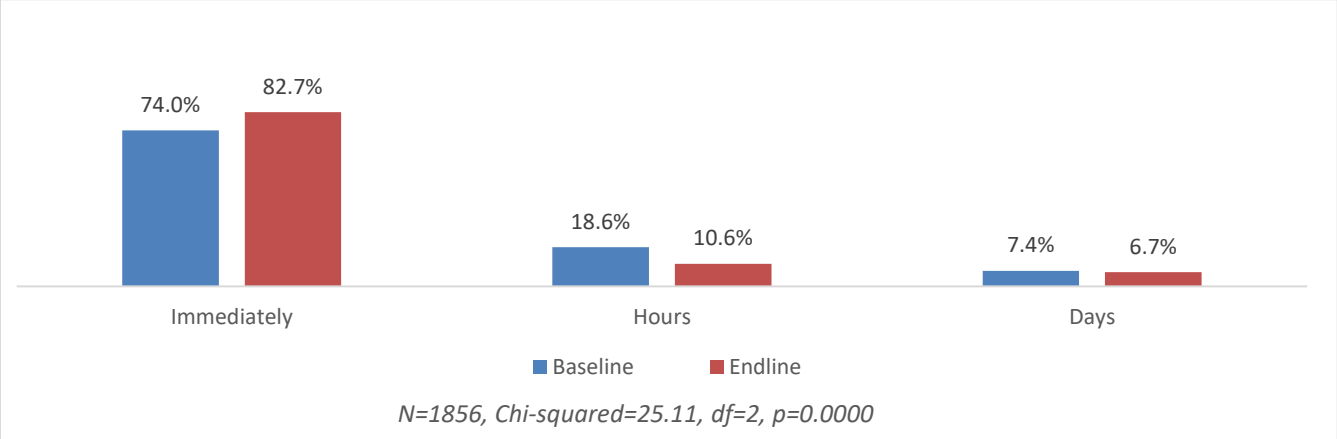


Figure 17: Percentage of When Mother Breastfed for the First Time

Similar to the baseline, most caregivers usually gave water or soup broth. When asked what drink they gave to their youngest children the previous day and night, almost three fourths (74%) said they gave them plain water (BL:84%) while almost half (49%) gave them soup broth (BL:41). One third received sweetened water (BL:37%), breast milk (EN:31%, BL:18%); infant formula (12%); or 5% other liquids like coffee or tea (BL:14%) (Table 33). There was no significant difference between the two geographic areas (Table 37).

Table 37: Percentage of what caregivers reported their children drank yesterday (multiple response)

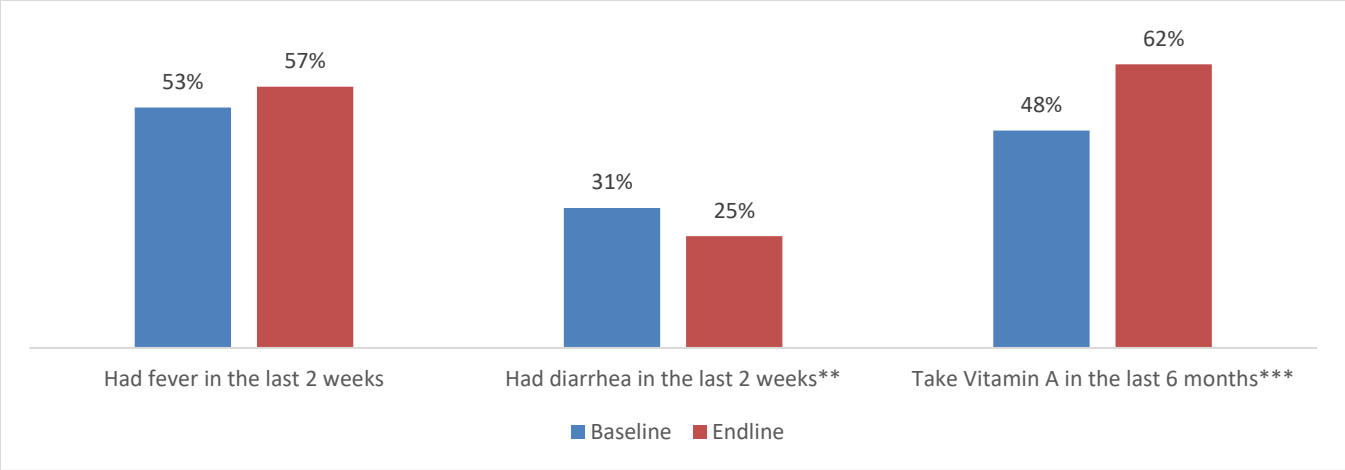
	Geographic Area					
	Water-based		Land-based		Total	
	Baseline	Endline	Baseline	Endline	Baseline	Endline
Plain water	84%	71%	84%	75%	84%	74%
Soup broth	42%	49%	41%	49%	41%	49%
Solid or semi-solid (mushy) foods	43%	47%	41%	49%	42%	49%
Sweetened water	37%	36%	37%	33%	37%	33%
Received only breast milk	18%	34%	18%	30%	18%	31%
Tinned, powdered or fresh milk	18%	31%	14%	25%	16%	26%
Any other liquids e.g. tea, coffee, infusions	17%	6%	12%	5%	14%	5%
Infant formula	1%	12%	2%	12%	2%	12%
Vitamin, mineral supplements (liquid) or medicine	2%	3%	1%	5%	2%	5%
Oral rehydration solution (ors/oralyte/royal d)	0%	1%	0%	3%	0%	3%

Caregivers gave a variety of protein, vegetable, and carbohydrate foods to their children. Regarding what they fed their children the previous day, many caregivers reported giving rice, noodles, bread, maize, or other staple foods made from grains (EN:70%, BL:74%). More than half (56%) provided fish (BL:70%), and 42% provided dark green leafy vegetables. However, some 11 percent did not give their children any solid food (BL:13%) (Table 38). There is no significant difference between the two geographic areas ($p > 0.05$). This indicates caregiver's poor knowledge on protein-rich foods to be provided once the infant starts eating solid food (Table 38).

Table 38: Percentage of caregiver report of food given to children yesterday (multiple response)

	Geographic Area					
	Water-based		Land-based		Total	
	Baseline	Endline	Baseline	Endline	Baseline	Endline
Any rice, noodles, bread, maize or other staple food made for	74%	63%	73%	72%	74%	70%
Any fresh or dried fish or shellfish	74%	51%	67%	57%	70%	56%
Any dark green leafy vegetables	37%	35%	34%	44%	35%	42%
Any sugar or sugary foods such as sweets, chocolate	31%	15%	30%	25%	31%	23%
Any meat such as beef, pork, lamb, goat, rabbit, deer, chick	18%	25%	20%	30%	19%	29%
Any other fruits or vegetables	21%	23%	19%	27%	20%	26%
Any eggs	14%	24%	14%	27%	14%	26%
Any sugary drinks such as soda, fruit juice or soya drink	20%	20%	18%	16%	19%	17%
Any sugary drinks such as soda, fruit juice or soya drink	25%	10%	20%	9%	22%	9%
Any ripe (orange) mangoes or papayas	16%	11%	21%	13%	18%	12%
No any	13%	14%	12%	10%	13%	11%
Any food made with oil, fats or coconut milk	9%	13%	10%	14%	9%	14%
Any pumpkin, yellow sweet potatoes or carrots	5%	14%	7%	17%	6%	17%
Any milk - fresh, tinned or powdered, or milk products such	7%	11%	7%	18%	7%	17%
Any white potatoes, cassava (manioc), white yams or other	3%	13%	2%	17%	3%	16%
Any foods made from beans, lentils, peas or nuts	4%	9%	3%	12%	3%	11%
Any liver, kidney, heart, blood, intestine or other organs	5%	8%	6%	9%	5%	8%
Any fried snacks such as fried bananas, fried sweet potatoes	4%	4%	2%	8%	3%	7%

Several caregivers reported their child suffered ailments two weeks before the interview. Fifty-seven percent (57%) of the caregivers said their child had fever (BL:53%) and 25% of children suffered from diarrhea (BL:31%) in the past two weeks (Figure 18). However, almost two thirds or 62% positively reported their children took Vitamin A supplements in the previous 6 months, which is statistically higher ($p<0.05$) compared to the baseline (BL:48%) ($p<0.001$). This is indicative of low knowledge among caregivers of nutrition practices or a lack of available food. Caregivers lack the understanding of the importance of preventive behavior using hygienic and sanitary practices. The combined lack of clean water, low protein consumption for growth, and poor parenting practices lead to the poor health condition of children (Figure 18).



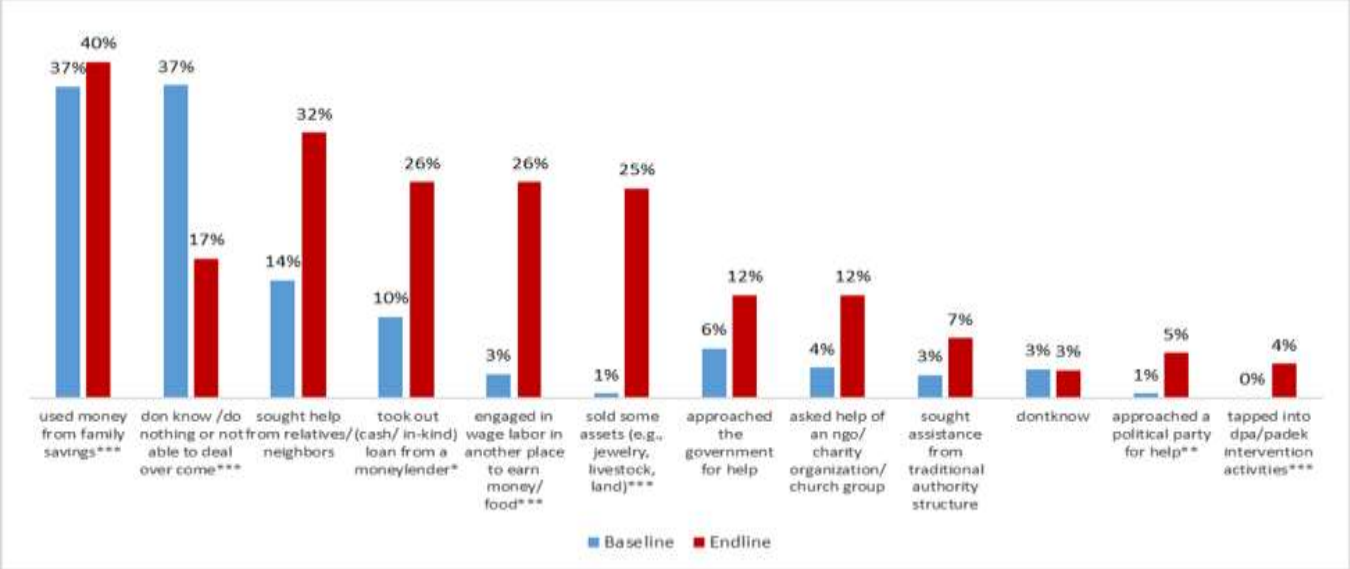
** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Figure 18: Percentage of Caregiver reporting their Children's health

3.5.6. Disaster Risk Reduction and Climate Change Adaptation

The people interviewed reported having experience with disaster, such as flood, storm and drought. Approximately one third of households reported to be affected by storm in the last 3 years, while nearly 15% citing drought and about 11% being affected by flood. Households in the water-based villages are more vulnerable to storm than those in the land-based villages (45% vs 28%).

Compared to the baseline, more people in the area have increased awareness of disaster mitigation and preparation. Of those who said they cope with disaster, 40 percent said they save money for use in the event, but about 17 percent would live with disaster with no precautionary or preventive measures (BL:37%). Additional 26 percent of HHs were likely to take loan from money lender, while about 32% would seek help from relatives/neighbors (Figure 19).

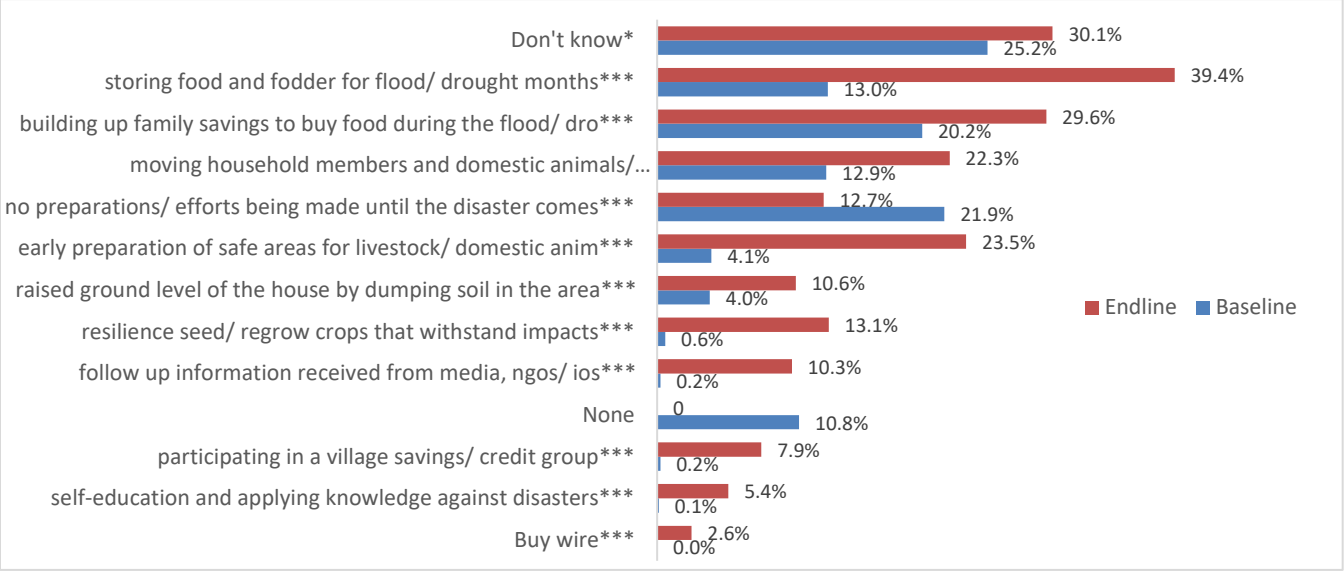


** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Figure 19: Percentage of Household Reporting on How to Recover from Disaster

When asked how they mitigate the impact of disaster that regularly occur in their villages, up to 28% could not provide any answer (BL:27%), but 39% said that they would store food and fodder for the

months the flood/drought occurs, while only around 13% stated so during the baseline. Thirty percent (30%) of HHs would save money to buy food during the disaster (BL:20%). Some (22%) thought to move household members or domestic animal/livestock to avoid flood/storm (BL:13%), 24% mentioned early preparation of safe areas for livestock/domestic animals (BL:4%), while 11% of households were likely to raise ground level of the house by dumping soil in the area (BL: 4%) (Figure 20). No significant differences on responses on disasters impact mitigation between the two geographic areas.



** statistically significant (p < 0.05 level); ** statistically significant (p < 0.01 level); *** statistically significant (p < 0.001 level)*

Figure 20: Percentage of Households adopted Mitigation measures for future Disaster

Various activities were conducted in the communities in the last three years in relation to disaster management/preparedness. These activities include: awareness raising/training on disaster preparedness, building of infrastructure, organizing early warning system, introduction of disaster resistance crops and disaster focused vaccination campaign. However, such activities were carried out in small scale. For example, 0nly 7% in baseline and slightly higher percentage (16%) mentioned that there was an awareness raising/training on disaster preparedness, with higher proportion in water-based villages compared to land-based villages (19.5% vs 15.4%). Only 22 percent of households received training on disaster response from the commune disaster management committee (BL:10%), with similar percentages in both geographic areas. Therefore, the ECCD program may need to incorporate disaster risk mitigation education for both caregivers and in children's learning activities. Caregivers were asked to score their level of confidence about protecting their family from natural disaster. Majority of respondents scored low, while only around 17% (BL:12%) rated a 4-to-5 score (on a 0-5 score range), meaning majority of them lack such confidence (Table 39).

Table 39: Various activities conducted in the community for disaster preparedness

Activities	Geographic Area					
	Water-based		Land-based		Total	
	Baseline	Endline	Baseline	Endline	Baseline	Endline
Awareness raising/ trainings on disaster preparedness	5.6%	19.5%	7.9%	15.4%	6.9%	16.3%
Building of infrastructures	4.8%	10.5%	13.7%	12.3%	9.8%	11.9%
Organizing early warning system (spreading of news)	2.0%	5.7%	2.8%	5.1%	2.4%	5.2%
Introducing disaster-resistant crops	2.0%	6.2%	5.6%	8.9%	4.0%	8.3%
Disaster-focused vaccination campaigns	1.1%	8.6%	4.7%	4.0%	3.2%	4.9%
No participation	88.5%	71.4%	77.4%	72.2%	82.1%	72.0%

4. DISCUSSIONS

The following chapter provides a discussion of the main findings from the research and where applicable, links the literature to the research outcomes.

Early childhood care and development (ECCD) refers to the physical, cognitive, linguistic and socio-emotional development of a child from conception up to the age of under six years old. ECCD encompasses a wide range of activities, ranging from prenatal care to nutrition and from early childhood stimulation to pre-school education. Researches show that the environment in which a child grows up substantially affects the development of the brain and the intelligence level of the child. This environment is influenced by a wide range of early childhood settings that all impact the development of the child, including the home and the school.

Lack of quality ECCD services affects especially the vulnerable children in resource poor settings. As a result, these children often lag behind in terms of their physical, cognitive and socio-emotional development. As children grow older, the development gap increases and gets ever harder to overcome. Children who participate in ECCD programs are generally better prepared for primary school, perform better at school, and are less likely to repeat grades or drop-out of school, all reducing the costs of the education system. Therefore, it is crucial to focus investment on children in their early years.

4.1 IDELA

IDELA is a tool used to measure a child's learning and development at an early stage, as well as in ECCD programs.[4] Additionally, the tool is often used at the subnational level and offers more detailed information about children's learning and development. In India, it was found that 54 percent of children entering first grade in urban schools could not pick out the correct number of objects corresponding to numbers and 76.0% could not identify starting sounds of words. The children struggled with tasks requiring cognitive flexibility such as sorting two ways and puzzles. The learning gaps identified during the IDELA baseline helped the program identify and select high-quality activity based solutions that help children learn through play, learning activities and experiences. There is also a consistent relationship between age and children's development but there is a large range of skills displayed by children within each age group. Literacy skills were recognized to be taught in order to improve children's knowledge and skill development. Less is known about best practices for helping children develop socio-emotional skills, especially across cultures, but research is clear that these skills are important predictors of success in school. Earlier publications of Save the Children noted that less than one-third of children are mastering foundational early literacy, numeracy and social-emotional skills by age 6 when they are transitioning into primary school highlights the need for stronger early learning environments.[5] The study in Cambodia shows that the interventions will have significant effect on the performance of the children. Children generally excel in the motor skills but is lower to their literacy development. The result would indicate the importance of pushing for literacy programs in schools.

In terms of gender, previous studies using the IDELA tool have shown no significant different between boys and girls on their motor, emergent numeracy, emergent literacy, socio-emotional development, and executive functioning skills. An example of such is a Baseline Study on IDELA in Nepal (2016)[6]. The results of the said study showed that there was no significant difference between genders in all domains, except in Emergent Numeracy, wherein the boys scored higher than the girls. Interestingly, however, there was a significant difference between boys and girls under the Total IDELA. Additionally, in sites where differences do exist, girls more often outperformed boys in literacy, social-emotional, and motor skills. Boys and girls were equally likely to display a skill advantage in numeracy development. The most

[4] *International Development and Early Learning Assessment. Assess, Test, Progress.*
[5] *Save the Children. Beyond Access: Exploring Equity in Early Childhood Learning and Development.*
[6] *Kavre. (2016). Baseline Study on International Development and Early Learning Assessment (IDELA)*

consistent advantage for girls was in the motor domain which is largely focused on fine motor skills.[7] The results of this study in Cambodia indicate that there is no significant difference on the performance of boys and girls.

The study tried to examine the effect of the age group on the overall performance of children. The study indicate that older children generally demonstrate positive response to the interventions compared to younger children. For the 25-42 months old, the domains that are found to be significantly different are the socio-emotional, emergent numeracy, early literacy, and motor skills domains.

The geographic areas i.e. land-based and water-based areas significantly affect the outcome of the ECCD services. The socio-emotional domains, emergent math, early literacy, and motor skills were found to be significantly different compared to the baseline.

Likewise, the poverty status of the family and the overall performance, the performance of the children is not significantly different compared to the baseline. The poverty of the household is significant in the socio-emotional and early literacy.

The overall improvement of the children is only significant among the children whose caregivers are literate. The improvement is found to be significant only on the socio-emotional, early literacy, and motor skills. The parents who are literate will most likely help in developing their children compared to non-literate caregivers.

The project has significantly improved the performance of the children when the caregivers attended the parent group meetings more often (over 12 times). The improved performance of the children during group meetings will improve their skills that lead to the development of the child. Earlier studies of Save the Children found that supportive home learning environments has helped in the development of the children. Parenting practices and home environments play critical roles in young children's development and efforts to improve early learning, even those focused on classroom-based programs.[8] It was also noted that the parenting skills of caregivers have increased the interaction of parents and children leading to the development of the children.[9]

The study also found that development of children is not significantly different with respect to the kind of ECCD services. The different kinds of interventions are found to have comparable results.

Successful implementation of ECCD program has significantly helped to the development of children in all aspects (socio-emotional, executive function, math literacy and motor skills. The programme target villages performed better compared to non-target villages. Children receiving ECE services display a wide range of skills in all domains, which has important implications for teachers and teacher training.

4.2 CREDI

This section presents the young children's development across motor, cognitive, and socio-emotional domains. The caregiver-reported items measures the motor, cognitive, and socio-emotional skills of children under three years old.[10] The result of the endline study showed that the performance of the child using the CREDI is significantly different from the baseline and endline. The result indicates that there

[7] Save the Children. Beyond Access: Exploring Equity in Early Childhood Learning and Development.

[8] Save the Children. Beyond Access: Exploring Equity in Early Childhood Learning and Development.

[9] Save the Children. ECCD for ROMA Children in Albania IDELA Endline Assessment

[10] McCoy, D.C.; Sudfeld, C.R.; Bellinger, D.C.; Muhihi, A.; Ashery, G., Weary, T.E., Fawzi, W., and Fink, G.. 2017. Development and validation of an early childhood development scale for use in low-resourced settings. Popul Health Metr. 2017 Feb 9;15(1):3. doi: 10.1186/s12963-017-0122-8.

is a significant difference of the CREDI performance of children between baseline and endline in all domains measured (i.e. socio-emotional; cognitive; language and motor). Among the different factors, only the age group and intervention areas have significant influence on the performance of the children. An improvement of the performance was observed among older children compared to the younger children. This is consistent with the observation also of IDELA.

The study results shows a clear evidence of effect of interventions among the children and caregivers. The areas with interventions have higher performance compared to those villages that have no interventions (non-target villages). The result shows the benefits of the project interventions in improving the performance of children. The interventions of the project have improved the parenting skills of the parents and teachers that contributed to the development of the children. The villages that have no ECCD services were observed to have lower performance.

4.3 CAREGIVERS

The family is recognized to be an important factor that contributes to child development. A child that is not exposed to violence at home or in the neighborhood will most likely have better development. The findings show that households have significantly improved their performance when it comes to providing favorable environment to children.

Similarly, the number of households that have access to books have significantly increased in performance of children compared to baseline ($p<0.05$). These developments are observed in both water-based and land-based areas. The access to books helps in developing the literacy skills of the children beyond the school room. Access to books however are enhanced by the literacy of the caregivers.

Better access to the programs has exposed the caregiver's in developing their parenting skills. The caregivers also attended class with children at least once a month. There is a consistent result that the children in target villages have consistently higher performance compared to children in non-target villages.

The parenting skills of caregivers were enhanced by the project through parent-group meetings. The caregivers were also exposed to materials that will help improve their parenting skills. It was noted during the interview that only the mothers usually attended the meetings since the fathers often spend their time looking for a living. Considerable number of caregivers have reported that they attended fewer parent meeting sessions. In the endline study using IDELA and CREDI, it was noted that the number of sessions attended by the caregiver have significant influence on the performance of the child. It was found that caregivers who attended more than 12 parent group meetings have improved performance and for those caregivers who attended less than 12 times is not statistically significant compared to the baseline.

Aside from home, schools significantly contribute to early child development. Some caregivers are constrained to send their children to school due to poverty and accessibility of schools. The result of the survey that children simply lose interest needs further investigation as there are some underlying factors, such as hunger (which is also related to poverty), bullying and the quality of teaching. The caregivers' practices of providing uniforms and money for the children to buy food for snacks also motivates the children to go to school. The other factors are interlinked to poverty however. Looking at the children's performance, it was found that indeed the performance of children differs among poverty class. Only these households that are non-poor have improved their performance from the baseline.

The behaviors of mothers have significantly changed in terms of breastfeeding their infants compared to the baseline. The mothers who immediately feed their infants immediately have increased from 74% to 82.7%. There was also an improvement on the part of caregivers to feed their children with nutritious liquids compared to the baseline. This practices have contributed to the improvement of the child development. But generally, there is still a lack of knowledge of the caregivers in feeding the children

with protection-rich foods to their babies. The hygienic practices of parents still have to be improved which have an effect to children's health. The survey however reported an increase of parents providing vitamins to their children.

Climate-related stress has affected more families recently. The awareness and the coping ability of families will significantly affect the development of the child. About one third of interviewed Caregivers revealed such exposure. In most cases, they spend their savings during periods of stress which is significantly higher compared to baseline ($p<0.05$). However, the number of households who do not know what to do during the periods of stress has significantly reduced compared to the baseline ($p<0.05$).

5. CONCLUSIONS

The IDELA and CREDI scores demonstrated the improvement of child development outcomes. The results are consistent between the two tools (IDELA and CREDI) in terms of the changes with the baseline.

For the IDELA, the result shows that there is a significant change on the overall development of the child compared to the baseline. The interventions significantly increased the development of children when compared to the baseline. The development of the children is not significantly different between boys and girls and among and with the different kind of ECCD interventions. There are indications however that the older children is most likely to have better performance compared to the younger children. The number of times the caregiver attends on parent group meetings showed to have influence on the result. For the caregivers that attend only fewer meetings, this has not significantly affected the performance of the child. There is also a significant difference of children in target and non-target villages. This means that the villages that receive ECCD interventions perform better compared to children in villages that did not receive any interventions. The improvements however will depend on the age of children. Only older children responded to the interventions. The interventions also differ between the land based and water-based villages. The poverty status of the family of children was also found to have influence on the socio-emotional and literacy of the children, and the literacy of caregiver's influence of the performance of the children. The number of parent group meetings were found to have significant effect to the performance of children only if the caregivers attended more than 12 meetings.

For the CREDI, the result showed the potential of using CREDI as a low cost tool in evaluating the performance of children. Among the factors that are found to significantly affect the performance of children include the age group and the presence of the project. Older children were found to have improved performance but not the younger children. The areas that have interventions also exhibit better performance compared to villages that have not interventions.

The caregivers played a significant role in the development of a child. The project has brought significant changes on the behavior of caregivers which contributed to the development of the child. Among the improvement include availability and access of books in the family, the exposure of children to the program, the improvement in taking care of children, and ECCD behavior. The practices of the parents in feeding the child with nutritious foods as well as the knowledge on coping during the period of stress are still low which may affect the child performance. Poverty remain the main reasons why children are taken out of school.