

ENDLINE EVALUATION
OF PROGRAMME -
**TRANSFORMING
THE LIVES OF
CHILDREN IN
RWANDA**
(ECD&F)

PHASE II, 2017-2020

**Endline evaluation of programme -
Transforming the Lives of
Children in Rwanda (ECD&F)
Phase II, 2017-2020**

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Abbreviations

- **ASQ**
Ages and Stages Questionnaire
- **BL**
Phase II – Baseline
- **CHW**
Community Health Worker
- **DHS**
Demographic and Health Survey
- **ECD&F**
Early Childhood Development and Family Program
- **EDPRS**
Economic Development and Poverty Reduction Strategy
- **ECD**
Early Childhood Development
- **EL**
Phase II – Endline
- **FGD**
Focus Group Discussions
- **HH**
Household
- **KII**
Key Informant Interview
- **NISR**
National Institute of Statistics of Rwanda
- **NECDP**
National ECD Program
- **NST**
National Strategy for Transformation
- **MIGEPROF**
Ministry of Gender and Family Promotion
- **MINEDUC**
Ministry of Education
- **MUAC**
Mid-Upper Arm Circumference
- **OMCI**
Observation of Mother-Child Interactions
- **REB**
Rwanda Education Board
- **RBA**
Rwanda Broadcasting Agency
- **RNEC**
Rwanda National Ethics Committee
- **UNICEF**
United Nations Children Fund
- **WHO**
World Health Organization

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SECTION

1

INTRODUCTION



1.1 Background/Context

Early Childhood Development (ECD) has emerged as a key priority area for socio-economic development in Rwanda, reflected in the Early Childhood Development (ECD) Policy, Strategic Plan, and the National Strategy for Transformation (NST, 2017-2023). Adhering to the government's commitment and support for ECD, UNICEF Rwanda and Imbuto Foundation, under the leadership of the Ministry of Gender and Family Promotion and in collaboration with other stakeholders launched the Phase I (2014-16) of the Early Childhood Development and Family (ECD&F) programme in 2014, funded by IKEA Foundation.

The programme was first implemented in 2015, aiming to provide children in Rwanda the opportunity to thrive and grow by fostering responsive care of the young children by the primary caregivers, family and community; improving access to and use of quality ECD services and promoting child-sensitive policies at all levels of the government.

To monitor the intervention's impacts, UNICEF and Imbuto conducted a baseline evaluation at the beginning of Phase I (2014) and an endline evaluation at the end of Phase I (2016-17). These evaluations provided insights on the progress achieved and provided recommendations for expansion of the services in Phase II. This report summarizes the endline evaluation results of the Phase II of the programme.

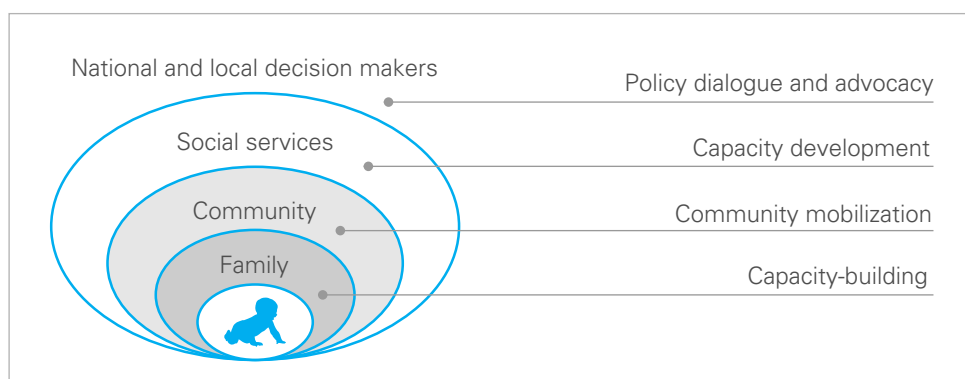


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1.2 Early Childhood Development and Family (ECD&F) Programme - Phase II (Overview)

Due to the impact and success achieved in Phase I, the partnership was continued in the subsequent ECD&F programme Phase II (2017-2020). Phase II expanded on the partnerships to include Rwanda Interfaith Council on Health (RICH), the Anglican Church, Chance for Childhood and Action pour le Développement du Peuple (ADEPE). This phase built on the three-pronged approach in the socioecological model, which is designed to transform children's lives by changing the way families and communities interact, nurture, and care for their children.

Figure 1: ECD&F Conceptual Model





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a**Effective and responsive care of the young child by the family and community**

A safe and stimulating environment, safe drinking water, sanitation and hygiene facilities, and caregiver's engagement are key determinants of children's growth and development. To facilitate a safe and healthy environment for the children, the Government of Rwanda and Imbuto Foundation agreed to establish one ECD centre of Excellence in each district, for a total of 30 centres. The key activities of the ECD&F programme phase II included:

- Establishment of community-based ECD&F centres;
- Parenting education;
- Provision of home-based services for young children;
- Communication for social and behavior change;
- Provision of water, sanitation and hygiene (WASH) facilities;
- Child protection;
- Strengthening health and nutrition at the community level; and
- Social Protection.

In order to provide an essential set of interventions to targeted communities, the focus remained on the following activities - Centre-based ECD services; Home-based ECD services; Home visitations; Community-based nutrition; and Community-based child protection.

The ECD centres remained the focal point of the intervention by providing additional services that are at the core of the programme. These include providing training to the caregivers, local authorities, community leaders, and ECD centre managers on key aspects related to ECD. These centres also acted as community hubs or spaces for gatherings and discussions on important issues; as grounds to improve parent literacy skills, impart training on making play and learning materials from local resources, fostering the inclusion of children with disabilities into the ECD system; and as knowledge hubs for stakeholders in the ECD sector including private players.

b**Promoting access to and use of quality ECD and other basic social services for young children**

Interventions in three critical areas (i.e. ECD, Education and Nutrition) were used to create social impact on poor children and those from families with low levels of education.

Phase II of the programme aimed at increasing access to quality ECD services for children and families by rolling out different models of ECD interventions including: converting existing ECD centres to 'Centres of excellence'; low-cost community based ECD centres; home based ECD services; market based ECD services; parent education and home visits; faith based ECD services and media programmes for children and families.

Under the Education Interventions, one of the primary activities was to support the transition of children at ECD centres from Phase I to primary schools; it targeted about 3600 students per year. A technical support person was appointed in schools to mentor and develop the capacity of primary school teachers. The school-based mentors worked alongside parents' committees and school management to mobilize and build capacities of parents and community members, enabling them to discuss issues pertaining to quality education.

The nutrition interventions included continuous growth monitoring and promotion to prevent malnutrition among children, deliver micronutrient powders to the target families, and foster and support the formation of savings and lending communities by pregnant women and caregivers of children.



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c Implementation of child-sensitive policies

Interventions in the area of child-sensitive policies mainly centered around training caregivers on positive parenting approaches to protect children from violence and abuse. As part of the programme, Inshuti z'Umuryango (IZUs) were appointed, who were responsible for disseminating the information on child protection in their communities. They used booklets and training guides developed under the intervention and took part in in-service training with other stakeholders. The intervention also attempted to strengthen the coordination linkages at levels to facilitate the smooth flow of information and project activities.

Phase II aimed at establishing 240 home-based ECD centers, rehabilitate 36 community-based centers, 15 faith-based centres, and establish five market-based models. Further, it transformed 10 model centers into Centres of Excellence (CoEs). The integrated package of core interventions (ECD, nutrition and child protection) were further scaled up to 4 neighboring sectors, increasing the number of direct beneficiaries from 6,000 young children in Phase I to 32,100 in Phase II. At the core of these impact indicators lies the quest for innovative approaches, including low-cost community-based ECD centers and market-based ECD services. Other innovations introduced in Phase II include – “Friends of the family” or child protection volunteers providing services and referring cases where needed; production of locally made play and learning material; scale up of the radio programme Itetero into a television programme and a web portal; and mobilizing religious leaders for ECD including using churches and mosques as community based ECD centres.



SECTION

2

EVALUATION



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The ECD&F programme has been rolled in two phases – Phase I (2014-2017) and Phase II (2017-2020). The baseline evaluation of Phase I was conducted in 2014 by UNICEF in partnership with Imbuto Foundation and guided by an ECD&F Baseline Evaluation Technical Committee¹ in order to assess conditions related to ECD in the selected sites and inform future planning and programming.

This was followed by an endline evaluation of phase I conducted from October 2016 – February 2017. The endline evaluation for ECD&F Phase I was considered as a baseline for ECD&F Phase II of the programme. Phase I endline (baseline for ECD&F - Phase II) evaluation aimed to assess the impact of the first phase of the programme (Phase I) and to provide recommendations for the second phase (Phase II). The findings and recommendations from Phase I endline were used to enhance the design, planning and implementation of UNICEF and ECD&F – Phase II programme, as well as provided technical guidance to other stakeholders engaged in ECD&F programming in Rwanda.

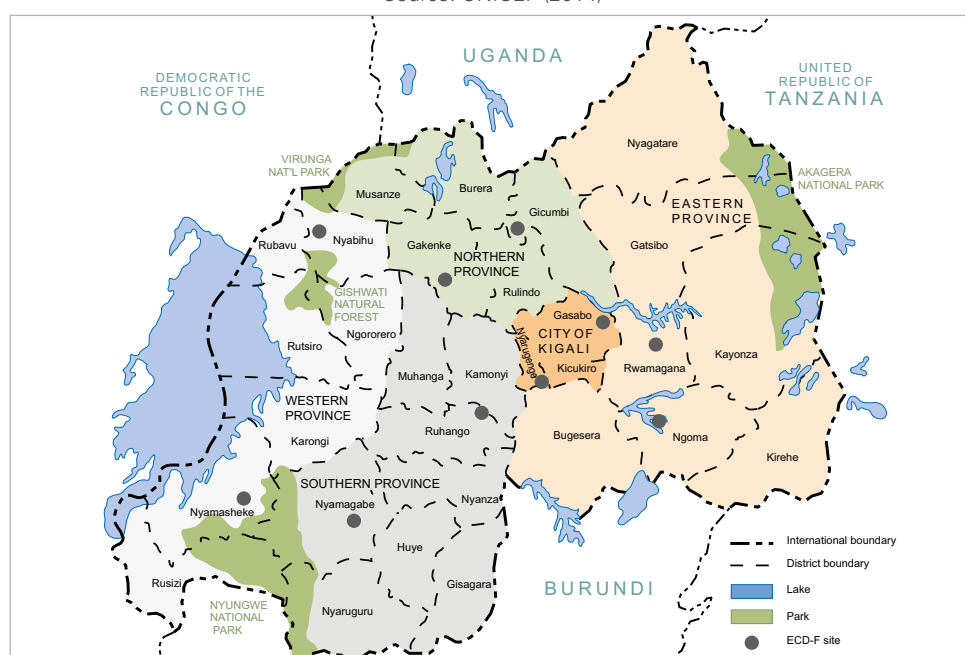
The current ECD&F Phase II endline evaluation intends to support and evaluate the impact of the ECD&F Phase II and understand if the intended objectives of the programme have been achieved. The time period for the evaluation exercise was July 2017 – June 2020. The findings of the evaluation will be used by UNICEF and its partners to develop future programmes and interventions and to inform and update policies and strategies to improve performance of ECD&F programmes in Rwanda.

2.1 Geography

The Phase II endline evaluation was conducted in the 10 districts (same as the Phase II baseline), namely – Gakenke, Gasabo, Gicumbi, Ngoma,

Figure 2: Map of ECD&F Sites

Source: UNICEF (2014)



¹Consisting of Ministry of Gender and Family Promotion, NISR, University of Rwanda, Harvard University, Partners in Health, Imbuto Foundation and UNICEF

Nyabihu, Nyamagabe, Nyamsheke, Nyarugenge, Ruhango and Rwamagana. In total, 882 surveys were conducted with the households in these districts. In the selected 10 districts, the sample was distributed between 10 intervention sites exposed to the ECD&F programme and 10 control/comparison sites.

2.2 Evaluation Design

In the Phase II baseline, quasi-experimental matching design was used in the 20 sites, the 10 intervention sites that were exposed to and planned for inclusion into the ECD&F programme and the 10 matched comparison/control sites that were not exposed. Mixed methods (both quantitative and qualitative) were used to understand the present context of child development and knowledge of and access to ECD across the sites. The Phase II end-line subscribed to the same design as Phase II baseline. The study was implemented through a sample of two groups of children (0–23 months old and 24–59 months old) selected from the 10 project sites and 10 control sites.

2.2.1 Inclusion and Exclusion Criteria – quantitative assessment

Inclusion Criteria:

For the current ECD&F – Phase II endline evaluation (2020), the inclusion criteria was: the participants must be primary caregiver at Phase II baseline (2016) and the index child's siblings between the ages of 0–23 months or 23–59 months (or) the participants must be the primary caregiver to a child between ages of 0–23 months or 23–59 months from the same village as Phase II baseline (2016) or same Cell. Caregivers must live in the same household as the children and must be the child's legal guardian. Legal guardians may be aunts, uncles, grandparents, or foster parents.

Exclusion Criteria:

The Villages/Cells not included in the ECD&F – Phase II baseline evaluation were excluded. Households that have relocated out of the study area since Phase II baseline (2016) were also excluded.

More information on the sampling methodology adopted for quantitative assessment is provided in Annexure 1.

2.2.2 Measures used in the Phase II endline for quantitative assessment

The ECD&F Phase II endline evaluation built upon the experiences of the Phase I baseline and endline evaluations in the use of tools, measures and frameworks that were relevant to the Rwandan context. The evaluation



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team used the same measures for nutrition, child development, child health, home environment and parenting, access to ECD services, child protection, caregiver and household characteristics as was used in the Phase I endline (Phase II baseline). The Ages and Stages Questionnaire (ASQ) section was dropped from the Phase II endline since the Phase II baseline data collection and analysis revealed the lack of relevance of the tool to the Rwandan context. In addition, Infant and Young Child Feeding Practices and UNICEF Multiple Indicator Cluster Survey were added to assess nutrition-level indicators among children in the age group 0-23 months.

2.2.3 Qualitative Assessment

In order to supplement the findings from the quantitative study tools and gauge the experiences of the stakeholder groups, a qualitative component was added to the endline evaluation. The qualitative component consisted of 87 key Informant Interviews (KIIs) and In-Depth Interviews (IDIs) and 5 Focus Group Discussions (FGDs). The FGDs were conducted with parent/caregivers of children under 5 years old, with one FGD being conducted in each province. The FGDs were conducted with parents who were part of the endline household interviews and had used the ECD&F services at least once in the 6 months preceding the evaluation.

The IDIs were conducted with parents/caregivers and KIIs were conducted with ECD stakeholders. The inclusion criteria for parents/caregivers in the IDIs was the same as for the FGDs. Parents/caregivers from the control sites were not included in the interviews. The ECD stakeholders (implementing partners, UNICEF staff, local government officials, village chiefs/leaders, religious leaders, ECD caretakers, IZUs, CHWs, central level stakeholders including RBA, NECDP, MINEDUC/REB) were selected to achieve a diverse representation across the ECD&F sites.



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2.3 Results presented in the summary report

The evaluation results presented in this summary report are organized around the programme objectives related to core family care practices, child development and health, nutrition, WaSH and access to and use of quality ECD and other basic social services. Since the current end-line evaluation has been conducted only in the 20 sites (10 intervention and 10 control sites) from 10 districts of Rwanda, the results of the end-line evaluation are not nationally representative. These 20 sites were specifically selected to receive ECD&F interventions due to high levels of poverty and their rural locations.

2.4 Summary of Key Findings

ECD&F Programme Intervention Related Indicators	Control sites [N=410] (baseline)	ECD&F sites [N=403] (baseline)	Control sites [N=430] (endline)	ECD&F sites [N=452] (endline)
Family Care Practices				
Caregivers who engaged in three activities to promote learning or school readiness in the past week (24-59 months)	8.5%	19.6%	10.4%	18.0%
Children whose fathers engage in their daily care	48.8%	55.8%	55.2%	63.3%
Children exposed to any inadequate care in the past week (24-59 months)	56.6%	51.1%	52.7%	51.1%
Children exposed to any violent discipline (24-59 months)	91.4%	86.4%	89%	82.6%
Caregivers who believe physical punishment is necessary to raise a child well	47.6%	33.8%	36.1%	33.0%
Caregivers who report arguing about a relationship in front of the child	42.9%	37.8%	31.7%	30.0%
Support for learning				
Children with 2 or more playthings in home (24-59 months)	46.3%	55.6%	57.6%	62.1%
Households with 3 or more children books in the home	6.3%	7.9%	5.0%	12.4%
Access to ECD and community services				
Children who attend any ECD or organized learning programs	15.9%	35.5%	39.6%	49.3%
Children ages 48-59 months who attended pre-primary school	17.5%	36.7%	36.8%	61.7%
Children registered with civil authorities	80.8%	82.0%	99.3%	99.1%
Children with health insurance	56.6%	65.7%	76.7%	81.6%
Child development				
Children 36-59 months developmentally on track on the ECD-Index (DHS)	51.8%	57.9%	52.5%	57.7%
Water, sanitation and hygiene				
Households with access to an improved water source	72.2%	84.9%	69.3%	81.6%
Households with improved sanitation (improved toilet) facility	75.4%	85.4%	78.8%	82.7%
Households with an observed place for washing hands that have soap and water	49.4%	47.7%	68.6%	70.3%

ECD&F Programme Intervention Related Indicators	Control sites [N=410] (baseline)	ECD&F sites [N=403] (baseline)	Control sites [N=430] (endline)	ECD&F sites [N=452] (endline)
Nutrition				
Children who are stunted (24-59 months)	41.2%	40.6%	38.1%	37.3%
Children who are wasted (24-59 months)	2.0%	2.1%	1.8%	2.2%
Children receiving minimum dietary diversity (6-23 months)	NA	NA	48.3%	48.7%
Children receiving minimum dietary diversity (24-59 months)	56.6%	59.1%	NA	NA
Households who experienced food insecurity in the past week	91.9%	90.8%	81.6%	81.6%
Child health				
Children with diarrhea in past two weeks (24-59 months)	27.3%	15.6%	17.6%	12.8%
Children with diarrhea in past two weeks for whom treatment was sought (24-59 months)	68.8%	44.4%	76.9%	69.0%
Children with fever in the past 7 days (24-59 months)	40.2%	33.2%	33.3%	37.9%
Children with fever in past 7 days for whom treatment was sought (24-59 months)	72.1%	73.1%	84.6%	72.7%
Children who slept under a mosquito net last night	67.7%	67.7%	75.0%	88.2%

A close-up photograph of a young child with dark skin and short hair, smiling broadly and showing their teeth. They are wearing a light-colored, short-sleeved button-down shirt over a white t-shirt. In the background, the face of an adult is blurred, looking towards the camera. The overall image has a blueish tint.

SECTION

3

KEY
EVALUATION
FINDINGS

Note 1: Throughout this summary report, the Phase II baseline will be referred as 'baseline' and Phase II endline as 'endline'

Note 2: Throughout the summary report, the significant differences across sites have been highlighted with start mark (*) in the figures. Below is the notation for each significance level –

* significant at 10% significance level

** significant at 5% significance level

***significant at 1% significance level

A total of 882 households (HHs) were surveyed across the 20 project sites for the ECD&F Phase II endline evaluation. About half (49.9 per cent) of the total HHs surveyed were from Phase II baseline and the other half (50.1 per cent) of HHs were sampled from the either the same village or Cell as in Phase II baseline. At Phase II endline, children were in the age range of 0-59 months. For the purpose of reporting the Phase II endline results, we refer to children as the 'younger group' (0–23 months at endline, mean age 13.2 months) and the 'older group' (24–59 months at endline, mean age 40.5 months). Overall, nearly half (49.1 %) of the children included in the Phase II endline were in the younger age group. Similarly, just over half (50.2%) of the children were female.

3.1 Household and Caregiver Characteristics

Overall, the average household size was 5.6 individuals, the average number of children 17 years or younger was 3.1 and the average number of children under 5 years was 1.3. The average household size for the ECD&F intervention sites was 5.7 individuals, larger than that for the control sites (5.4). These averages are similar to the baseline.

Figure 3: Mean household size

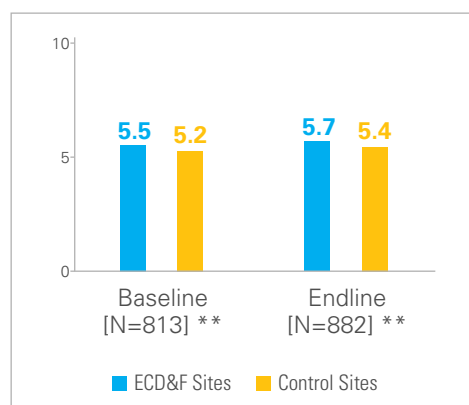
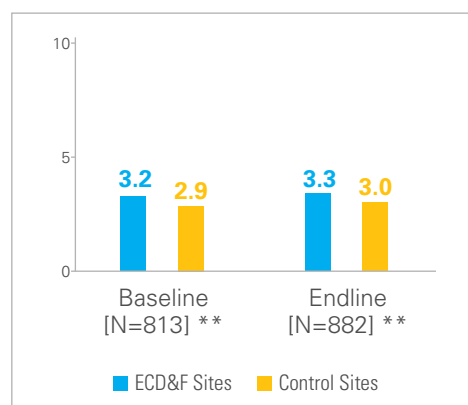


Figure 4: Mean number of children <=17 years



Most of the households (96.8%) had both biological mother and about half (50.2 %) had a second primary caregiver living in the home. The biological father lived in the home in less than half (42.6%) of the households surveyed. These proportions were comparable between the control and the intervention sites, and between baseline and endline.

Overall, biological mother was the primary caregiver in the majority of the households (84.5%) at endline, with this proportion being similar between control (86%) and intervention (83%) sites. Other primary caregivers interviewed in the endline included biological fathers (12%), and grandparents (2.7%). The mean age of the primary caregiver was consistent across sites; overall it was 34 years. In addition, majority of caregivers were married or living together as married (84.3%). This trend was also consistent across sites.

Overall, the proportion of caregivers with a primary education was 67%, with this proportion being similar across both control sites (67.7%) and ECD&F sites (66.6%). The proportion of caregivers with a secondary or higher education was higher in ECD&F sites (22.1%) than in control sites (18.4%) signifying a shift in preference for higher education in the community. About one-tenth of caregivers reported they were unable to read or write at endline which is lesser than what was reported during baseline evaluation (22.8 per cent).

Figure 5: HHs with biological father

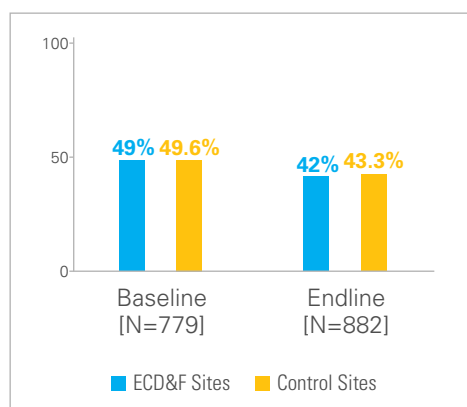


Figure 6: HHs with biological mother

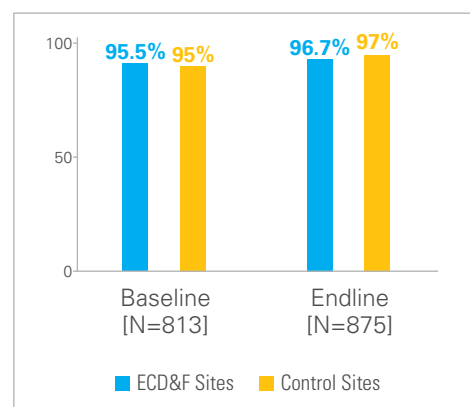
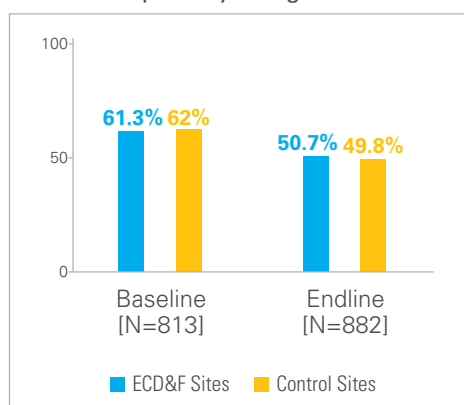
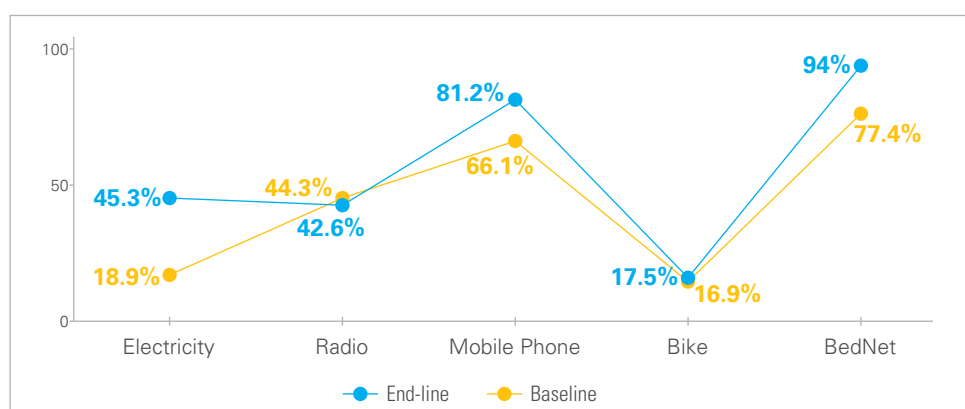


Figure 7: HHs with a second primary caregiver



3.1.1 Socio-Economic Status

Figure 8: Overall household asset ownership trends (baseline vs endline)



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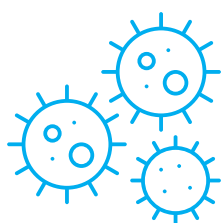
Two measures have been adopted to determine the socio-economic status of the surveyed households. The first is a standard poverty assessment based on household asset. Ownership of durable assets is assumed to reflect the household's overall resources, reflecting the poverty and socio-economic status of the households. Overall, the asset ownership level across the study sites was not significantly different at endline. Out of the surveyed households, 17.5% owned a bicycle, about half (45.3%) had electricity, about half (42.6%) owned a radio and a significant proportion (81.2%) owned a mobile phone. The bed net ownership among the households was high (94%) at endline, which is a significant rise in comparison to the baseline (77.4%).

Measures	Total (End-line)		Control site		ECD&F site	
	n	%	n	%	n	%
% of HH in Ubudehe category 1 (N= 867)	119	13.7%	55	13%	64	14.5%
% of HH in Ubudehe category 2–4 (N= 867)	748	86.3%	371	87.1%	377	85.5%

The second measure of poverty used was the community-based poverty ranking system known as Ubudehe. These rankings are used to identify the vulnerable households in the communities by comparing things like asset ownership and household labour capacity, with the system having 4 categories with Ubudehe 1 being the poorest and Ubudehe 4 with the wealthiest households. Overall, 13.7% were in Ubudehe Category 1 at endline with this proportion being similar to that in baseline (14.1%). This percentage was slightly more (14.5%) in the ECD&F Intervention sites than in the comparison sites (13%) at endline.

COVID Index

The endline survey composed of a series of nine questions to assess the impact of COVID-19 on households i.e. experience of – disturbed sleep, feeling worried, fear of hearing bad news, constantly checking the news, feeling anxious, feeling helpless, crying for no reason, feeling isolated/lonely, and feeling trapped. A score, based on a scale of frequency of these experiences, was built. This was in turn used to construct a COVID Index by dividing the combined score into five quintiles (1 to 5), with 1 indicating the least affected households while 5 indicating those households that were affected the most. The results derived from this indicator are mentioned throughout the report in the relevant sections.



3.1.2 Family Dynamics

Exposure to household conflicts and other stressors have shown to have negative consequences on children's development. At endline, a greater proportion of caregivers in the control sites reported arguing in front of their children (31.7%) or saying cruel things to each other in front of their children (32%) in comparison to the ECD&F sites (30% and 28.8% respectively). These percentages have reduced in both the sites in comparison to the baseline, signifying a gradual behaviour change. At endline, overall, 17.7%



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Figure 9: HHs with serious conflicts in last 6 months

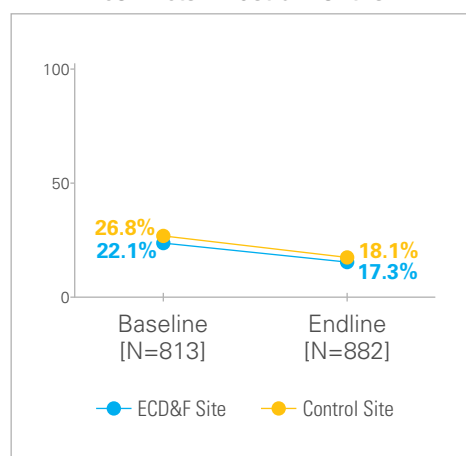


Figure 10: Caregivers who reported saying cruel things to each other in child's presence

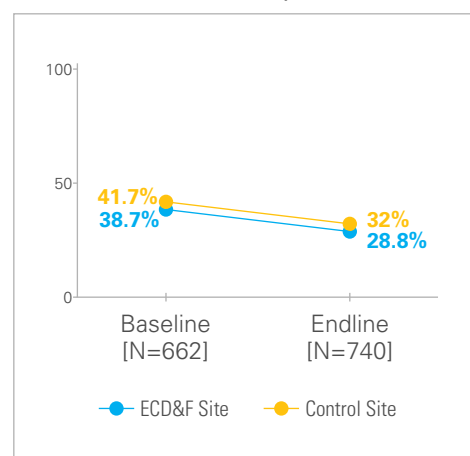
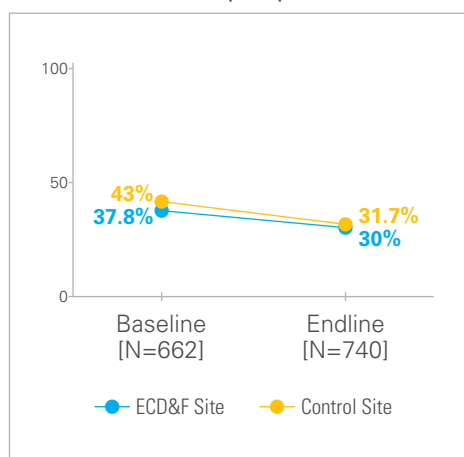


Figure 11: Caregivers who reported arguing about a relationship in presence of child



of caregivers reported having serious conflicts in the home in the past six months, with this number having reduced slightly from baseline (22.1%). The analysis of the COVID Index also revealed that households that were least affected due to COVID-19 had a lower proportion of households (6.2%) reporting having serious conflicts in the home within the past six months than those affected highest (27.3%). The increased awareness about the negative effects of quarrelling in front of children was highlighted in one of the qualitative interviews with a Mother from Ngamo.

“

The thing that has changed in the relationship between me, my husband and children, before, we were not aware that when you are telling a wife or a husband harshly in the presence of a child, we are damaging the mind of the child. Those things have been eliminated now; our children do not have a problem.

- Mother, Ngoma

IZUs have also played a pivotal role in helping families deal with household conflicts, as reflected in the comments of mothers in the community -

“

IZU help us so much because people no longer have many conflicts, they come and teach you, they also teach you the culture, all things about how you have to live at home and in community

- Mother, Ngoma

“

I think Inshuti z'Umuryango (IZU), they are there to unite people who have misunderstandings and bring them together again so that they do not fight.

- Mother, Gasabo



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3.1.3 Household Decision Making

The ECD&F programme aims to engage fathers in the child's care and inculcate the habit of participatory decision making in the household. The decision-making regarding access to ECD services, what to do when the child is sick, and what the child eats were explored at the endline.

The decision about whether the child participates in ECD services is mostly made jointly between mothers and fathers (48%). This proportion is consistent across both the intervention (47.7%) and control (48.4%) sites. This proportion at endline was similar to the baseline (47%).

The decision around what to do when the child is sick was most often made jointly between mothers and fathers (48.8%). This proportion is greater in the intervention sites (50%) in comparison to the control sites (47.7%). This proportion at endline was similar to the baseline (46%).

The decision-making around what the child eats, however, was mostly made by the mothers alone (63.5%), unlike the decisions on child's attendance in ECD and health care. This proportion was similar across the intervention (65.6%) and control (61.1%) sites.

Figure 12: Shared decision-making trends across wealth quintiles



It is to be noted that end-line involved children in the age range of 0-59 months while the baseline had children in the age range of 24-59 months only. In order to make the results more comparable, for child related indicators we have compared the older group children (24-59 months) at end-line with baseline throughout the report. The results for younger age group children (0-23 months) at the end-line is provided separately for child related indicators.

3.2 Family Care Practices

A safe and nurturing family environment at home is essential to foster children's growth and development. The ECD&F programme aims to promote positive parenting practices by encouraging caregivers to spend time with their children, making toys, and teaching their children new words, games or skills every day. The main parenting indicators analysed are - support for learning, inadequate care, and child disciplining practices.

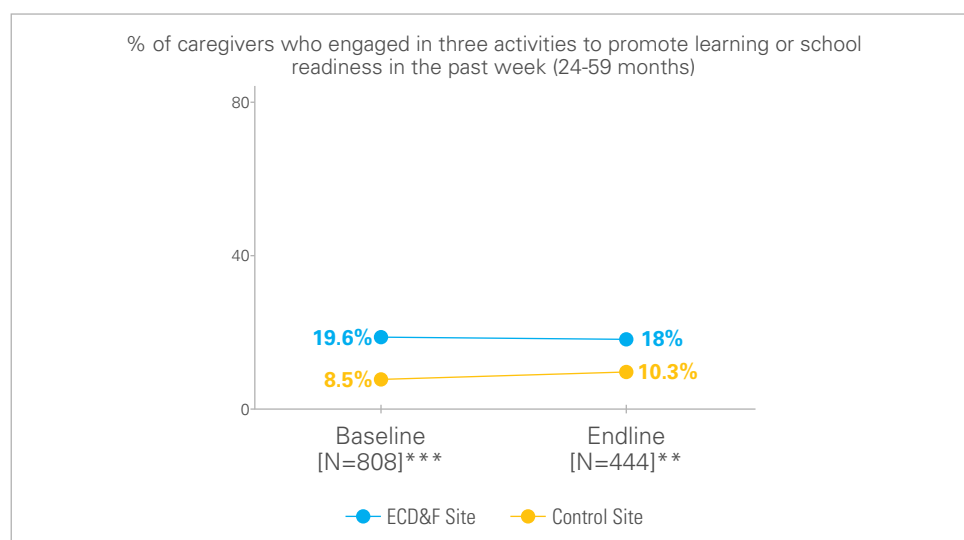
3.2.1 Support for Learning

Early learning and stimulation is an essential component that determines children's future success in school and later in life. As part of the ECD&F intervention, numerous trainings were provided to parents like Care for Child Development training package and Facts for life encompassing training on family planning, safe motherhood, hygiene promotion, proper nutrition, prevention of violence, child development and immunization. These trainings strove to improve parents' knowledge about key practices for health, nutrition and hygiene and to create a better understanding on the importance of early childhood practices.

The indicator measures the interaction of the primary caregiver with the children in three specific activities on a weekly basis: sing songs/tell stories, look at pictures in printed materials, or teach the child something new.

In the 24-59 months child age group, at endline, 18% of caregivers engaged in three activities to promote learning or school readiness in the past week in ECD&F sites in comparison to 10.3% in the control sites. This proportion

Figure 13: Caregivers who engaged in three activities in the past week

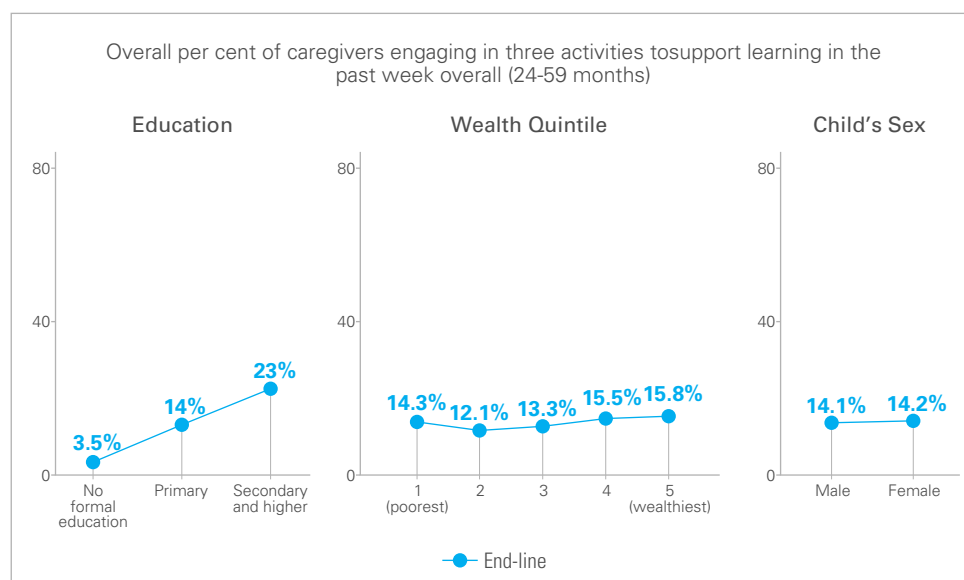


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witnessed a slight dip for the ECD&F intervention sites from baseline (19.6 %) to endline (18 %). The stagnation in the proportion between baseline and endline can be attributed to the unfavorable conditions created by COVID-19. Parents during qualitative interactions reported that they were stretched due to the impact of COVID on daily life and they were engaging less frequently with their children from the time pandemic started. Also, families who were most impacted by COVID-19 experienced more conflicts and arguments, thus parental psychological, emotional, and mental state might have impacted their engagement with children's learning activity.

Caregivers with higher education levels tended to engage more with children and this proportion was consistent across the wealth quintiles, as well as among male (14.1 %) and female (14.2 %) child groups

Figure 14: Caregivers engaging in three activities in the past week



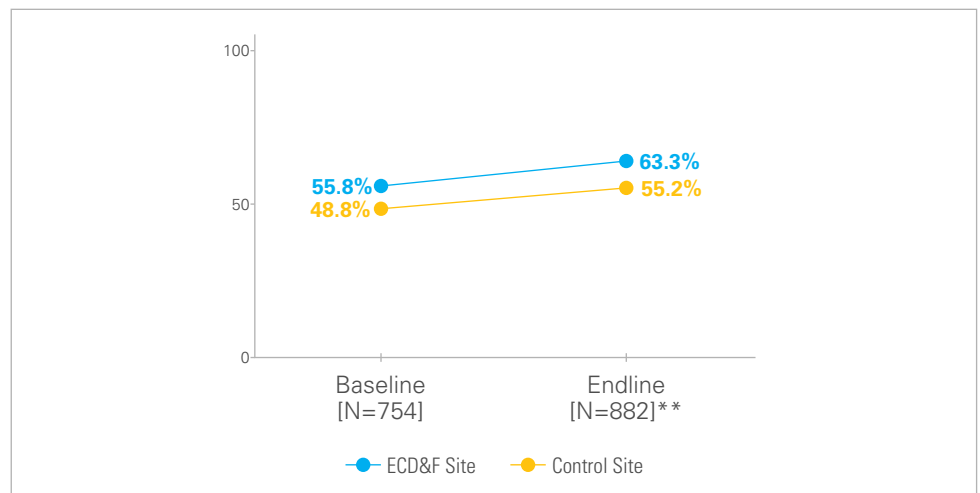
In the 0-23 months child age group, the proportion of caregivers who engaged in three activities to promote learning in the past week was slightly greater in the ECD&F intervention sites (5.8%) than the control sites (4%).

a

Engagement of fathers in daily care

One of the main focus of the ECD&F programme is to improve the engagement of father in their children's care. There was a significant rise in the percentage of children whose fathers engage in their daily care in the ECD&F sites from 55.8% in the baseline to 63.3% in the endline. This percentage also saw a rise in the control sites between baseline (48.8 %) and endline (55.2 %).

Figure 15: HHs where father engages in child's care daily



Overall, fathers from households with higher levels of education engaged more in their child's care (44.5% for caregivers with no formal education against 71.3% for caregivers with secondary or higher education). The proportion of fathers engaged in childcare also rose with a rise in the wealth quintile for the household. This change in behavior is reiterated in the views expressed in KIIs with fathers and village leaders.



There has been a change in how fathers play with their children. I believe that they all learned it from this ECD centre. For example, you could pass by one home in the village and find a child asking his father to play with him/her football or draw for him/her a duck they asked them to draw at school. All of that encourages parents to ask children what they learned every day, and to repeat that after school.

- Village Leader, Ruhango

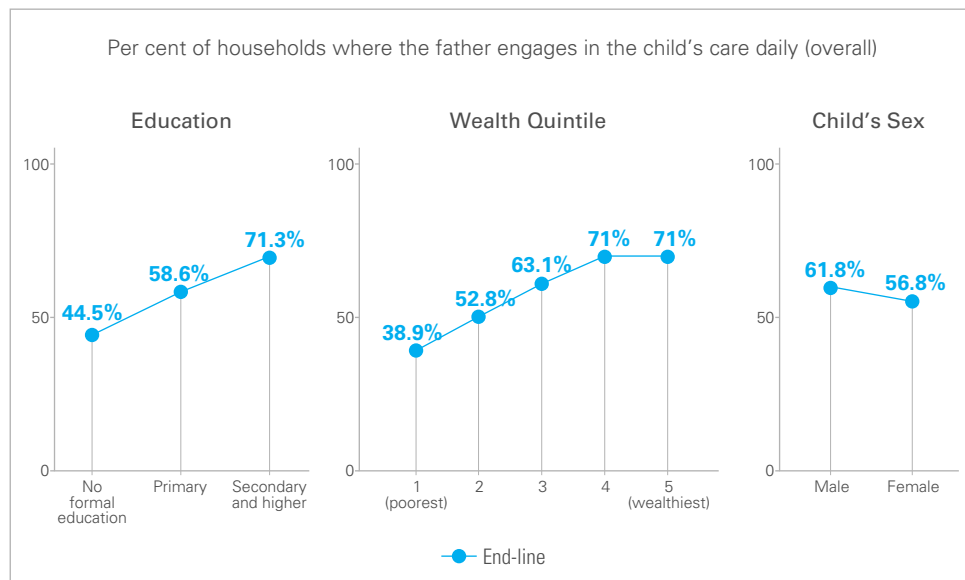


Now, a child sees his/her father and feels love for him. The way it was before, a father could come, and children could go to hide themselves in the bed. But now, on my behalf, I reach home and children become happy to see me, they come to ask me for the biscuits that I am bringing, sometimes I bring sweets and I give them, and I see that it's very good, we are in love. But in the past, we (fathers) used to go home and just go to bed.

- Father, Nyarugenge

The ECD&F programme has impacted father's engagement more from the lowest wealth quintile (42.8% in wealth quintile 1) in ECD&F sites in comparison to the households in the lowest wealth quintile in the control sites (35% in wealth quintile 1). This signifies the focus of ECD&F programme on equity.

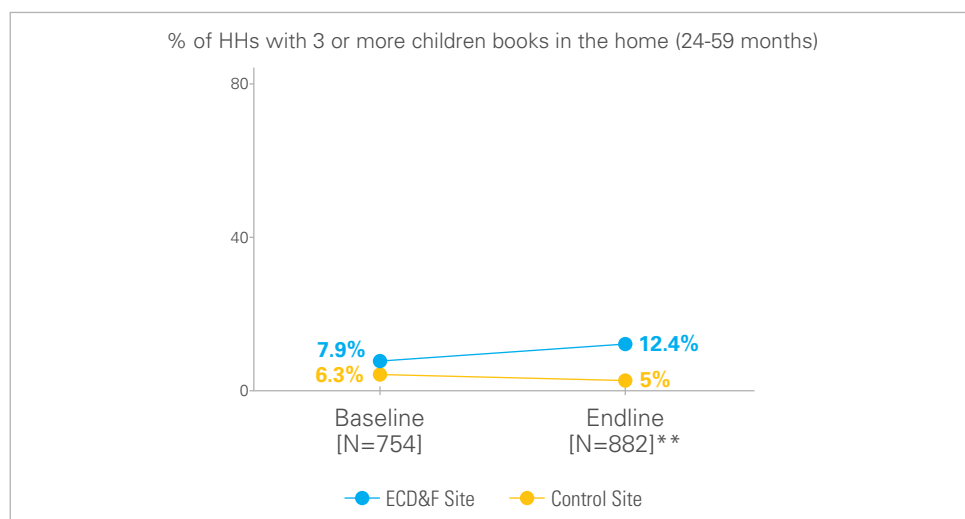
Figure 16: HHs where father engages in child's care daily



b Children's Books in Households

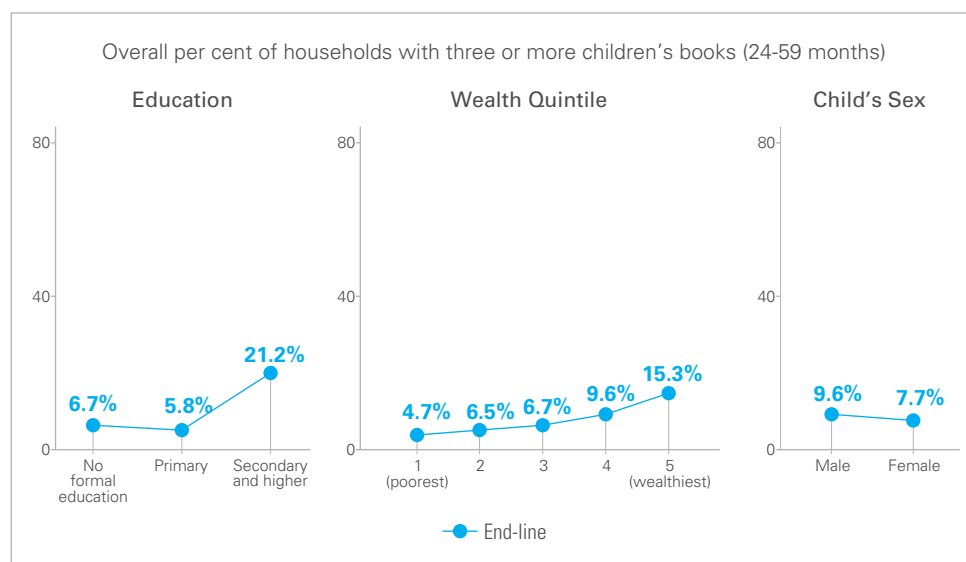
The availability of children's books is an important factor affecting future performance in school and is essential for child development.

Figure 17: HHs with 3 or more children books



For the 24-59 months child group, the ECD&F sites saw a significant rise in households with three or more books from baseline (7.9%) to endline (12.4%). The control sites witnessed a slight decrease in this proportion from baseline (6.3%) to endline (5%). For the 0-23 months age group, 7.6% of the households had 3 or more books in the home in the ECD&F sites in comparison to 5.3% of households in the control sites.

Figure 18: HHs with 3 or more children's books



A positive trend was observed between the education levels of the caregivers and households with 3 or more books. A similar trend was also observed for the wealth quintile groups. Further, comparing the proportions across ECD&F and control sites and wealth quintiles, it was found that differences in book ownership between the lowest and the highest quintile groups were more pronounced in the ECD&F sites (4.8% versus 18.3%) than in the control sites (4.6% versus 10.5%).

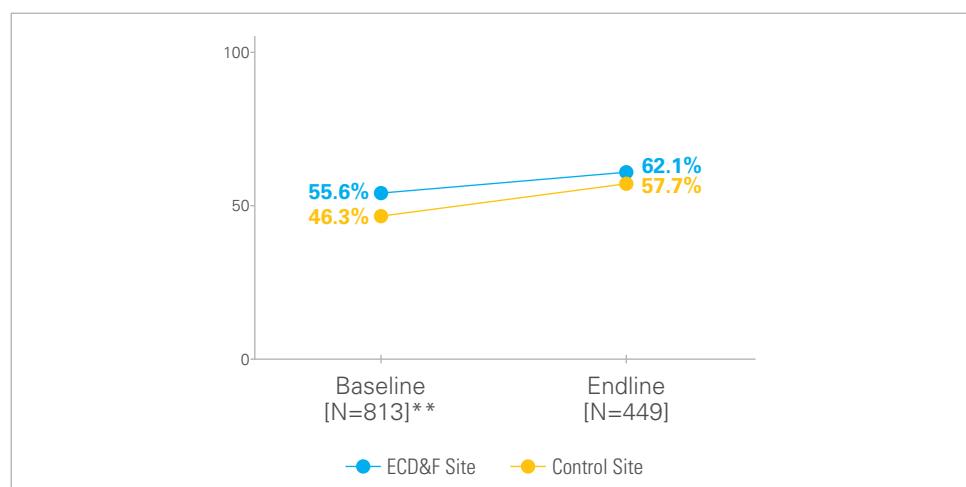


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c Households with playthings at home

Availability of playthings for the child is important for promoting stimulation and learning. The ECD&F programme not only provides access to toys but also teaches and encourages parents to make toys out of locally available materials.

Figure 19: Two or more playthings in home (24-59 months)



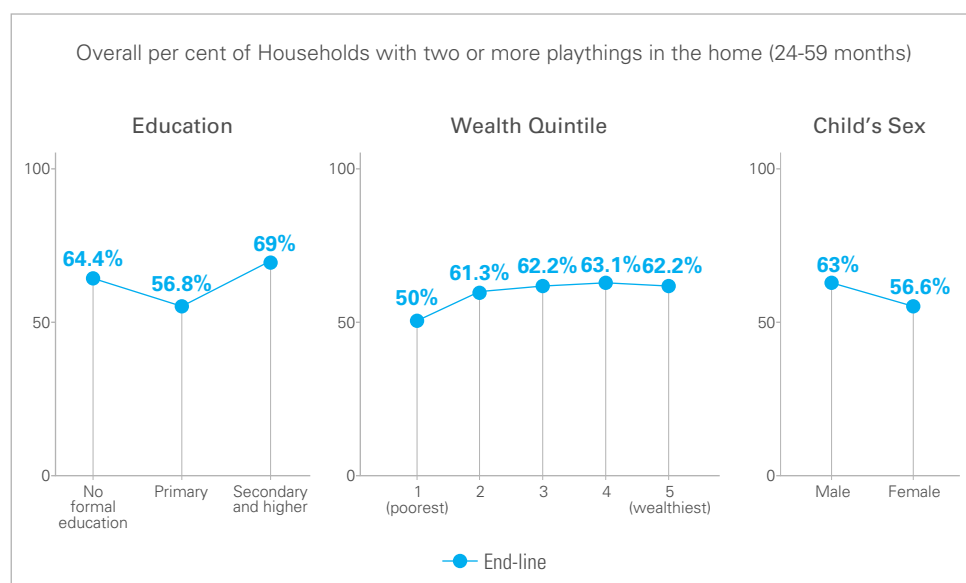
In the 24-59 months child group, overall, more than half (59.9%) of households had two or more playthings at home. ECD&F sites (62.1%) had a greater proportion of households with two or more playthings than the



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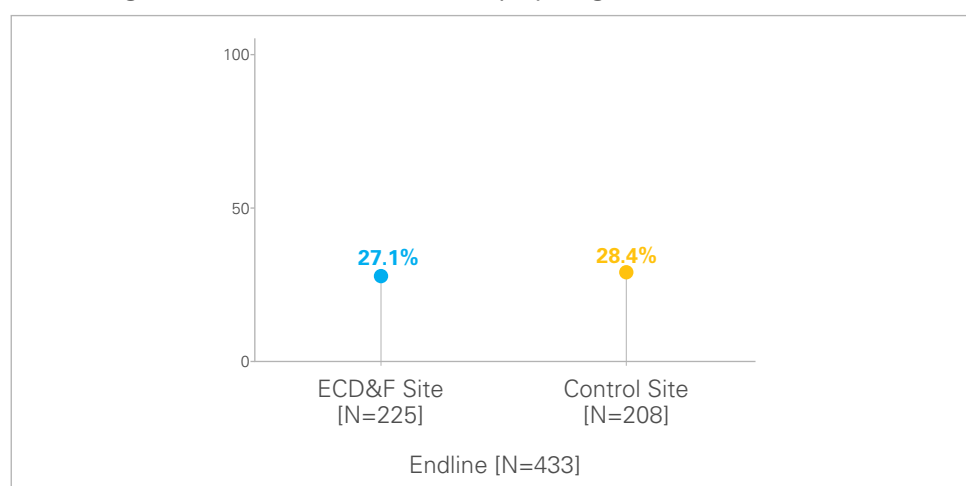
control sites (57.7%). Both the ECD&F sites and control sites witnessed a rise in the proportion of households with two or more playthings from baseline to endline, although the rise was significant for the control sites.

Figure 20: Two or more playthings in home (24-59 months)



In the ECD&F sites, the proportion of households with two or more playthings was consistent across wealth groups. This was not the case with the control sites, where wealthier households more often had two or more playthings in comparison to the poorer households. This could potentially be due to the promotion of local toy-making using household objects as part of the ECD&F programme, which aims to make toys accessible to all households regardless of socio-economic status.

Figure 21: Children with 2 or more playthings in home (0-23 months)



In the 0-23 months child group, the percentage of households with two or more playthings was similar between the ECD&F sites (27.1%) and the control sites (28.4%). In the younger child group (0-23 months), overall, wealthier households (30.2 per cent) more often had two or more playthings compared with the poorest households (20.4 per cent).

d Children with regular playmates of their age

Exposure to other children of the same age group is important for the development of social skills and is also a learning platform for the children.

At endline, overall, most of the children in the 24-59 age group had playmates of their own age (92%). This proportion was similar across all study sites and there was no significant variation based on the child's sex or household's wealth or primary caregiver's education level. For the 0-23 months child group at endline, the ECD&F sites (47.3%) had a slightly lower percentage of children with regular playmates in comparison to the control sites (52.8%).



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Figure 22: Children who have regular playmates (0-23 months)

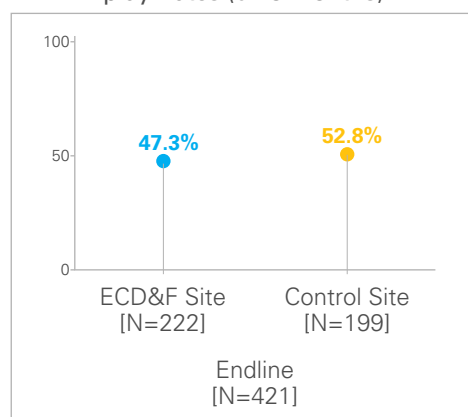
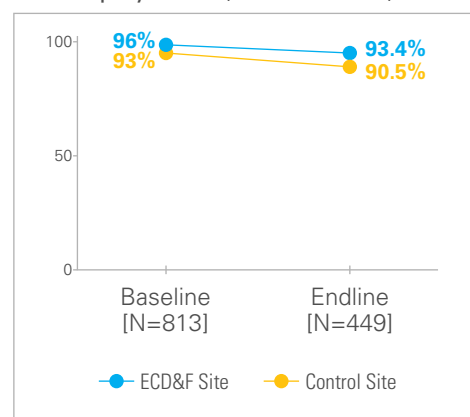


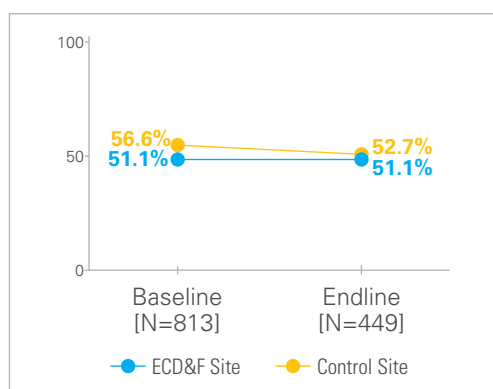
Figure 23: Children who have regular playmates (24-59 months)



3.2.2 Inadequate Care

The UNICEF MICS indicator defines inadequate care as a child who is left alone or in the care of another child less than 10 years for an hour or more in the week preceding the survey. The ECD&F programme addresses this concern by providing spaces that provide care for the child in the form of ECD&F centres, home-based care as well as mobile creches in some places.

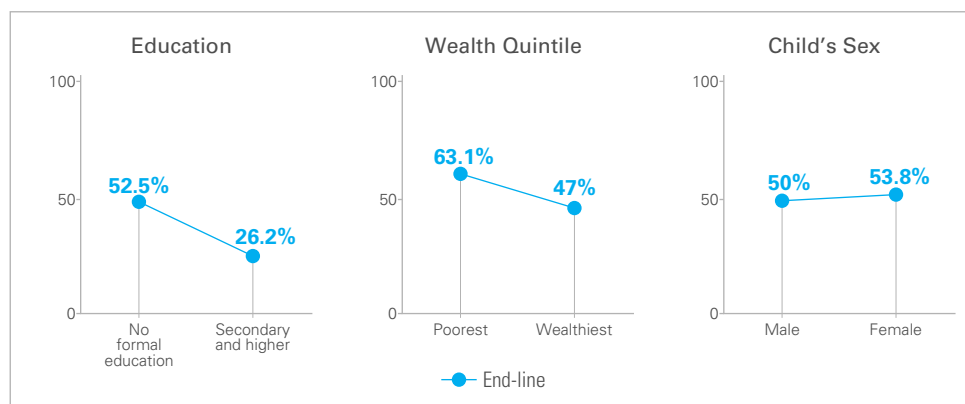
Figure 24: Children exposed to any inadequate care in past week (24-59 months)



The evaluation revealed that about half of the children in the 24-59 months child group in all the study sites were exposed to inadequate care in the week prior to the survey. While there was no change in the ECD&F sites between baseline and endline (51.1%), the control sites witnessed a

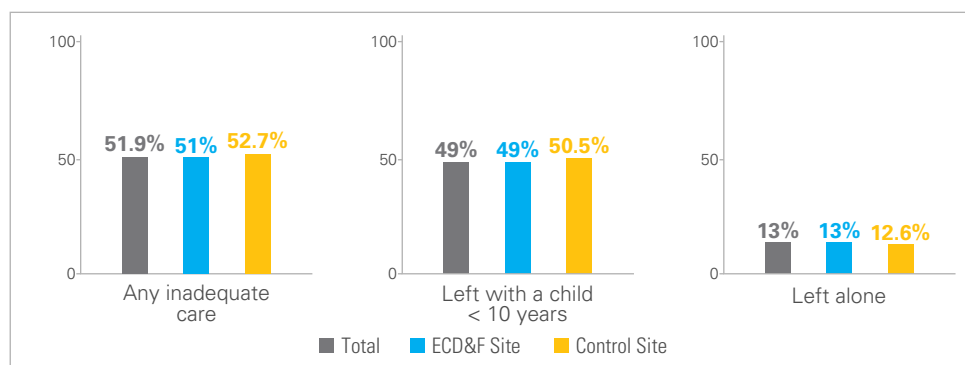
decrease in the percentage of children exposed to inadequate care from baseline (56.6%) to endline (52.7%). Inadequate care was common among the poorest households (63.1%) and among households with caregivers with no formal education (52.5%).

Figure 25: Children exposed to any inadequate care in past week (24-59 months)



Analysis of the COVID Index reveals that children in the 24-59 months group exposed to inadequate care at endline was lowest among the households which were least affected by COVID (42%) against those affected the most (57.3%). The most common type of inadequate care children was exposed to was being left alone with other children under the age of 10.

Figure 26: Type of care children were exposed to at end-line (24-59 months)



In the 0-23 months child group, a greater proportion of children in the ECD&F sites (39.1%) were exposed to inadequate care in comparison to the control sites (32.7%). The outcomes for wealth quintiles, primary caregiver's education levels and COVID Index followed the same trend as those for children in the 24-59 months age group.

At the same time, the qualitative interviews highlighted a changed perception about childcare among the community members.



Yeah, parents have started taking care of children differently. In the past, you could see a parent going to cultivate and leaving his/her children right there without caring about anything. But now they first make sure that their children are at ECD by using different means of transport.

- Village Leader, Gasabo



A parent could lock the child inside the house and go to the market, go to a certain place and say 'I will come back quickly'. Either leaving him/her sleeping, or leaving him/her awake, a child could cry, and it could cause a problem to all neighboring parents and children. Those things have been eliminated now.

- Mother, Nyarugenge

One of the most widely cited impact at the community level was the reduction in the number of children wandering around in the street after the introduction of the ECD&F programme.



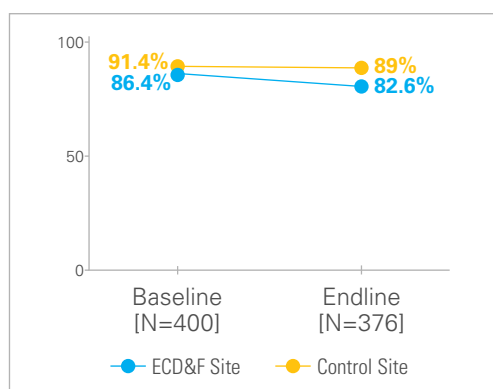
Children used to be wandering on the streets doing nothing, but now they have been able to go to school and are no longer on the streets. Every child that reaches 3 years of age is welcomed to school therefore children no longer have to be wandering doing nothing.

- Mother, Rwamagana

3.2.3 Child Discipline

The UNICEF MICS Child Discipline module was used to evaluate children's exposure to harsh disciplinary practices and abuse. Children's protection from the use of violent disciplining practices is one of the major aims of the ECD&F programme, with a community-based approach adopted to promulgate the essential trainings and knowledge among the caregivers.

Figure 27: Children exposed to any violent discipline (24-59 months)

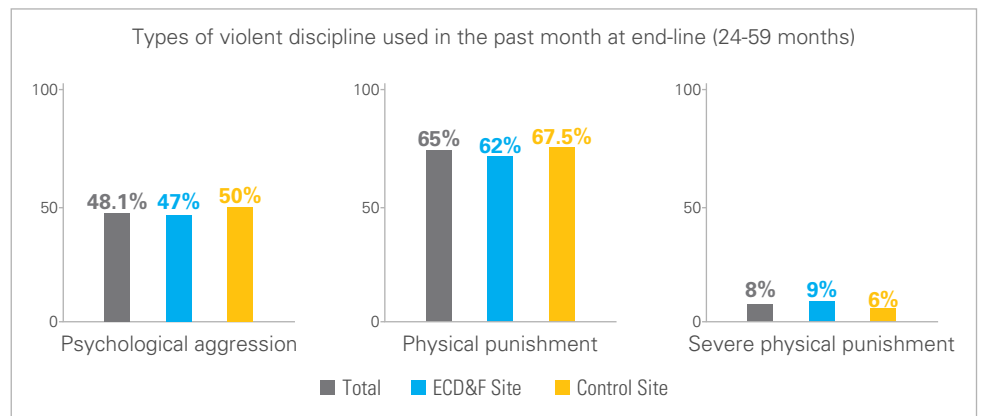


Exposure of children in the 24-59 months age group to violent discipline was high across all sites at endline and did not vary as per the household wealth quintile or primary caregiver's education. Overall, 85.6% of older children were exposed to any violent discipline at endline, with the proportion being lower in the ECD&F sites (82.6%) than the comparison sites (89%). Female children (90.1%) were more exposed to violent discipline than their male counterparts (81.4%). There was a slight decline in the proportion of children exposed to violent discipline from the baseline to endline in both the ECD&F sites and the control site.



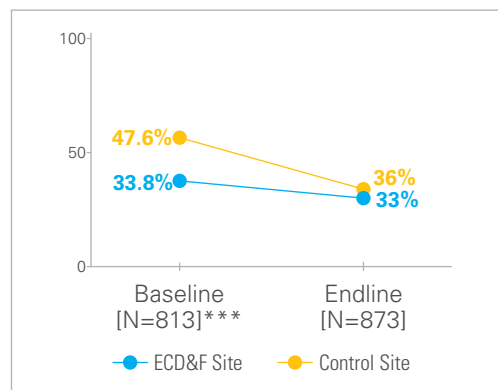
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Figure 28: Types of violent discipline used in the past month



Analysis of the COVID Index also reveals that children (24-59 months) in households that were least affected by COVID were less exposed to violent discipline (81.8%) in comparison to households affected most by COVID (90.8%). The use of severe physical punishment was rare (8% overall) while the most common method of violent discipline was physical punishment (65%).

Figure 29: Caregivers who believe physical punishment is necessary to raise a child well



The evaluation also revealed that the proportion of caregivers who believe in the use of physical punishment to raise a child was similar in ECD&F sites across baseline (33.8%) and endline (33%), while a sharp dip was witnessed in the control sites (from 47.6% in baseline to 36% at endline). Qualitative experience with the caregivers and local stakeholders has shown that parents continue to use physical methods of punishment due to their belief that this is the only way of redirecting their children.

“

They (parents) too see that its (beating) a bad thing. They continue to practice beating a child when the child makes mistakes so that he/she won't do it again.

- Community Health Worker

At the same time, they have noted a change in their beliefs about using physical punishment due to the ECD&F programme, mainly due to the training and support that they received from the IZU volunteers.



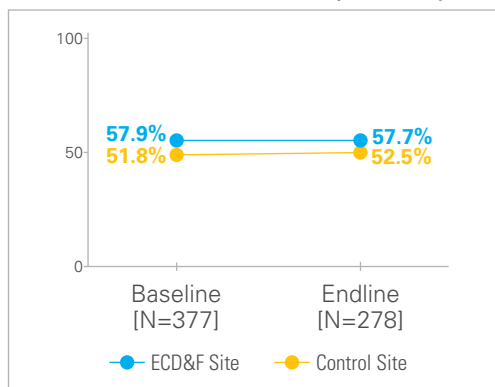
Things have changed because, in the past I used to beat them, and it affected their mental health. But now I no longer do that, rather I calm them and then have some talk which helps them a lot more than beating them instead. We had different meetings, and they (IZUs) taught us about that. They taught us that we don't have to beat kids for them to understand, rather we should talk to them and calm them. Things are changing slowly.

- Mother, Nyamagabe

3.3 Child Development – ECD Index

The ECD Index examines four domains of development: literacy and numeracy, physical, social-emotional, and learning among children. Children aged 36-59 months are considered developmentally on track if they are on track in at least three of these four domains.

Figure 30: Children 36-59 months developmentally on track on ECD



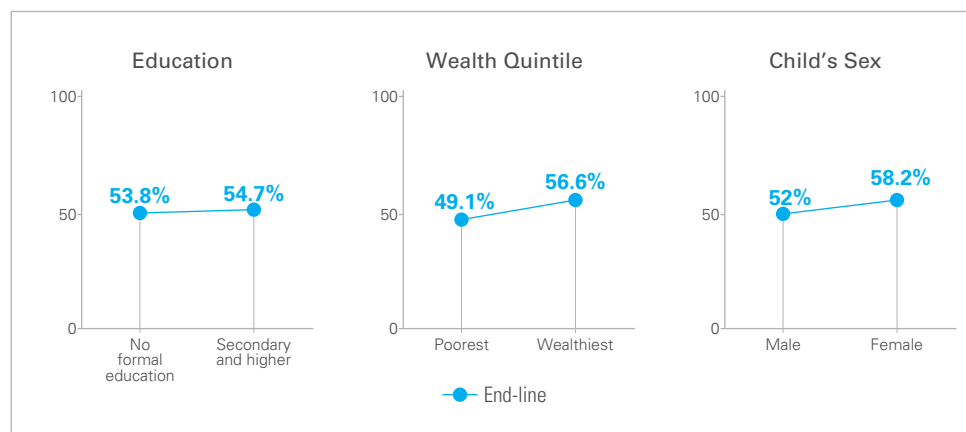
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For the 36-59 months child group, a slightly greater proportion of children (57.7%) were developmentally on track in the ECD&F sites than in the control sites (52.5%). In both the sites, girls (52.8%) were more likely to be developmentally on track than boys (52%), with the disparity being more prevalent in the control sites (46.5 per cent of boys and 58.6 per cent of girls) than in ECD&F sites (57.5 per cent of boys and 57.8 per cent of girls across ECD&F sites). Children from the wealthier quintiles (56.5%) were more likely to be developmentally on track than those from the lowest quintiles (49.1%). A similar trend was observed for the COVID Index as well (60% of children were developmentally on track among households those were affected least by COVID versus 44.2% for most affected).

Examining the domains of ECD Index, it was found that only 14% of children were developmentally on track in literacy-numeracy skills and 56% were developmentally on track for social-emotional skills. The poor performance on literacy-numeracy is an area of concern however, this has improved from baseline (7 per cent) to end-line (14 per cent) and is almost double the proportion of what was found in the DHS - 7.0 per cent of children nationally

and 5.2 per cent in rural areas developmentally on track. Qualitative interviews with parents revealed that due to the closure of schools and ECD centers amid the COVID pandemic, parents were worried about their children missing out on studies and were feared that they would forget their lessons.

Figure 31: Children ages 36-59 months who are developmentally on track on ECD Index



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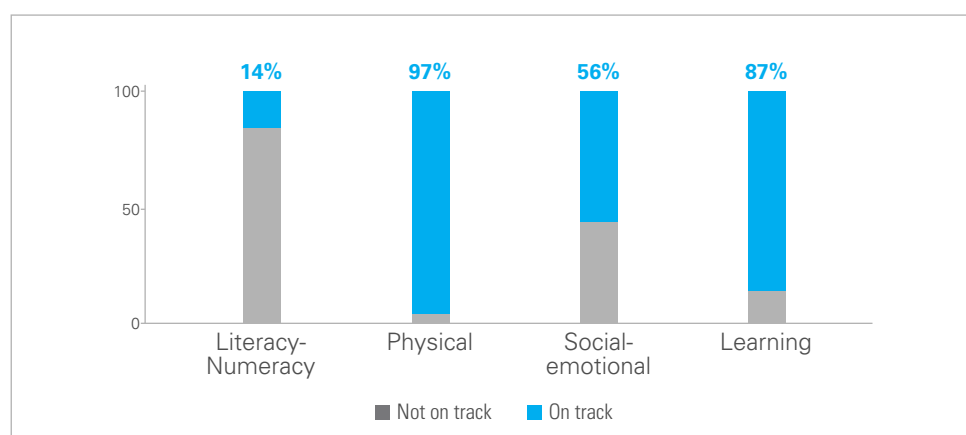
The qualitative interviews also brought to light changes in children's behaviour that the parents and community members observed. Children who attended ECD were more social, confident and open to interactions. They were disciplined, obedient and respectful, as noted by a mother from Nyarugenge.



When I brought my child on the first day, he was very shy, he couldn't play with other children and I was afraid for his education. After a few months, he was sharp and socializing with other children at school and in the neighbourhood! I wasn't expecting him to learn that from school.

- Mother, Nyarugenge

Figure 32: Children developmentally on track on ECD Index by domain

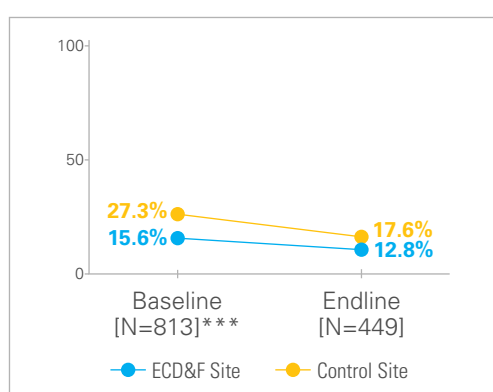


3.4 Child Health

3.4.1 Prevalence and Care-seeking for Diarrhoea

Diarrhoea is among the leading causes of mortality for children under-5 globally. In Rwanda, it is the leading cause of death, accounting for nearly one in four deaths of children under-5. At the end-line, the prevalence of diarrhoea was estimated by asking caregivers whether their child under-5 years old had an episode of diarrhoea in the two weeks prior to the survey. In cases where caregivers reported that the child had diarrhoea, a series of questions were asked about treating the illness.

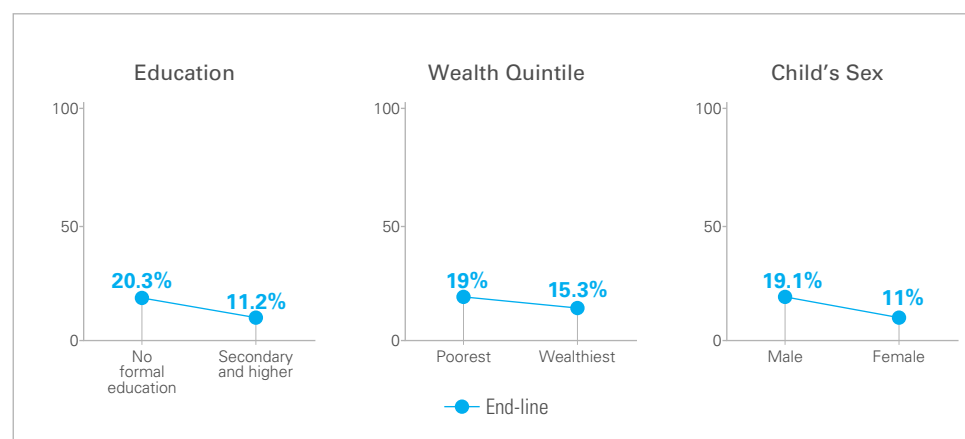
Figure 33: Children with diarrhoea in past two weeks (24-59 months)



At endline, control sites (17.6%) had a higher prevalence of diarrhea in comparison to the ECD&F (12.8%) sites for children in the 24-59 months age group. At the same time, the control sites witnessed a significant reduction in percentage of children with diarrhea in the past two weeks against a moderate reduction for the ECD&F sites. It was also found that households which had caregivers with secondary or higher education (11.2%) had a lower prevalence of diarrhea in comparison to households which had caregivers with no formal education (20.3%). Male children (19.1%) were also more likely to suffer from diarrhea in comparison to female (11%) children.

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Figure 34: Children with diarrhea in past two weeks (24-59 months)



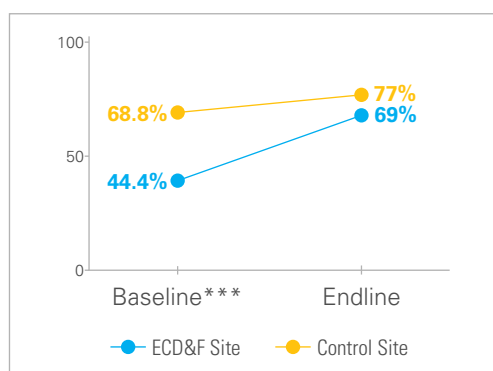
For children in the age group 0-23 months, the prevalence of diarrhoea was greater in comparison to the older group at endline, in both the control sites (27.4%) and ECD&F sites (24.9%). Male children (30%) in the younger group were more likely to have diarrhoea than female children (23%). Children in the younger age group from families in lower wealth quintiles (36.5%) were slightly more likely to have diarrhoea than children from wealthier families (15.8%).

As part of the ECD&F programme, Community Health Workers are trained on ways to identify and prevent common childhood illnesses, including diarrhea.



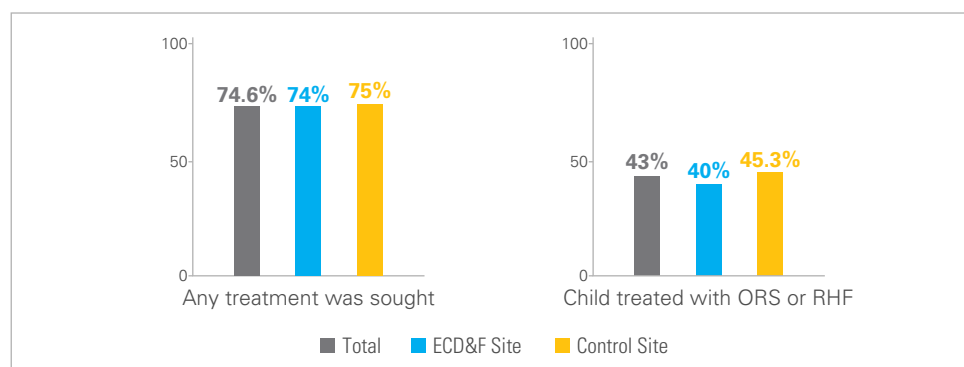
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Figure 35: Children with diarrhea for who treatment was sought (24-59 months)



In ECD&F sites, there was a significant rise in the percentage of children (24-59 months) with diarrhea for whom treatment was sought from 44.4% in the baseline to 69% at the endline. However, this proportion was higher in the control sites both in baseline and endline. In the younger group (0-23 months), the proportion of children for whom treatment was sought was slightly greater in the ECD&F sites (76.8%) than in the control sites (73.7%) at endline. For children under 5, the use of recommended treatments for diarrhea was low, as can be seen in the graph.

Figure 36: Care-seeking for diarrhoea in past two weeks (0-59 months)



3.4.2 Prevalence and care-seeking for fever

In the 24-59 months child group, there was a rise in the proportion of children who had fever two weeks preceding the interview from baseline (33.2%) to endline (38%) in the ECD&F sites while this proportion saw a dip in the control sites (40.2 % at baseline to 33.3 % at endline). The percentage of

children in the older age group for whom treatment was sought for fever was similar between baseline (73.1%) and endline (72.7%) in the ECD&F sites while there was an increase in this proportion in control sites from baseline (72.1%) to the endline (84.6%).

Malaria is one of the leading causes of mortality for children under the age of 5 in Rwanda. The National Malaria Control Programme has achieved some success, with a nearly 90% reduction in deaths from Malaria between 2005 and 2011. In ECD&F sites, 88.2% of children slept under a mosquito net at endline, an increase from 67.7% in the baseline.

Figure 37: Children with fever in the past two weeks (24-59 months)

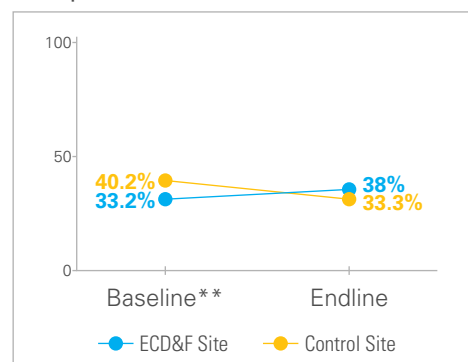


Figure 38: Children with fever for whom treatment was sought (24-59 months)

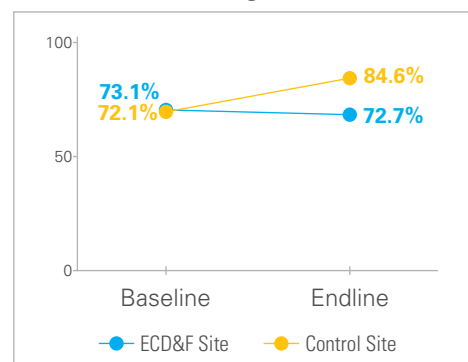
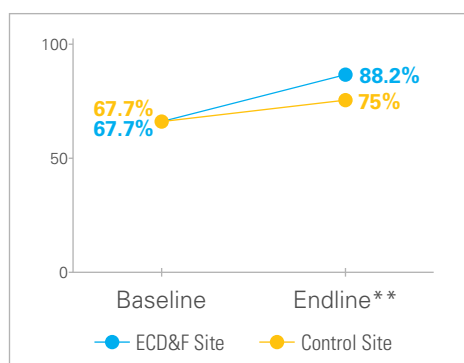


Figure 39: Children who slept under a mosquito net last night



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3.4.3 Prevalence and care-seeking for cough

Figure 40: Children with cough in past two weeks

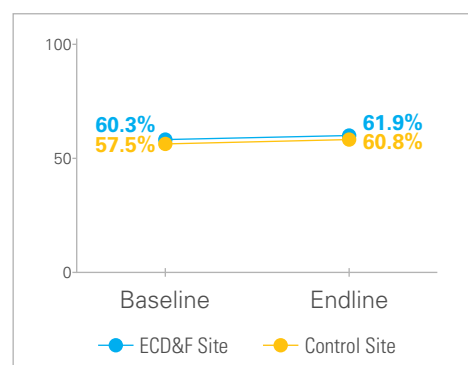
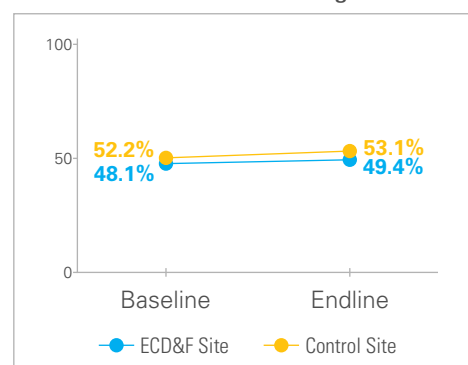


Figure 41: Children with cough for whom treatment was sought



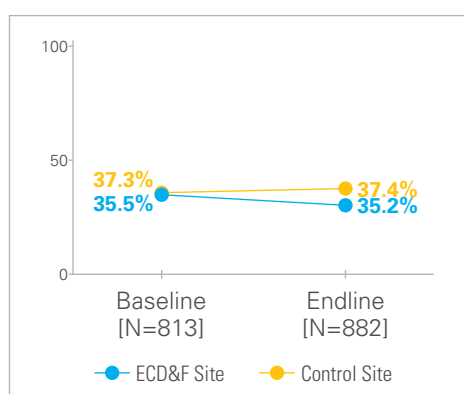
About half (51.4%) of the children in the older age group surveyed had cough in the past two weeks before the survey. The proportion was slightly higher

in the control sites than in the ECD&F sites. There was no variation in the results from baseline to endline. Among the younger age group as well, the proportion was similar across ECD sites (61.9 %) and control sites (60.8%). Treatment was sought for slightly more than half (61.2% overall) of the children who had a cough in the past 2 weeks.

3.5 Caregiver Wellbeing

Caregiver wellbeing, especially poor parental mental health, can have dire consequences on the development outcomes and nutritional status of the children. While the ECD&F programme doesn't have any intervention designed to alleviate caregivers' distress, an assessment of the same is essential in interpreting the child outcomes. The Hopkins Symptom Checklist (HSCL) was used to measure the caregiver's symptoms of anxiety and depression.

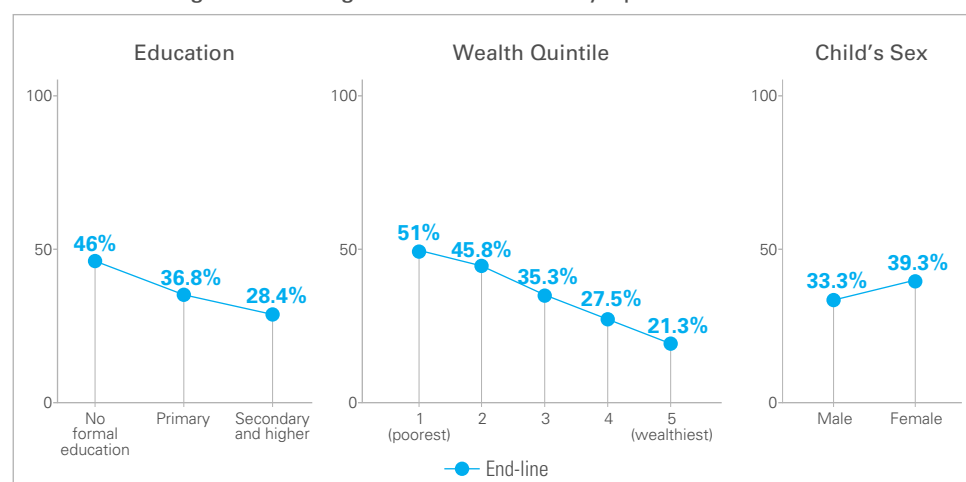
Figure 42: Caregivers with elevated levels of depression and anxiety symptoms



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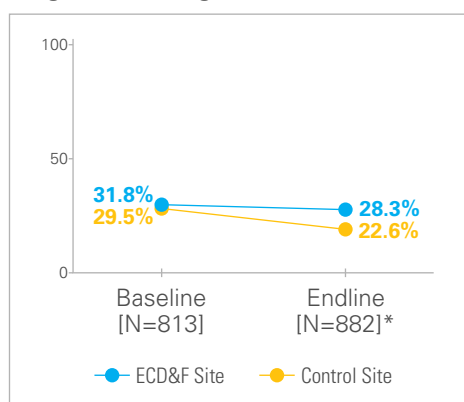
As per the HSCL index, around 35.2% of caregivers in the ECD&F sites had elevated levels of depression and anxiety symptoms against 37.4% in the control sites, with the percentage being consistent at baseline and endline. Caregivers from poorest households and those with no formal education scored high on the HSCL (50.9 per cent and 46 per cent, respectively), while 21.3 per cent of those in the wealthiest quintile and 28.4 per cent of those with secondary education or higher scored above the cut-off.

Figure 43: Caregivers with elevated symptoms of distress



Further, analysis with respect to the COVID index revealed that the proportion of caregivers who met all the HSCL criteria was lower among households that were least affected due to COVID (8%) in comparison to households that were affected the highest (75.3%).

Figure 44: Caregivers who use alcohol



ECD&F sites had a greater proportion of caregivers who used alcohol (28.3%) than in the control sites (22.6%) at endline. The reduction in the proportion from baseline to endline was also greater for the control sites than the ECD&F sites.



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3.6 Nutrition

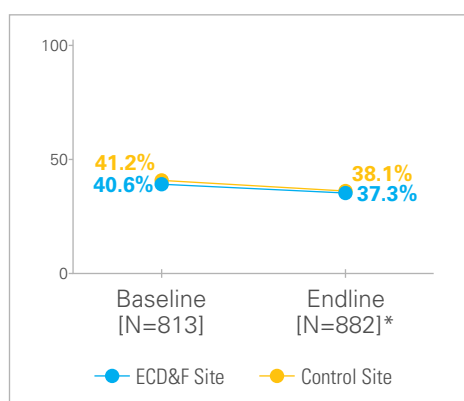
3.6.1 Nutrition Status of Children

Nutrition is an essential component for children's growth and development. Malnutrition among children contributes to poor health and is a major contributor to child mortality. At endline, three indicators have been used to measure the nutritional status among children: Stunting (height/length-for-age), wasting (weight-for-age) and underweight (weight-for-height/length).

a Stunting

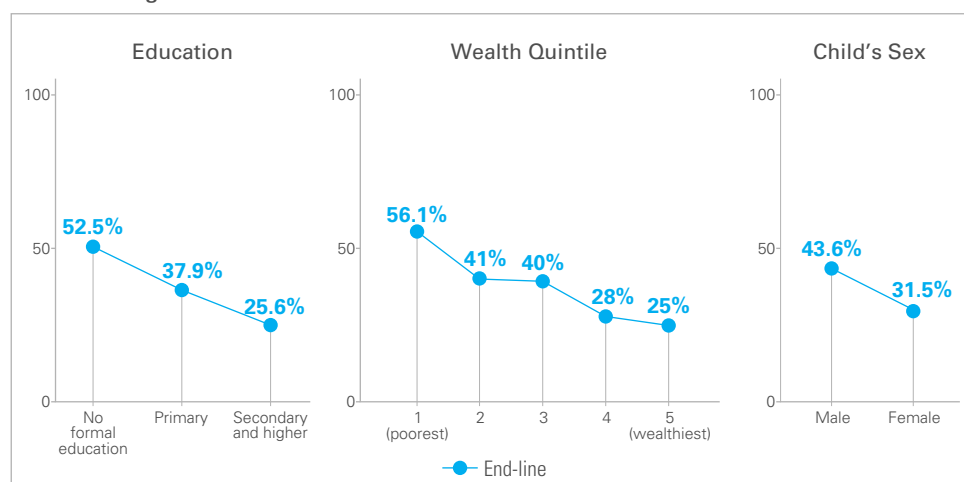
For the 24-59 months group, the rate of stunting was high at endline, in both the ECD&F (37.3%) and control (38.1%) sites. Both the sites witnessed a

Figure 45: Children who are stunted (24-59 months)



slight decline from baseline to the endline. Analysis reveals that boys (43.6%) were more likely to be stunted in comparison to girls (31.5%). Similarly, children in households with caregivers with no formal education (52.5%) are more likely to be stunted than those in households where caregivers have a secondary or higher education (25.6%). This pattern is also visible across wealth quintiles, with the poorest households (56.1%) having a greater rate of stunting among children than the wealthiest households (25%).

Figure 46: Children 24-59 months old who are stunted at end-line



The ECD&F programme played a pivotal role in educating parents about ways to improve the nutrition status of their children, as noted by a mother from Gicumbi.



When they (Community Health Workers) find that your child is stunting or losing weight, they inform you and advise you on how to prevent that. Then you increase the effort and find a way to feed him enough diet so that he does not continue to lose weight.

- Mother, Gicumbi

In the 0-23 months child group, the prevalence of stunting at endline was 30.7% overall. The rates were similar in the control (30.7%) and ECD&F sites (30.6%). For the younger group as well, the rates of stunting were higher among male (33.8%) children than for female (27.7%) children. Findings revealed that children from the poorest households were more likely to be stunted (44%) than those from the wealthiest households (17.6%). Households with caregivers with no formal education (32%) had a greater proportion of stunted children than those with caregivers who had secondary or higher education (19.8%).

Figure 47: Children 24-59 months old who are stunted

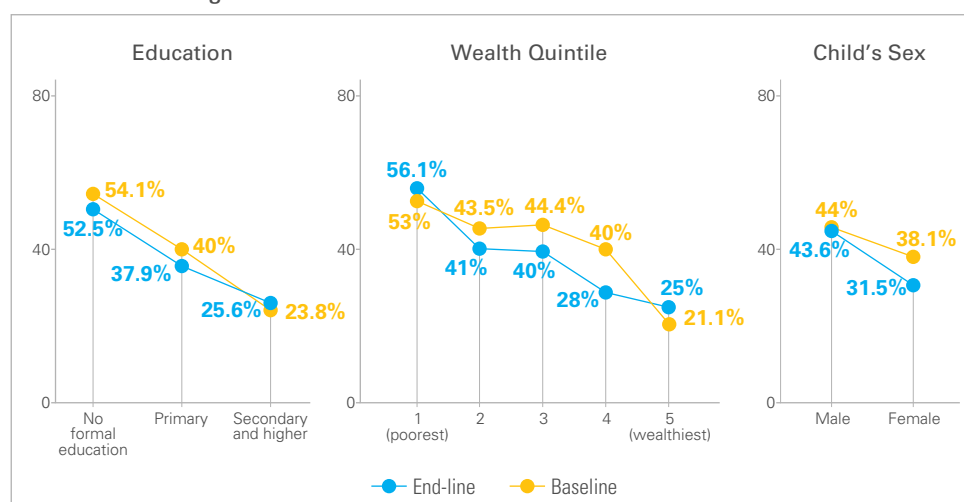
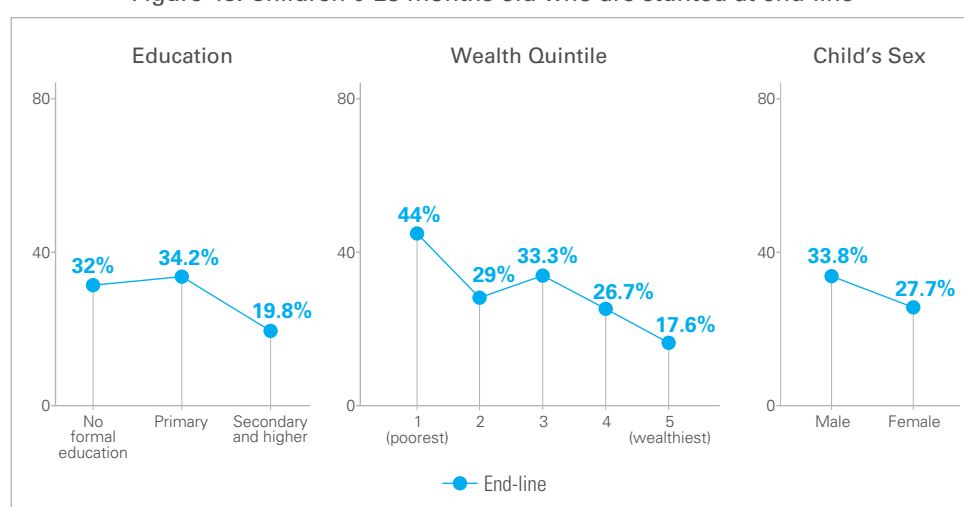
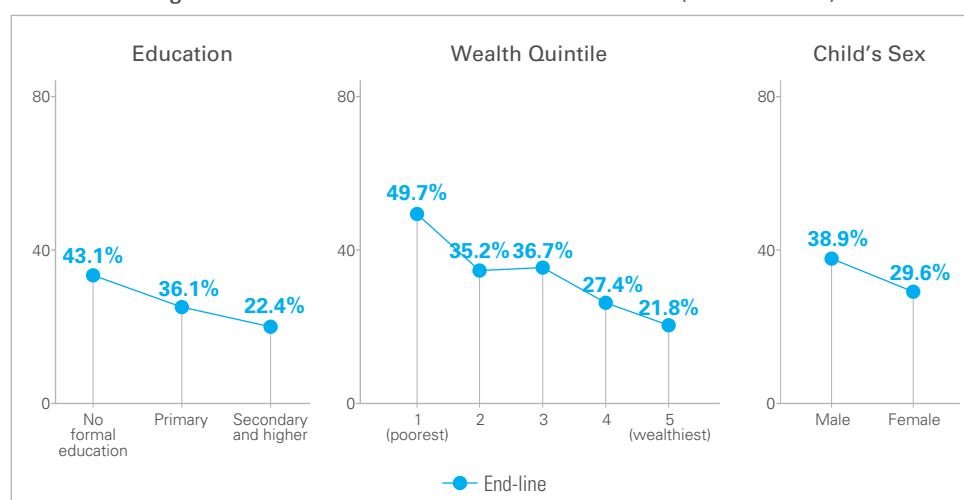


Figure 48: Children 0-23 months old who are stunted at end-line



For the combined child age group 0-59 months, the overall rate of stunting was 34.3% at endline. This percentage was similar in the control (34.5%) and ECD&F (34%) sites. The trends with regards to sex of the child, wealth quintiles and education level of the caregivers were similar to those for the two disaggregated age groups, as seen in the graphs.

Figure 49: Children who are stunted at endline (0-59 months)



b Wasting

For the 24-59 months child group, 2% of the children were found to be wasted, with the proportion being similar in both control (1.83%) and intervention sites (2.2%). Wasting prevalence at endline was similar to baseline.

For the 0-23 months child group, overall, 2.58% of the children were found to be wasted, with the percentage being slightly greater in the control sites (2.93%) than in the ECD&F sites (2.25%).

For the combined age group 0-59 months, overall, 2.3% of the children were wasted. This proportion was similar between the control (2.4%) and ECD&F sites (2.2%). Disaggregating by severity, the rates of moderate and severe wasting were consistent across study sites, as can be seen in the graphs below.

Figure 50: Children who are wasted (24-59 months)

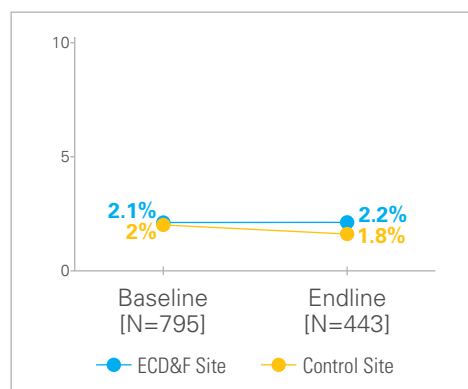
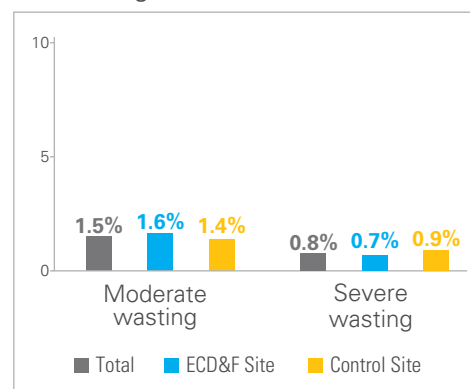


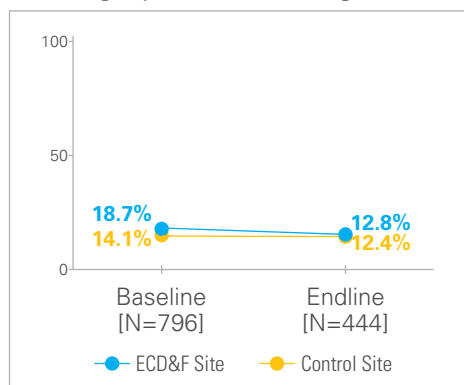
Figure 51: Wasting prevalence among children (24-59 months)



c Underweight

For the 24-59 months child group, overall, 12.6% of children overall were underweight at the endline, with the proportion being consistent across control (12.4%) and ECD&F sites (12.8%). This proportion witnessed a significant reduction in the ECD&F sites from baseline to endline. The corresponding decline in the control sites was moderate (from 14.1% to 12.4%). There was no difference in the rates of underweight between male

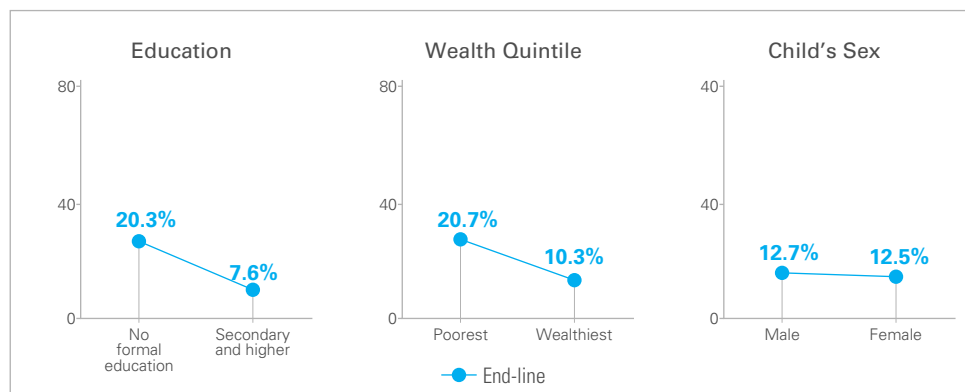
Figure 52: Underweight prevalence among children (0-23 months)



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and female children at endline. For the poorest households the percentage of underweight children (20.7%) at endline was double than that for the wealthiest households (10.3%). A wide disparity was also found in the proportion of underweight children between households that had caregivers with no formal education (20.3%) and those that had caregivers with secondary and higher education (7.6%). The results when disaggregated by severity showed that the rates of moderate and severe underweight were consistent across sites.

Figure 53: Children 24-59 months who are underweight



For the 0-23 months child group, an overall 8.2% of children were underweight at endline. This proportion was consistent among both the ECD&F sites (8.11%) and control sites (8.29%). Due to a very small number, disaggregation of the statistic by sex of child, wealth quintile and primary caregiver's education level was not possible.

Figure 54: Underweight prevalence among children 0-23 months

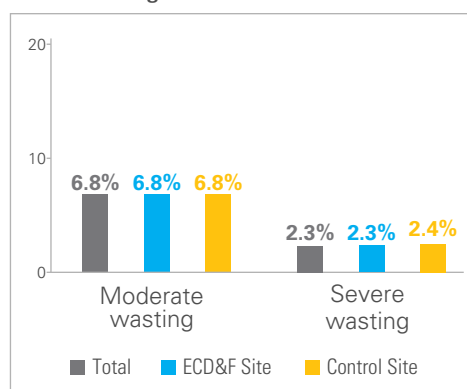


Figure 55: Underweight prevalence among children 24-59 months

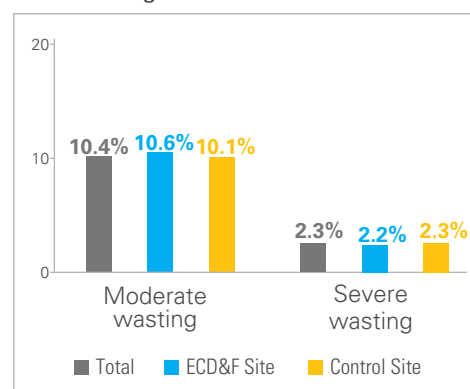
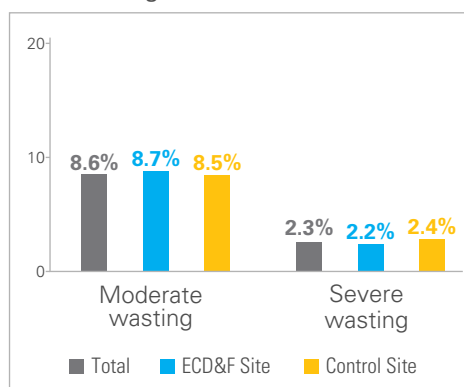
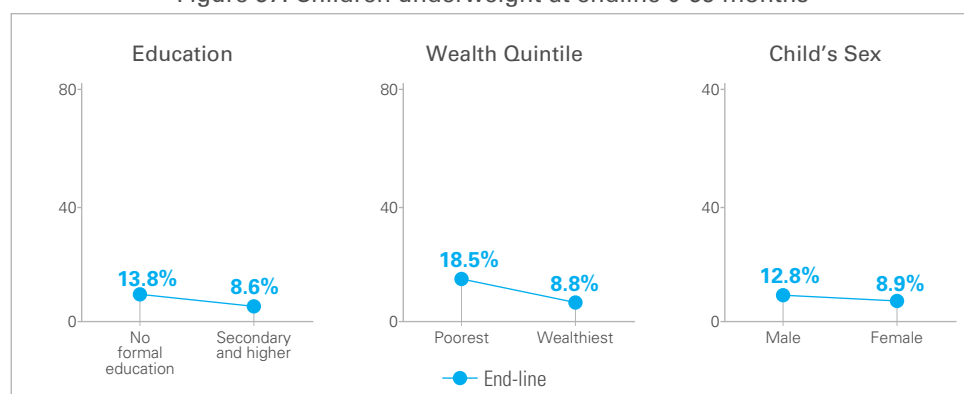


Figure 56: Underweight prevalence among children 0-59 months



For the combined 0-59 months child group, overall, 10.9% of children were underweight, with the proportion being consistent across ECD&F (10.9%) and control (10.8%) sites at endline. There was a moderate difference in the underweight prevalence between male child (12.8%) and female child (8.9%). The poorest wealth quintile had a greater proportion of underweight children (18.5%) than in the wealthiest households (8.8%). Similarly, the households which had caregivers with no formal education (13.8%) had a greater proportion of underweight children than those caregivers who had secondary and higher education (8.6%).

Figure 57: Children underweight at endline 0-59 months



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3.6.2 Feeding Practices

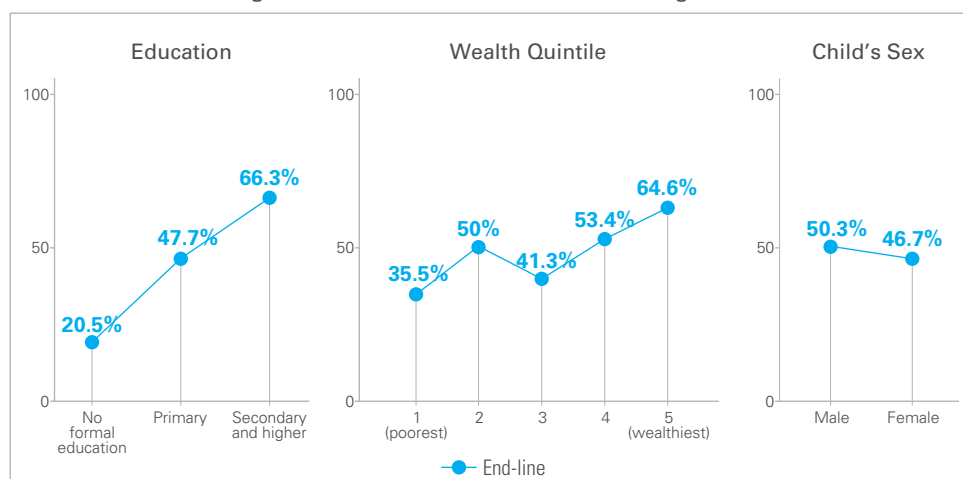
Good feeding practices are one of the important drivers of children's nutritional status. The dietary diversity for 6-23 months children was evaluated at endline using a checklist of food groups specified below:

- Breast milk;
- Grains, roots and tubers;
- Legumes and nuts;
- Dairy products (milk, yogurt, cheese);
- Flesh foods;
- Eggs;
- Vitamin-A rich fruits and vegetables; and
- Other fruits and vegetables

About 48.7% of children in ECD&F sites and 48.3% of children in the control sites met the minimum dietary diversity criteria. Overall, more male children (50.3%) met the minimum dietary diversity criteria in comparison to female children (46.7%). With regards to the wealth quintile, 35.5% of the children in the poorest quintile met the dietary diversity criteria against 64.6% in the wealthiest quintiles. Similarly, households where the caregiver had no formal education had a lower percentage of children who met the criteria (20.5%) in comparison to those where the caregiver had secondary and higher education (66.3%).

In the qualitative interviews, parents discussed how the training sessions with CHWs and ECD workers helped them prepare better meals and improve feeding practices for their children.

Figure 58: 6-23 months children meeting MDD



“

We never thought vegetables were such an important food that should accompany every meal. However, due to the positive mindset acquired here in this ECD, we learned that vegetables have to be included in every meal and fruits as well (if you manage to get them), which makes me say that understanding of nutrition has really changed.

- Mother, Gasabo



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3.6.3 Micronutrient supplementation and Vitamin-A

The caregivers were asked if the index child received micronutrient supplementation over the past seven days and Vitamin-A during the past six months.

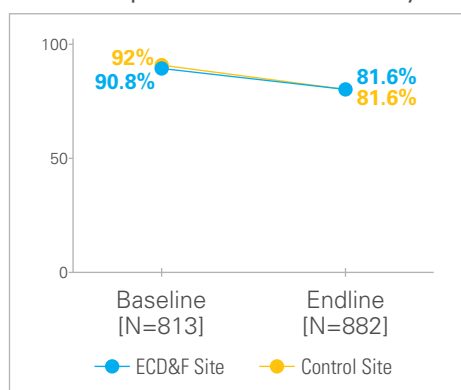
- **Micronutrient Supplementation** – About half (47.6%) of 6-23 months children received micronutrient supplementation over the past seven days, with the proportion being almost similar across ECD&F sites (46%) and control sites (49.4%).
- **Vitamin-A Supplementation** – Overall, 87% of 6-59 months children received Vitamin-A during the past six months, with the proportion being almost similar across ECD&F sites (89%) and control sites (85%).

3.6.4 Food Consumption related coping strategies

The evaluation used items from Rwanda's Comprehensive Food Security and Vulnerability Analysis to evaluate household's food insecurity. A set of 5 carefully selected questions were used to measure the extent of food insecurity.

Overall, about 8 in 10 households were experiencing food insecurity at endline. The proportion of households experiencing food insecurity significantly reduced from the baseline to endline, in both the intervention sites and control sites.

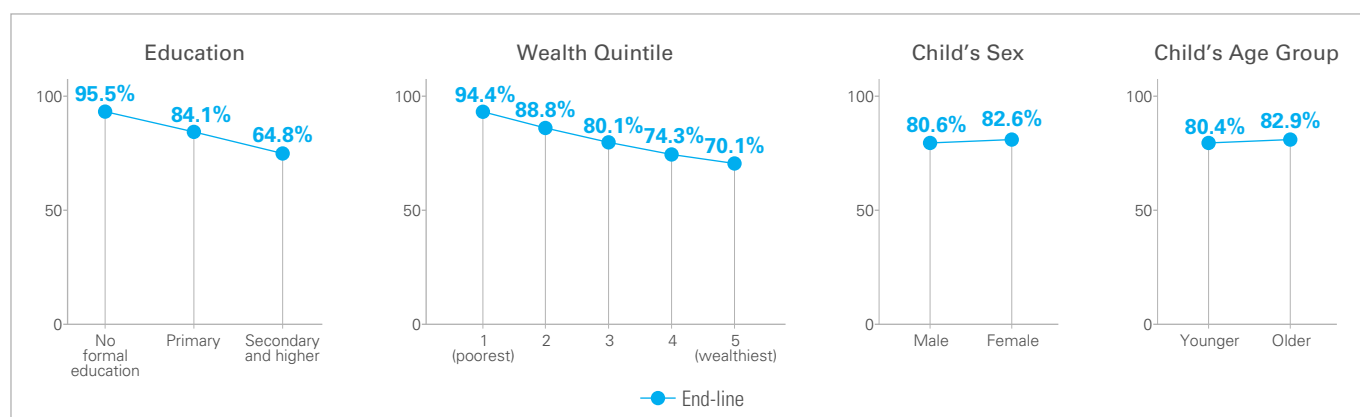
Figure 59: HHs who experienced food insecurity in the past week



Food insecurity was found to be greater for the poorest households (94.4%) than the wealthiest households (70.1%). The proportion of households experiencing food insecurity in the past week was 95.5% for households where the caregiver had no formal education against 64.8% for households where the caregivers had secondary or higher education.

When analysed by COVID Index, the proportion of households experiencing food insecurity in the past one week was lowest among households that were affected lowest due to COVID (70.2% overall) in comparison to households that were highly affected (89.3% overall).

Figure 60: HHs experiencing food insecurity in the past week



3.7 Water, Sanitation and Hygiene (WASH)

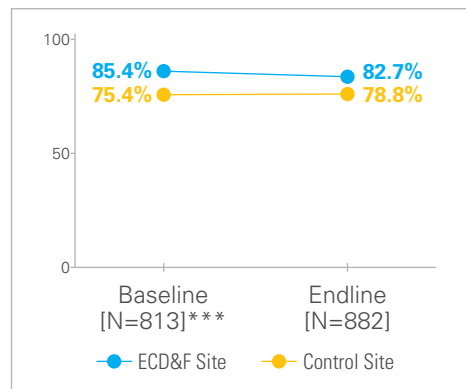
Access to improved sources of water, sanitation and hygiene is important for children's health, growth and overall development. Poor WASH has been linked to stunting through inadequate nutrition absorption, which ultimately impacts children's cognitive development.

3.7.1 Improved Sanitation

Access to an improved sanitation facilities followed standard global definitions used by the DHS: a toilet that flushes to pipe sewer system, flushes to septic tank, flushes to pit latrine, ventilated improved pit (VIP) latrines, pit latrines with slab, and composting toilets.

At endline, 82.7% of households in the ECD&F sites and 78.8% of

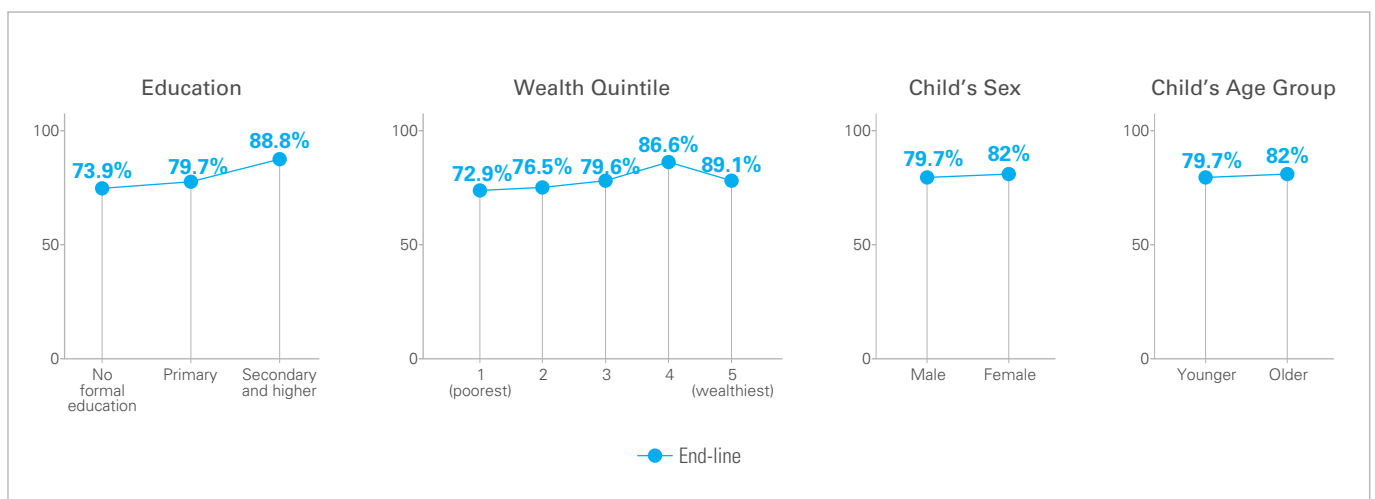
Figure 61: HHs with improved sanitation



households in control sites had access to improved sanitation. From the baseline to endline, there was a gradual rise in the proportion of households with access to improved sanitation in the control sites while the proportion saw a slight decline in the ECD&F sites. Households in the highest wealth quintile had a greater proportion of households with access to improved sanitation (89.1%) against those in the poorest wealth quintile (72.9%). This proportion was also higher for households with caregivers that had secondary or higher education (88.8%) than those with no formal education (73.9%).

It is to be noted that UNICEF intervened in only three of the 10 districts – Gakenke, Gichumbi, and Nyamagabe to improve sanitation facility. When we compare the improved access to sanitation in these three districts with the rest of the seven districts, we observe that the proportion of households with improved access to sanitation is similar across these two groups. Even in the three districts, the proportion of households with improved sanitation is similar between baseline (78.8%) and endline (79.7%).

Figure 62: Per cent of households with improved sanitation (toilet)



Improved Sanitation (Shared vs not shared)

At the endline, 92% of the households in the ECD&F sites had access to their own toilet that was not shared with anyone else. In the control sites, the proportion of such households was 89% at endline.

Figure 63: Improved toilet (shared vs not shared) at endline: ECD&F site

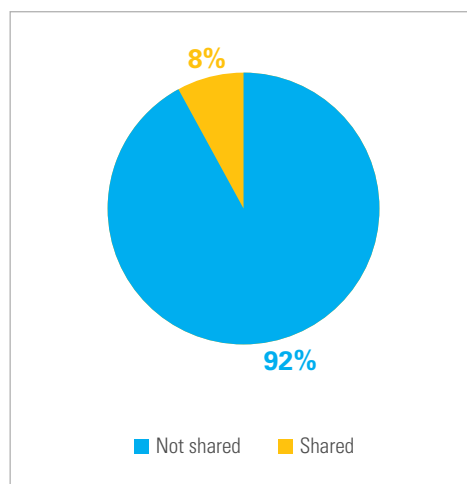
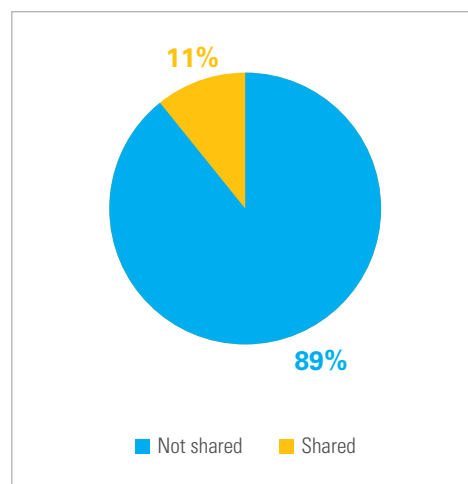


Figure 64: Improved toilet (shared vs not shared) at endline: Control site

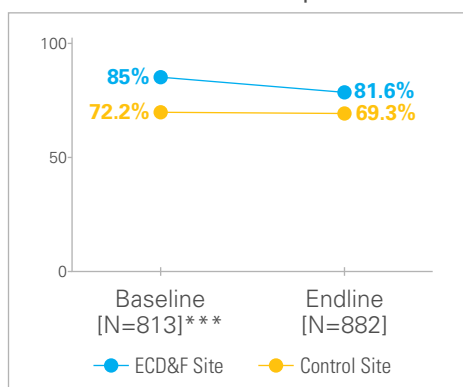


3.7.2 Improved Water Sources

It is to be noted that ECD&F programme did not have any specific intervention to improve water within this project, although perhaps other partners or government projects were implemented.

Access to improved water source was also defined using standard definitions as any of the following sources serving as the household's primary source of drinking water: piped water into dwelling/yard/plot, public tap/standpipe, tube, well/borehole, protected dug well, protected spring, and rainwater.

Figure 65: HH with access to improved water source

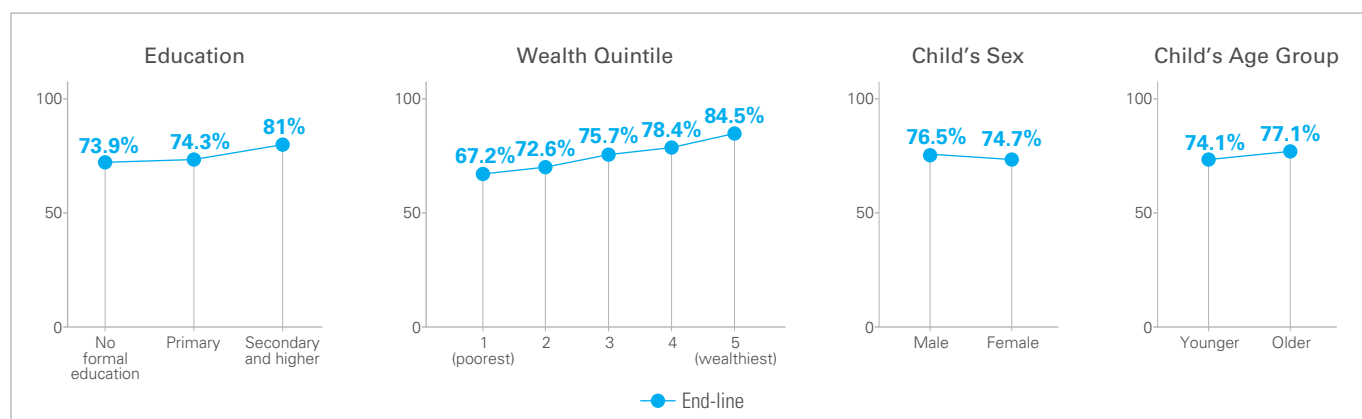


At endline, 81.6% of households in the ECD&F intervention sites had access to improved water sources, compared with 69.3% in the control sites. Both the ECD&F sites and control sites witnessed a slight decline in the percentage of households with improved water source from baseline to endline. The proportion of households with access to improved water sources was greater for the wealthiest households (84.5%) than the poorest households (67.2%). Households where the caregiver had secondary or higher education (81%) also had a higher chance of having access to improved water sources than those where the caregiver had no formal education (73.9%).



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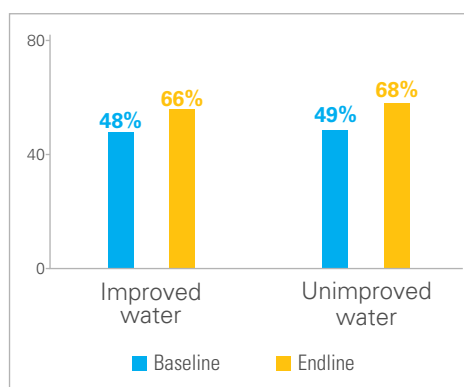
Figure 66: HHs with improved water sources

**a**

Households treating water before drinking (improved vs unimproved water source)

For households that do not have access to improved water sources and even otherwise, it is essential to use appropriate treatment methods to make the water fit for drinking.

Figure 67: Households treating water before drinking



A rise was observed in the percentage of households who treated water before drinking in both ECD&F and control sites i.e. those with access to improved water sources and those without. Overall, the percentage of households treating water before drinking who had improved water sources rose from 48% at the baseline to 66% at endline. At the same time, percentage of households without unimproved water sources that treated water before drinking rose from 49% from baseline to 68% at endline.

b

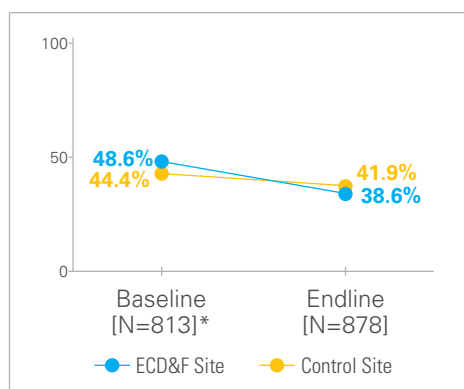
Households storing water in a closed container

A moderate decline in the percentage of households that store water in a closed container from baseline to endline was witnessed in both the ECD&F sites (from 48.6% to 38.6%) and the control sites (from 44.4% to 41.9%), with the decline being significant for the intervention sites. The proportion of households storing water in a closed container who live in the wealthiest households (49.1 per cent) is almost two times the proportion of the same living in the poorest households (23.2 per cent). This proportion was also double in households where the caregivers had secondary or higher education level (64%) than those where the households had no formal education (28.2%).



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Figure 68: HHs that store water in a closed container



3.7.3 Hand Washing

About 62% of households had an observed place for washing hands. Two broad categories of groups were analysed – households with an observed handwashing facility (fixed + mobile) and households with no observed handwashing facility.

Figure 69: Places that HHs use to wash hands

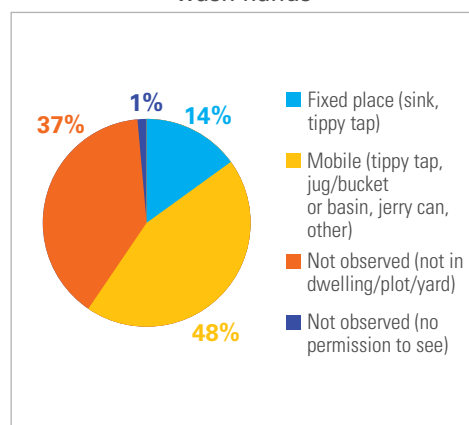
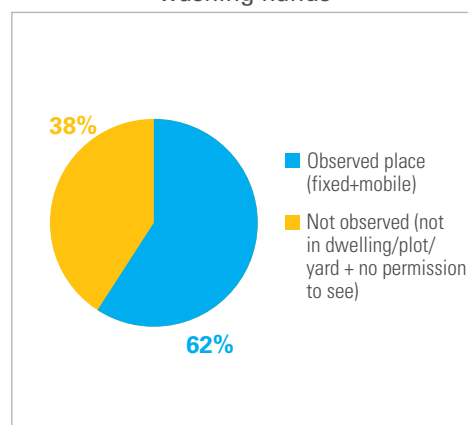


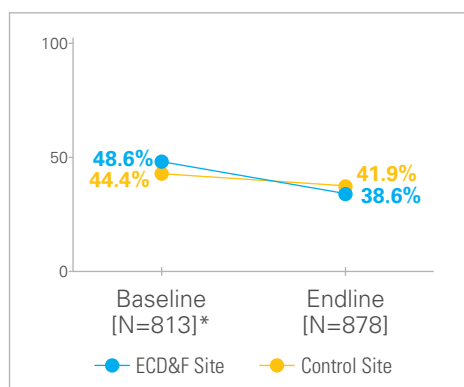
Figure 70: Observed places for washing hands



Households with observed place for handwashing with water and soap

ECD&F sites, 70.3% of the households had an observed place for handwashing with soap and water, in comparison to 68.6% in the control sites. Both the ECD&F and control sites witnessed a rise in the proportion of households with an observed place for washing hands with soap and water from baseline to endline.

Figure 71: HHs that store water in a closed container



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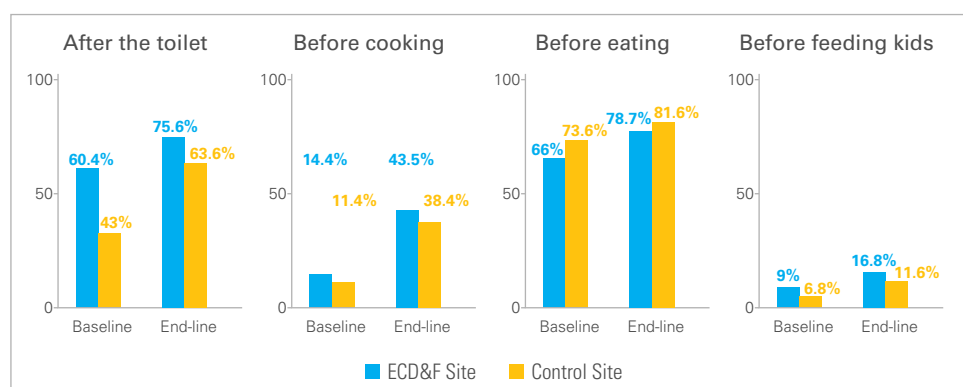
Caregivers reporting instances of always washing hands

The question about the tendency to wash hands was asked for the following instances: after using the toilet, before cooking, before eating, and before feeding young children. It should be noted that the responses of the caregivers are only reflective of knowledge and doesn't necessarily confirm practice.

There was a significant rise from baseline to endline in the reported habit of always washing hands after using the toilet in both the ECD&F sites (from 60.4% to 75.1%) and control sites (43% to 63.6%). A similar jump from baseline to endline of the reported number of times when caregivers always wash their hands before cooking was witnessed in both the intervention sites (from 14.4% to 43.5%) and control sites (from 11.4% to 38.4%).

The majority of the caregivers reported always washing their hands before eating out of the four categories. On the other hand, always washing hands before feeding children was the least commonly reported, with 16.8% in the ECD&F sites and 11.6% in the control sites in endline.

Figure 72: Times when caregivers report to always wash hands



Qualitative interviews also revealed an increased knowledge of hygiene and cleanliness among children attending the ECD programme. They reported an improvement in the hygiene levels in the community.



Children at home demonstrate it. A child knows things about hygiene, washing the body, they know how to wash hands, they don't do anything without washing hands, and it's a good thing. Hygiene is starting from young children and you see that they even teach us (elders) about it

- Father, Nyarugenge



They (ECD workers) sensitized us and we found out how important it (hygiene) is and we try our best to practice hygiene. If you are to send your child here (ECD) you must clean him, wash his clothes, prepare him, and clean nails. When the child is in ECD centre, you clean the house to make sure that once the child comes back from ECD centre, the child will find the house clean.

- FGD, Ruhango

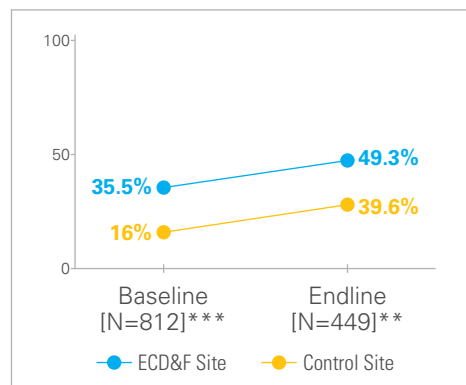
3.8 Access to Services

The ECD&F programme established model ECD centres and home-based ECD centres to cater to the needs of children in the 3-6 years age group by providing education and learning services, parental education and meeting places, as well as linking with other social services.

3.8.1 Access to ECD Services

There was an overall rise in access to any ECD or organized learning program services from 25.6% at baseline to 44.5% at endline. The access to any ECD or organized learning program saw a jump from baseline to endline in both the control sites (from 16% to 39.6%) and ECD&F sites (from 35.5% to 49.3%), with a steeper rise in the control sites than the intervention sites. Overall, the proportion of female children (45.6%) who attended any ECD or organized learning programmes was slightly higher than male children (43.5%). This was, however, not the case with the control sites, where the proportion was greater for the male children (43.5%) than female children (36%).

Figure 73: 24-59 months children attending ECD or organized learning program



In the 36-59 months child group, the percentage of children who attend any ECD or organized learning program was 67.2% in the ECD&F sites in comparison to 53.2% in the control sites, the difference between the two being significant.

The qualitative interviews found an overall positive sentiment among the community members regarding the ECD&F programme.



They are happy about it (ECD services). They as well wish for more centers to be built and be able to accommodate all of their children. For instance, they wonder when this school under construction will be completed for them to bring their children here and no longer have to wonder where their children will spend their day when parents have gone to work. They want ECD centers to increase.

- ECD Staff Gicumbi

“

People say that ECD came at the right time, we used to know that schools are for rich people and they pay a lot of money. But the reason why ECD is being discussed a lot, it is because even poor people have access to it.

- FGD, Ngoma

There was increased awareness about the programme services in the community, and increased uptake of these services as well.

“

I was saying in the beginning when we were talking about what ECD was and what stunting was, people would come and tell us you know my child is now 10, 11. I'm sorry I didn't know anything about what you were saying before and I realised that there is lost opportunity. So, they were really sad not to have had that information before.

- ECD Staff

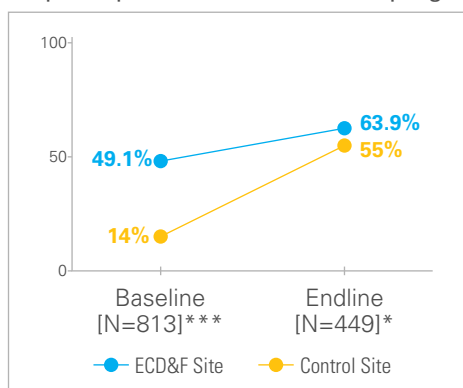


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a ECD&F Programme

More than half of the children (24-59 months) or caregivers in the ECD&F intervention sites (63.9%) attended ECD&F programme, against 55% in the control sites at endline. This difference between the study sites was significant at endline. The control sites, at the same time, witnessed a steeper rise in the proportion of children or caregivers participating in ECD&F programme from baseline to endline in comparison to the intervention sites. The increase in participation in an ECD&F programme in control sites at endline can be attributed to increased geographic access to services – such as home-based child-care programmes. It was also observed that the participation rates in the programme were similar across wealth quintiles, various education levels and child's sex showcasing the focus of the programme on equity.

Figure 74: HHs who participated in Imbuto ECD&F program (24-59 months)

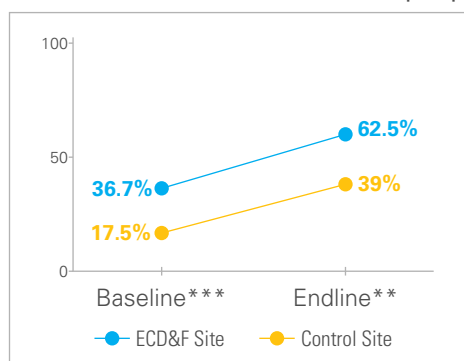


b Pre-Primary School Attendance

Overall, there has been a rise in the percentage of children (48-59 months) who attend pre-primary school from 26.7% in the baseline to 50.6% in

endline. There was a significant difference in the proportion between the intervention and the control sites, in both baseline and endline. Overall, the percentage of children attending pre-primary school did not differ by child's sex (48.9% for male and 52.3% for female). Interviews with the caregivers and village leaders also revealed that ECD services helped the children become more excited to go to school, leading to rising enrolment rates.

Figure 75: 48-59 months children who attended pre-primary school



The kids get good marks in primary school, as I have told you they learn English and when they get to study it in primary school, it's easy for them because they have mastered it. You can easily differentiate a kid that attended ECD and the one that did not. A kid that attended ECD programs is always sharp and not lazy.

- Mother, Ngoma



There is a lot of change, you see a child starts coming here when she/he is two or three years and they grow up with love of going to school. Because they are prepared when they are still young, they grow up with eagerness to study in their mind.

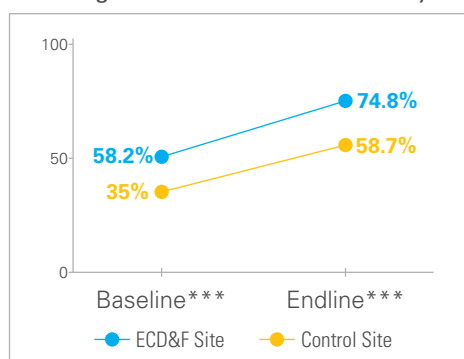
- Village Leader, Gakenke

C

1000 Days Campaign

The 1,000 Days campaign is a national media campaign promoting nutrition and children's development from conception to the second year of life when

Figure 76: Caregivers who heard of 1000 days campaign

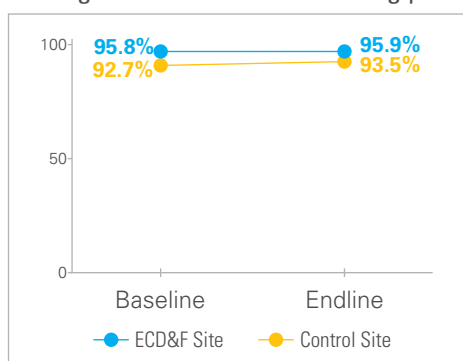


critical brain development occurs. The percentage of caregivers who had heard of the 1000 days campaign at endline was greater in the intervention sites (74.8%) than the control sites (58.7%). A significant increase in awareness about the 1000 days campaign was observed from baseline to endline.

d Parenting Evening Talks

Majority of the surveyed caregivers had heard of the parenting evening talks, with the percentages being 95.9% in the intervention sites and 93.5% in the control sites at endline, with no significant change from baseline.

Figure 77: Caregivers who heard of evening parenting talks



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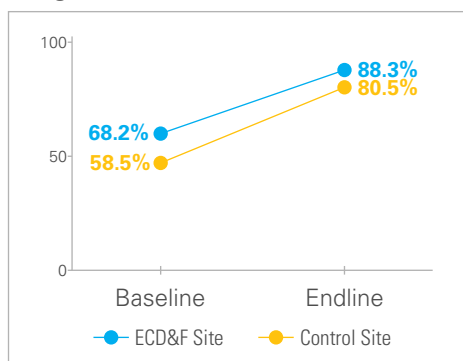
3.8.2 Access to Health Services

a Health Insurance Coverage

Health insurance coverage is important to increase access to health services in the community. Rwanda has a community-based health insurance scheme called Mutuelle de Sante.

There was a significant rise in the percentage of households with health insurance from baseline to endline in both the ECD&F sites (from 68.2% to 88.3%) and control sites (from 58.5% to 80.5%). The percentage of households with health insurance continued to be higher in the intervention sites than in the control sites.

Figure 78: HHs with health insurance



Overall, 67.2% of the households in the poorest wealth quintile had health insurance against 94.8% of households in the wealthiest quintile. Similarly,

households where the primary caregiver had secondary or higher education level had a higher percentage of households with health insurance (96.7%) in comparison to households where the caregiver had no formal education (67.6%).

Insurance coverage for index child was also higher in ECD&F intervention sites (81.6%) compared to control sites (76.7%). The percentage of children covered by insurance from control sites in the poorest wealth quintile was 57.6% against 91.4% in the wealthiest quintile. In the ECD&F sites, 66.7% of children in the poorest category were covered by health insurance against 92.2% in the wealthiest index category.



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b Access to Community Health Services

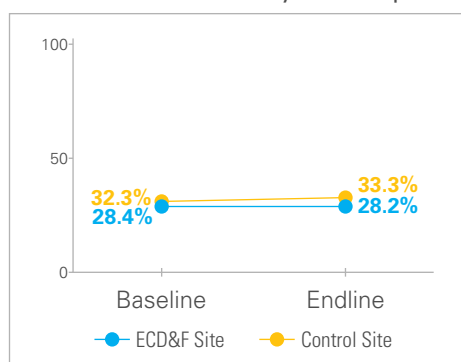
Deworming in the past six months

At end-line, in the past six months, 78 per cent of children (12 to 59 months) were dewormed, and the rates were similar across both study sites. At ECD&F sites, the proportion of children dewormed in the past six months decreased slightly from 81.6 per cent at baseline to 78.6 per cent at end-line. Overall, an increasing trend in rates of deworming was observed across wealth quintile and caregiver's highest level of education.

Visit by Community Health Worker (CHW)

Rwanda's health system includes an impressive network of four CHWs in every village of the country. The CHWs are responsible for detecting, treating and referring common childhood illnesses and conducting monthly growth monitoring of children, among other essential functions. At end-line, children from ECD&F intervention sites were visited at a slightly lesser frequency (28.2 per cent) when compared with children from control sites (33.3 per cent).

Figure 79: Children visited by CHW in past month

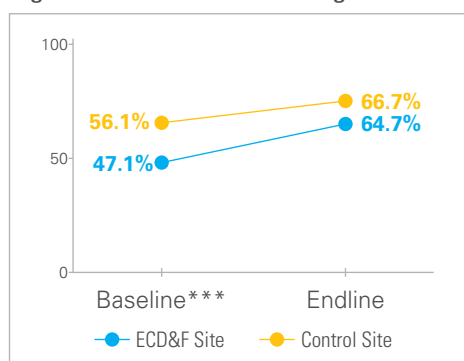


Growth Monitoring

Overall, about two-thirds of the children across study sites had their growth monitored in the past month at end-line. There was a rise in the percentage of children whose growth was monitored in the past month from baseline in both the sites.

The Community Health Workers and Village Leaders also noted the ease of monitoring children and providing services after the advent of the ECD centres.

Figure 80: Growth monitoring of children



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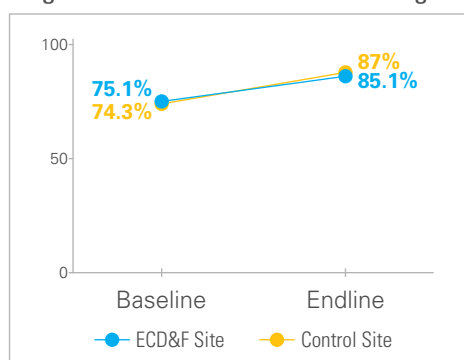
What the community health workers benefited from the program is that they can now find children easily in one place because before, they were like searching for children one by one in their families. Therefore, it is easy to provide common services. For example, when they are going to take their measurements, they find them here at the ECD center

- Village Leader, Ngoma

CHW cooking demonstration

The proportion of caregivers in ECD&F intervention sites (85.1 per cent) that have heard of the CHW cooking demonstrations was similar to control sites (87 per cent) at the end-line.

Figure 81: Caregivers who heard of CHW cooking demonstrations

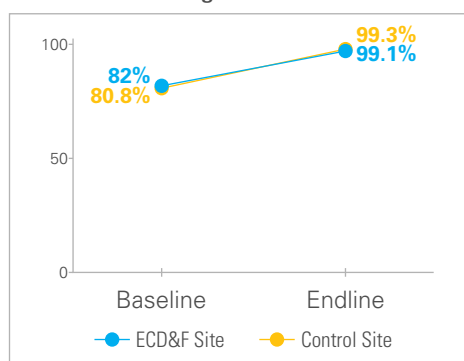


c

Child Protection – registration of births

One of the key interventions for child protection includes birth registration, as well as violence prevention. The ECD&F programme did not have any

Figure 82: Children registered with civil authorities



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intervention designed to address the issue of birth registration. This was assessed to improve on one of the basic child rights.

Overall, 99.2% of children had their birth registered with the local authorities. There was a significant rise in the registration rates in both the ECD&F sites and control sites from baseline to endline. Proportions across wealth index and caregiver's education level were similar.



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3.9 Observation of Mother-Child Interactions (OMCI)

At endline, the responsiveness of interactions between the caregivers and the child was measured using the Observation of Mother-Child interactions (OMCI). This is a measure where the primary caregiver is provided with a children's book in the local language and asked to play with their children for five minutes. This interaction is observed and scored by a trained observer. The total OMCI score is a sum of all 19 items on the OMCI. Among them, 12 are observations of the caregiver's behaviour, language and affect; 6 are observations of the child's behaviour and one looking at mutual enjoyment. The maximum possible score is 57, out of which 36 on the caregiver's items and 21 on the child scores, with higher scores representing more positive and responsive interactions.

The mean overall score for the OMCI was 34.6, which is 60.7% of the maximum possible score. The mean for the caregivers was 21.9, which is 60.8% of the caregiver's maximum possible score while for children it was 12.8, which is 60.9% of the child's maximum possible score. These scores represent moderately responsive interactions and indicate a need for improvement in practices to increase responsive play. The score for children in ages 0-11 months was lower in comparison to children in ages 12-23 months and ages 24-59 months. Caregivers with lower levels of education and illiteracy also had lower scores. The sex of the child did not have any effect on the OMCI score variation. The mean overall scores in the ECD&F sites were slightly higher than the mean scores in the control sites.

The qualitative interviews reflected the increased awareness on the importance of interacting with the children and building friendly relations.



The first thing I would say is how I learned to interact with my child, how to play with him. I learned how I can also help him in his studies as well as how I can prepare a balanced diet with proteins, vitamins and fats at home. You can understand that they taught us a lot of things.

- Mother, Nyarugenge

	Overall			
	Caregiver Score	Child Score	Total Score	% of total score
	Mean [SD]	Mean [SD]	Mean [SD]	Mean [SD]
Total	21.9 [5.6]	12.8 [4.7]	12.8 [4.7]	12.8 [4.7]
Sex of the child				
Male	21.5 [5.8]	12.7 [4.5]	34.1 [9.1]	59.8%
Female	22.2 [5.4]	12.9 [4.9]	35.1 [8.9]	61.6%
Age of the child				
0-11 months	17.8 [6.5]	8 [6.5]	25.8 [11.2]	45.3%
12-23 months	20.2 [6.2]	12.1 [5.1]	32.2 [9.9]	56.5%
24-59 months	22.8 [5.0]	13.4 [4.1]	36.2 [7.8]	63.5%
Wealth quintile				
Poorest (1)	21.2 [5.8]	12.3 [4.8]	33.5 [9.1]	58.8%
2	21.1 [5.8]	11.8 [4.7]	32.8 [9.0]	57.5%
3	22.8 [5.2]	13.1 [4.6]	35.9 [8.7]	63%
4	21.0 [6.4]	12.5 [4.9]	33.5 [10.1]	58.7%
Wealthiest (5)	23.2 [4.4]	14.0 [4.2]	37.1 [7.6]	65.1%
Ubudehe status				
Ubudehe 1	22.3 [5.7]	12.4 [5.1]	34.7 [9.5]	60.9%
Ubudehe 2	21.2 [5.9]	12.1 [5.1]	33.3 [9.6]	58.4%
Ubudehe 3	22.6 [5.2]	13.6 [3.8]	36.2 [7.7]	63.5%
Primary caregiver's highest education level attained				
No education	20.6 [5.7]	10.7 [4.9]	31.3 [8.8]	54.9%
Primary	21.8 [5.6]	13.1 [4.5]	35.0 [8.8]	61.4%
Secondary and higher	23.0 [5.5]	13.4 [4.8]	36.4 [9.3]	63.9%

3.10

Exploring intersections of determinants of stunting, child development index and total OMCI score using CART model

In order to explore the intersections of determinants of three key outcomes – stunting, children developmentally on track and total OMCI score, the evaluation team used the Classification and Regression Trees (CART) model which is a machine learning technique used to construct prediction models.

Dependent variables

Three key measures related to child development were considered – stunting, children ages 36-59 months developmentally on track on ECD Index, and total OMCI score (child + mother).

Independent variables

Demographic indicators such as household wealth, primary caregiver's highest education, age group of child and sex of child were included as independent variables. Besides these demographic indicators, factors generally known to affect child development outcomes were included as independent variables such as violent practices against children, inadequate care for children in homes, support for learning at homes, decision making related to what child eats, children books at home, the mental health of the primary caregiver.

Data Analysis

The Classification and Regression Tree (CART) algorithm, introduced by Breiman et. al.², was used for the current analysis. CART is a non-parametric statistical approach that uses the recursive partitioning technique to split a sample population into sub-groups based on a predefined criteria. When provided with a dependent variable (either categorical or continuous) and a set of independent demographic variables hypothesized to influence the dependent variable, CART creates mutually exclusive sub-groups based on combinations of demographics within the sample and the proportion of individuals in a particular sub-group who are likely to engage in the behaviour /practice represented by the dependent variable³.

At the first stage, for a particular dependent variable, the CART model will first begin the procedure with the entire sample as the first group or “parent node”. From the parent node, the model then begins to recursively split the sample into binary sub-groups (called child nodes) based on the subsequent stepwise addition of individual independent variables. To select the independent variable for the split at any stage, the model lines up all the independent variables and selects the variable that creates the two most disparate sub-groups in terms of the dependent variable. Once the independent variable to be used to split the sample in a particular step has been chosen, the model then decides the cut-off point for the chosen independent variable at which the group would be split into sub-groups. This decision is made based on a splitting criterion which is a function of the degree of impurity of a child node. The impurity of a node can be generally described as the variability within the node in terms of the dependent

²Breiman L, Friedman J, Olshen R, Stone C. Classification and regression trees. Monterey, Calif., USA: Wadsworth. Inc; 1984.

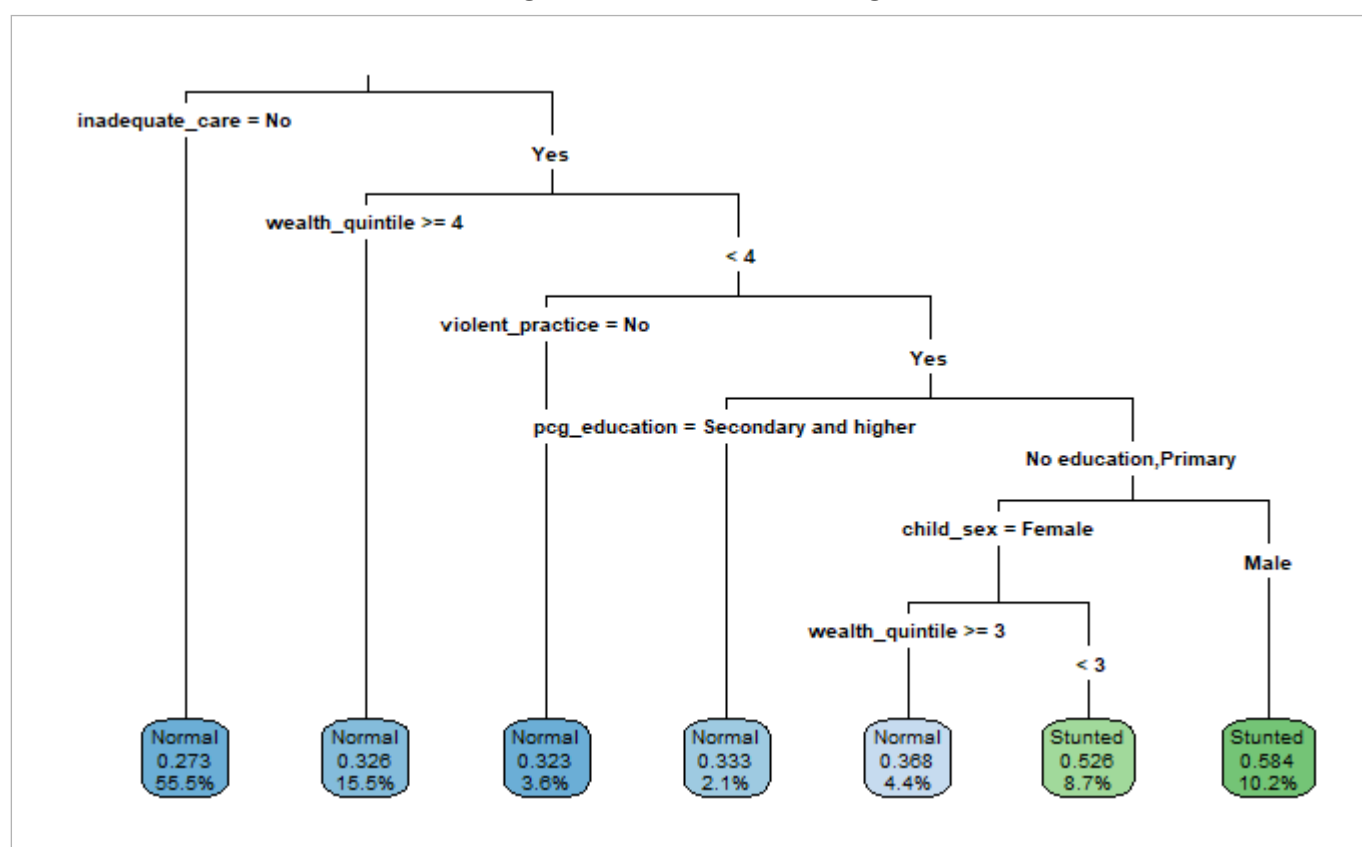
³Lemon SC, Roy J, Clark MA, Friedmann PD, Rakowski W. Classification and regression tree analysis in public health: methodological review and comparison with logistic regression. *Annals of behavioral medicine*. 2003; 26(3):172±81. https://doi.org/10.1207/S15324796ABM2603_02 PMID: 14644693

variable. For example, a node that has all the individuals under one category of a dichotomous dependent variable (all 0s or all 1s) will be a perfectly pure node⁴. Similarly, a node will have the maximum impurity when there are equal number of individuals in the two categories of the dependent variable (equal number of 0s and 1s).

This process of identifying and adding independent variables based on a decided cut-off continues until a stopping condition is satisfied. The CART model allows users to specify a stopping condition to terminate the process of recursive partitioning. There are a number of different criteria that may be specified in the stopping condition. For example, specifying the value of impurity measure in a node as a threshold, specifying a minimum number of individuals in a child node, specifying the maximum number of iterations that a model can have etc. For the current analysis, the stopping criterion was based on complexity parameter (cp) equal to 0.01 and the minimum splitting criterion was set to 25 (i.e., each node should at least have 25 observations) to split further. The models were developed using RStudio (version 1.2.5033) software.

a Stunting (0 - 59 months children)

Figure 83: CART Model - Stunting



⁴Lemon SC, Roy J, Clark MA, Friedmann PD, Rakowski W. Classification and regression tree analysis in public health: methodological review and comparison with logistic regression. *Annals of behavioral medicine*. 2003; 26(3):172±81. https://doi.org/10.1207/S15324796ABM2603_02 PMID: 14644693

While identifying the determinants of stunting among children 24-59 months, the CART model identified adequacy of care as the root node, which split the sample into two branches of children exposed to any inadequate care in the past one week (Yes) and children who were not exposed to any inadequate care in the past one week (No). The model then

splits the branch of children exposed to any inadequate care in the past one week by wealth quintile, which split the sample into two branches of households belonging to wealth quintile four or more (4, 5) and households belonging to wealth quintile of below four (1, 2, 3). The model then splits the branch of households belonging to the wealth quintile of below four by violent practices, which split the sample into two branches of children who were exposed to any violent discipline in the past month (Yes) and children who were not exposed to any violent discipline in the past month (No). The model further splits the branch with children who were exposed to any violent discipline in the past month by primary caregivers highest education, which split the sample into two branches of households which had primary caregivers with no formal or primary education and households which had primary caregivers with secondary and higher education. The model then splits the branch of households that had primary caregivers with no formal or primary education by sex of the child, which split the sample into two branches of male and female children. Finally, the model splits the branch with female children by wealth quintile, which split the sample into two branches of households belonging to wealth quintile three or more (3, 4, 5) and households belonging to wealth quintile of below three (1, 2).



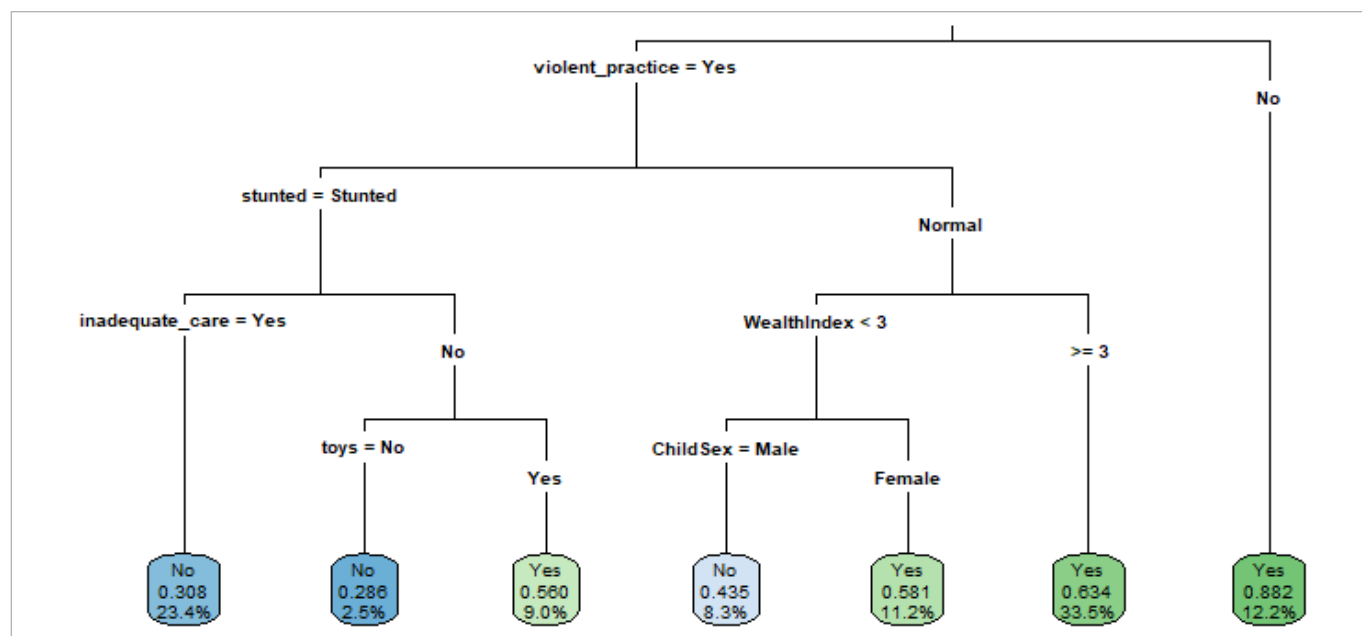
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The model shows that the children ages 24-59 months who were not exposed to any inadequate care had relatively lowest stunting rates (27.3 per cent) indicating the key role of household behavior dynamics on child nutrition outcomes. The stunting rates were quite high (58.4 per cent) among the group of children ages 24-59 months who were exposed to any inadequate care, belonged to wealth quintile less than 4 (1, 2, 3), were exposed to any violent discipline, whose caregiver had no education or primary education, and the child was male. This shows the compounding effect of various determinants on stunting rates. Even among the households where the children were exposed to any inadequate care, the households belonging to higher wealth quintiles (4, 5) had relatively low stunting rates (32.6 per cent). Further, as can be observed in the figure, children who were not exposed to any violent discipline, whose primary caregiver had secondary and higher education, and households belonging to higher wealth quintiles were less likely to be stunted.

b Children developmentally on track on ECD Index

In case of children (36-59 months) who are developmentally on track on ECD Index, the CART model identified violent practice as the root node, which split the sample into two branches of children exposed to any violent practice in the past one month (Yes) and children who were not exposed to any violent practice in the past one month (No). The model then splits the branch of children who were exposed to any violent practices (Yes) by stunting status, which split the sample into two branches of children who were stunted and who were not stunted (normal). Further, the model splits the branch of children who were not exposed to any violent discipline and who were not stunted (normal) by wealth quintile, which split the sample into two branches of households belonging to wealth quintile 3 or more (3, 4, 5) and households belonging to wealth quintile of below three (1, 2). The

Figure 84: CART Model - Children developmentally on track on ECD Index



model then splits the branch of households belonging to the wealth quintile of below 3 (1, 2) by sex of the child, which split the sample into two branches of male and female children.

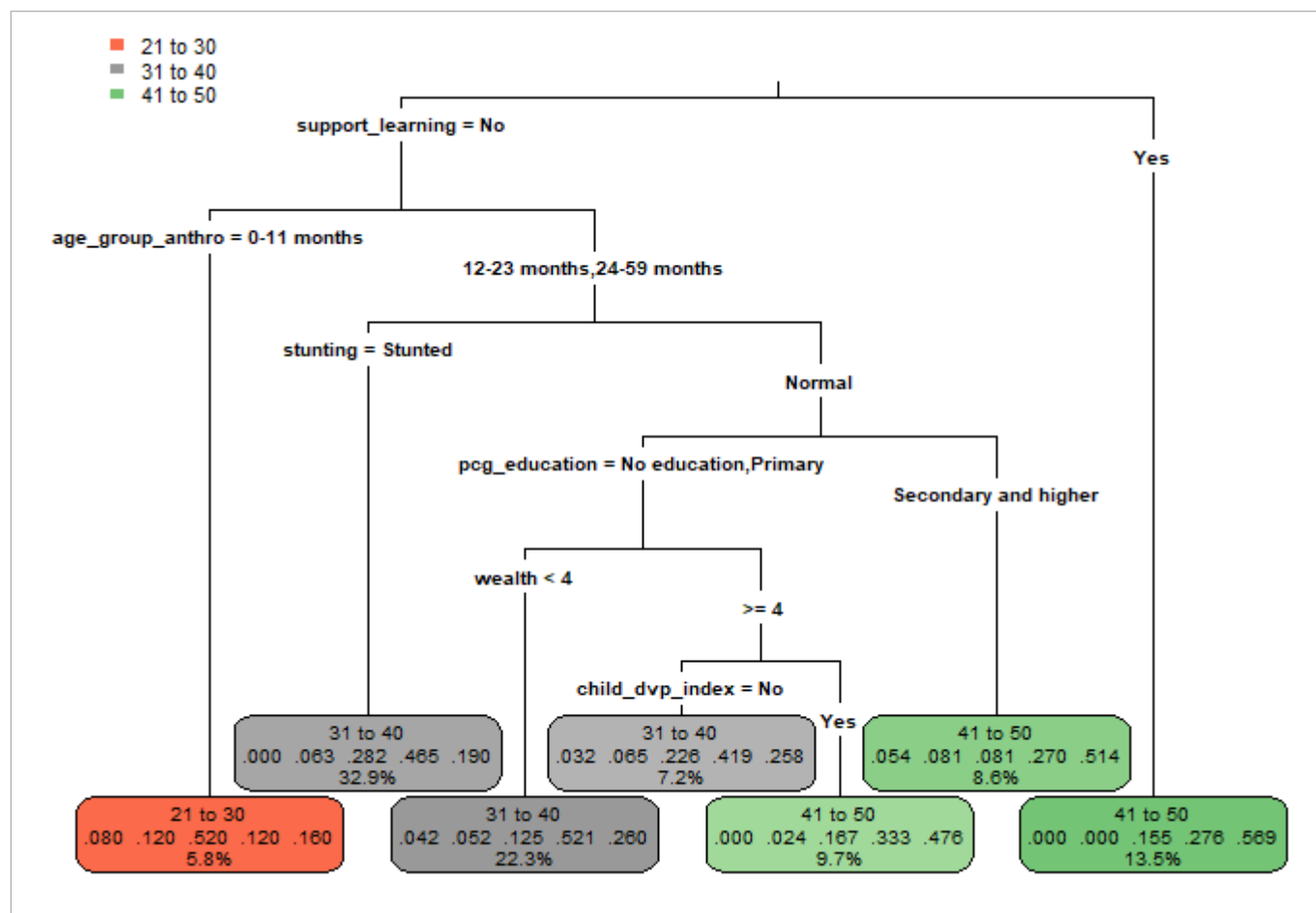
Further, the model splits the branch of children who were exposed to any violent discipline and who were stunted by any inadequate care, which split the sample into two branches of children exposed to any inadequate care in the past one week (Yes) and children who were not exposed to any inadequate care in the past one week (No). The model then splits the branch of children who were not exposed to any inadequate care in the past one week and who were stunted and experienced violent behavior from caregiver by the availability of two or more toys in the home, which split the sample into two branches of households having two or more toys (Yes) and households with less than two or no toys (No).

The model shows that the children ages 36-59 months who were not exposed to any violent discipline were relatively more likely to be developmentally on track (88.2 per cent). This shows the possible impact of household behavior dynamics on the development status of child. Further, the children who were exposed to any violent practices but who were receiving adequate nutrition and who belonged to a higher wealth quintile (3, 4, 5) were more likely to be developmentally on track (63.4 per cent). Likewise, the female children who were exposed to any violent practices but who were receiving adequate nutrition, and belonged to lower wealth quintile (1, 2) were more likely to be developmentally on track (58.1 per cent) when compared to the male child (43.5 per cent). Further, children who were stunted, who experienced any violent discipline but received adequate care and had toys in the home were more likely to be developmentally on track (56 per cent) when compared to children who were stunted, who experienced any violent discipline, received any inadequate care and did not have toys in the home (28.6 per cent). This indicates the critical role of the nutrition status of child, adequate care practices, availability of toys at home on the development status and well-being of child.

c

Total OMCI Score (Child + Mother)

Figure 85: CART Model - Total OMCI Score



For more details related to OMCI (Observation of Mother-Child Interactions), please refer Section 3.9. In case of total OMCI score (Mother + Child), the CART model identified the learning support provided by caregivers (three activities in the past week) to the child as the root node, which split the sample into two branches of households where caregivers engaged in three activities to support learning in the past week (Yes) and households where caregivers did not engage in three activities to support learning in the past week (No). The model then splits the branch of households where caregivers did not engage in three activities to support learning in the past week by age group of children, which split the sample into two branches of children in the age group of 0-11 months and children in the age group of either 12-23 months or 24-59 months. Further, the model splits the branch of children in the age group of either 12-23 months or 24-59 months by stunting status of children, which split the sample into two branches of children who are stunted and who are not stunted (normal). The model then splits the branch of children who are not stunted (normal) by the primary caregiver's highest education, which split the sample into two branches of households where the primary caregiver had no education or primary education and households where the primary caregiver had secondary and higher education. The model further splits the branch of households where the primary caregiver had no education or primary education by wealth status,

which split the sample into two branches of households in wealthier quintiles (4,5) and households in lowest quintiles (1, 2, 3). Finally, the model splits the branch of households in wealthier quintiles (4,5) by development status of the child, which split the sample into two more branches of households which had children developmentally on track on ECD Index and children who are not developmentally on track on ECD Index.

The model shows that the total OMCI score among households where caregivers engaged in three activities to support learning is likely to be higher (41 to 50), which signifies the importance of household behavior dynamics on the development of the child. The model shows that the households with children from the younger age group (0-11 months) tend to have relatively less total OMCI score (21 to 30) when compared to the older group (12-23 months and 24-59 months). Further, among the children older children (12-23 months and 24-59 months) whose caregivers did not provide learning support and who were stunted the total OMCI score was likely to be on the lower side (31 to 40). Interestingly, even if the caregivers did not engage proactively in providing learning support to children, older children (12-23 months and 24-59 months) who were not stunted (normal) and whose caregivers had secondary and higher education were likely to have high total OMCI score (41 to 50). As can be observed in figure, older children (12-23 months and 24-59 months) who belong to the lowest wealth quintiles (1, 2, 3) and who were not developmentally on track on ECD Index were more likely to have low total OMCI scores.

Note: Only those children (who participated in baseline) who completed age of 6 as on 18th March 2020 (the day COVID lockdown started in Rwanda) were considered for the analysis

3.11

Baseline Children transitioning from ECD Centre to Primary School in ECD&F Sites

During the tracing of baseline participants which was done before the main data collection started, the team asked the caregiver in ECD&F sites regarding the transition of index child (who participated in the baseline) from ECD centre to primary school. Four out of five index children (80.2%) who participated in Phase II baseline transitioned from ECD centres to Primary School.

Figure 86: Transition of baseline index children from ECD Centre to Primary School

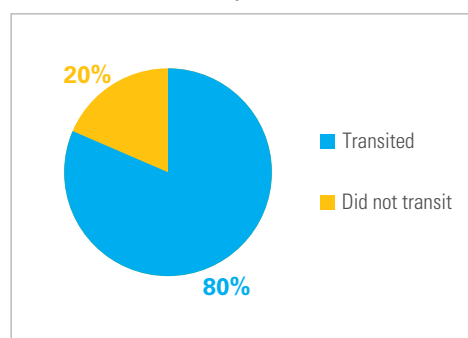
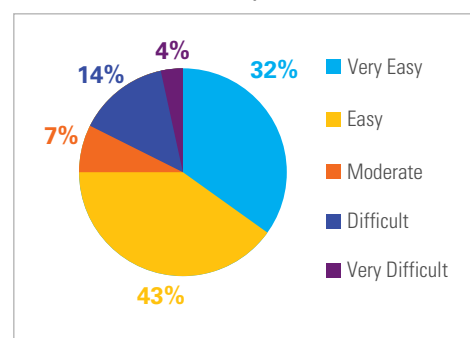


Figure 87: Rating the transition of index child from ECD Centre to Primary School



The team also enquired about the reasons for non-transition. A commonly reported reason was a lack of financial resources to send the child to school. Some other reasons provided by the respondents were that the child was

delayed in attending the ECD centre, the child's mother left, the child had not yet started speaking, and not able to join due to the COVID circumstances. Some parents felt that the child was too young or had not yet reached the age to go to primary school despite being above the age of 6 years.

The caregivers were asked to rate the ease of transitioning of the index child from ECD centres to primary school. Almost three-fourths of the caregivers rated the transition as either easy or very easy. About one-fifth of the caregivers rated the transition as either difficult or very difficult.

SECTION

4

CONCLUSION



Impact of the ECD&F Programme

The data revealed a gradual improvement from the baseline to the endline evaluation across many measures in both the ECD&F sites and control sites. Improvement on these measures in the control sites indicates the contagious effect of the ECD&F programme via family and community interactions and the impact of the wider behaviour change communication strategy via Mass Media. Further, the improvements in ECD&F sites at end-line which was comparatively higher than control sites in most of the indicators signify that ECD&F programme has been able to amplify the results building on the ongoing interventions of government and wider communication strategy via Mass Media.

It was also found that parental education and household wealth had critical impacts on almost all the measures of the evaluation.

The ECD&F programme had greater impact on parents with no formal education, especially fathers. However, fathers' engagement with their children is still limited. A concerned focus on enhancing father's engagement with their children has greater potential to further amplify the impact.

Health

There was a rise in the take up of health insurance in both intervention and control sites, with a greater rise in the ECD&F sites. There was a rise in growth monitoring services in both sites. This might be due to the ease of tracking children at the centres. An improvement in the awareness and practices was found regarding diarrhea, fever, use of bed mosquito nets, and treatment-seeking behaviours.

Nutrition

There was a slight decrease in the rates of stunting and underweight among children ages 24-59 months across both the sites. About half the children in the 6-23 months group did not meet the dietary requirements; and 8 out of 10 families at endline reported experiencing food insecurity.

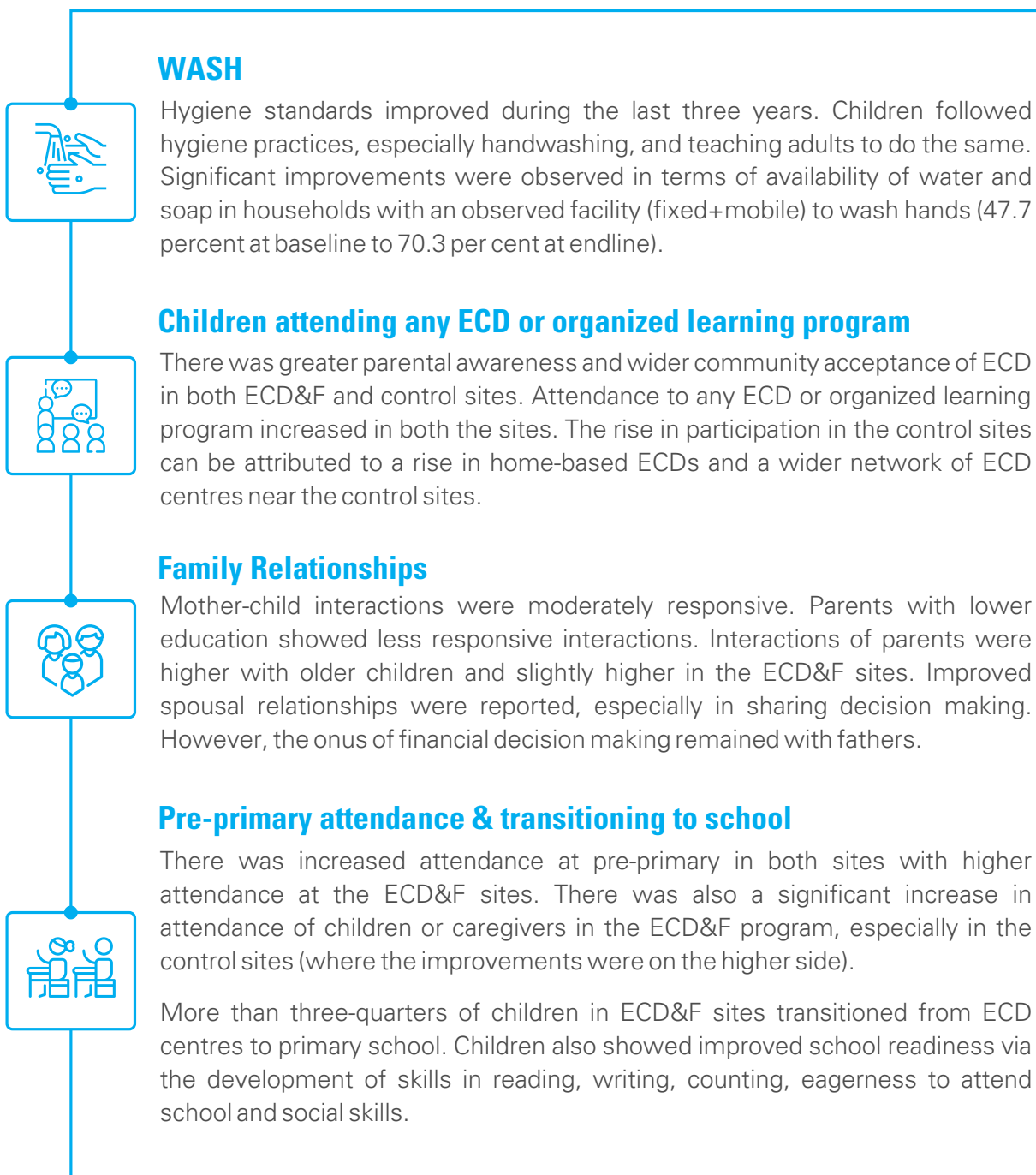
Child Protection

There was a rise in awareness about child protection in both ECD&F and control sites. Despite this, parent still held on to the belief that physical punishment is necessary to raise a child and continued to use physical methods of punishment on their children, as well as the use of psychological aggression. Even with increased awareness about providing adequate care, the rate of inadequate care continues to be high.

Child Development

The proportion of children ages 36-59 months who were developmentally on track was stable at endline when compared to baseline. Two domains of ECD Index i.e. literacy-numeracy and socio-emotional were areas where the majority of the children were lacking. Further, the impact of COVID was found on the development status of children. The evaluation also found a positive impact on the behaviour of the children who attended ECD centres.





A young child with dark skin and short hair is holding a thick metal chain. The child is wearing a light-colored zip-up jacket. The background is a blurred wall with some graffiti. The entire image has a blue tint. A large yellow number '5' is overlaid on the left side, and the word 'SECTION' is written in yellow above it. The word 'RECOMMENDATIONS' is written in white below the number.

SECTION

5

RECOMMENDATIONS

The ECD&F Programme strives to improve children's development by adopting a holistic approach that inculcates interventions in numerous sectors including – ECD service provision in centres, parental education and training, child health services, child protection via the IZUs, improvement in nutrition, improvement in WASH and communication of key child-related messages to the wider community.

As noted above, these interventions have had positive impacts on the lives of the children in the ECD&F sites in the targeted districts, with some positive spillovers noted even in the control sites. There is a need to further strengthen the investments in multiple areas crucial to promoting ECD. Considering the key findings outlined previously, a series of recommendations are made as follows -

Recommendation 1

Continuation of the ECD&F services with an emphasis on:

- raising awareness of gender equality in childcare which can further improve caregiving practices
- incentivizing fathers' engagement in children's learning and play
- continuous orientation and training of parents/caregivers on child development and caregiver childcare practices especially for parents with younger children (0-3 years), positive discipline and adequate care, considering their direct link with child development, child stunting and parent-child interactions
- focusing interventions towards improving literacy-numeracy skills among children as this is one of the development areas in which children were lagging behind
- having in place systems and processes that promote caregivers' accountability for providing adequate care and positive discipline. This is again particularly important considering that children's socio-emotional development was another developmental area in which children were lagging behind. Whilst awareness about positive discipline and adequate care has increased, inappropriate practices still continue.
- Ongoing and continuous capacity building of frontline workers (ECD caregivers, CHW, IZUs) to address the complexity and increasingly challenging nature of their role, especially in the light of COVID-19 situation. There needs to be a training structure in place that internalises and accounts for the issue of the recurring need to train staff and makes it easier to train new implementing groups.

Recommendation 2

Continuation of the Itetero programme and the communication strategy, There was an overall rise in access to any ECD or organized learning program services from 25.6% at baseline to 44.5% at endline. The access to any ECD or organized learning program saw a jump from baseline to endline in both the control sites (from 16% to 39.6%) and ECD&F sites (from 35.5% to 49.3%), with a steeper rise in the control sites than the intervention sites. Overall, the proportion of female children (45.6%) who attended any ECD or organized

learning programmes was slightly higher than male children (43.5%). This was, however, not the case with the control sites, where the proportion was greater for the male children (43.5%) than female children (36%).

Recommendation 3

Continuation of nutrition supplementation programme to reduce stunting, wasting and underweight rates among children, given the food insecurity experienced by families is very high (8 out of 10 families reported experiencing food insecurity in the past week).

Recommendation 4

Promote dialogue and consultation at community level to reach consensus on the criteria of caregivers' financial and/or in-kind contribution for children's attendance in ECD centres, as this remains a key issue. experiencing food insecurity in the past week).

Recommendation 5

Conduct further research on home-based ECD to establish a viable and sustainable framework evidencing its quality and impact on children, their families and communities, and on viability and sustainability of the model

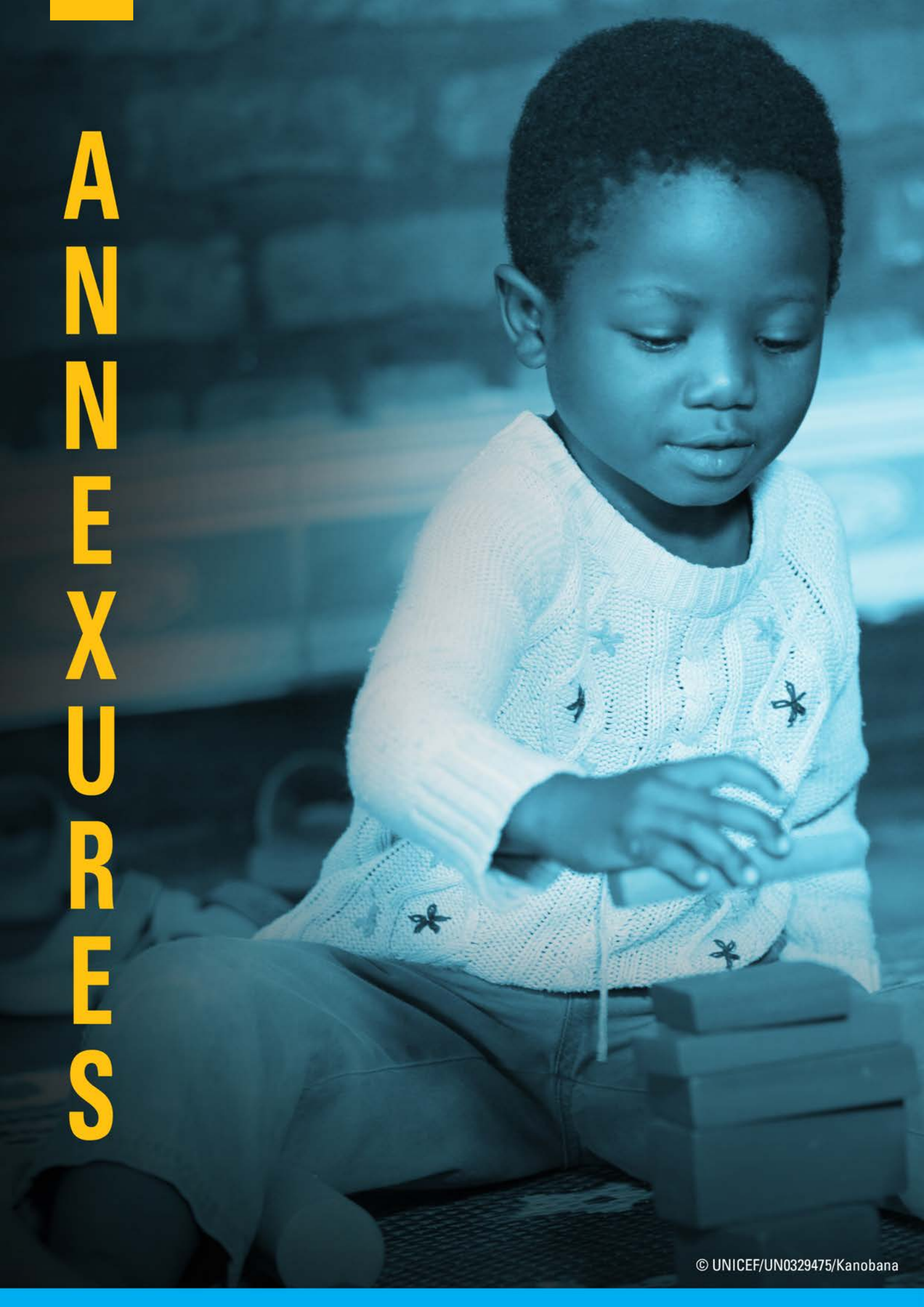
Recommendation 6

Sensitize and engage the private sector for the establishment of ECD centres, community-based ECD or home-based ECD to increase supply and enhance access to quality ECD services

Recommendation 7

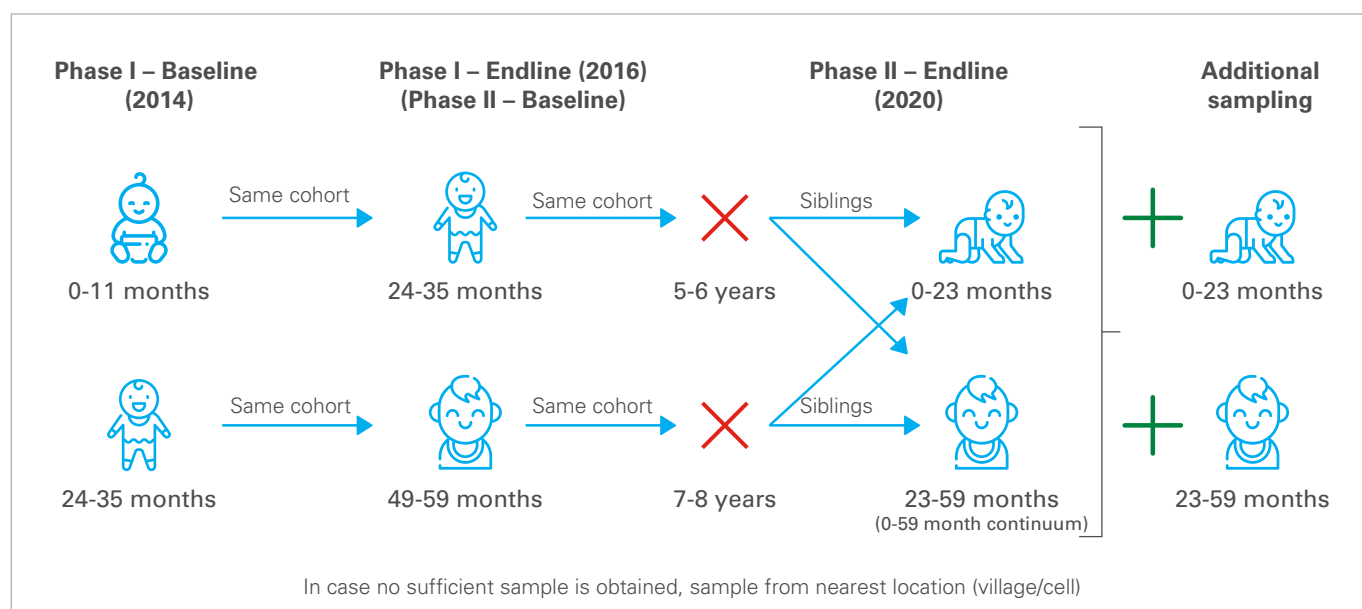
Set up data collection and management systems at operational/district level to collect data on a regular basis. This would help data collection at frequent intervals and make the monitoring and evaluation of the programme easier, enabling learning at the operational level.

ANNEXURES



Annexure 1 Sampling Strategy

At the ECD&F – Phase I end-line evaluation (Phase II baseline) the same households from both the control and treatment/intervention sites were interviewed from ECD&F – Phase I baseline, hence no additional sampling strategy was needed. Majority of the children were aged 24–35 months or 48–59 months during ECD&F – Phase I endline evaluation (Phase II baseline) in 2016.



For the current ECD&F – Phase II endline evaluation, the inclusion criteria was that the participants must be caregivers to a child in either of two age categories: 0–23 months or 24–59 months. Since the same cohort of children (from Phase I endline) were around 5-6 years or 7-8 years approximately in 2020, these two age cohorts from Phase I endline (Phase II baseline) could not be included in Phase II endline. Further, since the Phase II endline aims to measure the changes in the caregiver’s behaviours and the subsequent consequences of this in the well-being of children under 5 in their households benefitting from the programme, hence, evaluation team looked at caregivers with children under 5 rather than going back to the same cohort of children (as in Phase II baseline). Therefore, the following sampling strategy was adopted:

Sibling sampling: Since the same cohort of children (from Phase II baseline) cannot be included in Phase II – endline (for the reasons mentioned above), the evaluation team sampled as much as possible the siblings of the child from the households included in the Phase II baseline within two age categories: 0–23 months or 24–59 months.

Additional sampling: In case sibling sampling did not provide with sufficient sample, the evaluation team sampled children from the nearest location, preferably from the same village, or at least from the same Cell within two age categories: 0–23 months or 24–59 months. This allowed for closest comparison possible. Consent from the caregivers to participate in the end line evaluation was sought.

Retracing Participants for Quantitative Assessment

Prior to the start of the Phase II – end line evaluation data collection in each village, the study team re-contacted households using data collected in ECD&F – Phase II baseline enrolment forms and also worked with local Government, local leaders and community health workers to visit the households of baseline evaluation participants that did not provide phone contacts. This provided households advance notice of the upcoming data collection in order to increase the likelihood of retention in the study and also helped in identifying households that may have relocated since Phase II baseline data collection in 2016. The data collection team assigned each household in the Phase II baseline and additional sample a unique ID. During the field visit itself, the list of siblings of the index child within each household was updated. Additionally, during the retracing exercise, the evaluation assessed the transition of children who participated in Phase II baseline from ECD centres to primary schools.

Annexure 2 Description of Key Indicators

Indicator Family Care Practices	Description
Family Care Practices	
Inadequate care	Percentage of children left alone or in the care of another young child younger than 10 years of age for more than one hour at least once in the last week
Child discipline	Percentage of children who experienced physical punishment and/or psychological aggression
Attitudes toward physical punishment	Percentage of caregivers who believe that physical punishment is necessary to raise a child properly
Father's engagement	Percentage of fathers who engage in the daily care of the child
Exposure to conflict	Percentage of children exposed to serious conflict in the household
Household decision-making	Percentage of caregivers who report shared or not shared decision-making in terms of what the child eats, ECD attendance and what to do when the child is sick
Support for learning	
Support for learning	Percentage of children with whom an adult has engaged in three activities or more to promote learning and school readiness in the past week
Availability of children's books	Percentage of children who have three or more children's books
Availability of playthings	Percentage of children with two or more playthings in home
Interaction with playmates	Percentage of children who have regular playmates

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Access to ECD and services	
Attendance to early childhood development services	Percentage of children who are attending any early childhood development or organized learning programmes
Attendance at pre-primary school	Percentage of children aged 48–59 months who attend nursery or pre-primary school
Health insurance	Percentage of households and/or children covered by health insurance
Community Health Services	Percentage of children having received deworming in the past six months, been visited by a Community Health Worker in the past month and whose growth was monitored in the past month
Child Protection	Percentage of children whose birth was registered with the civil authorities
Child Development	
Early child development index	Percentage of children aged 36–59 months who are developmentally on track in at least three of the following four domains: literacy–numeracy, physical, social-emotional and learning
Early child development index: Literacy–numeracy	Child can identify/name at least 10 letters of the alphabet; can read at least four simple, popular words; and/or knows the names and recognize the symbols of all numbers from 1 to 10. If at least two of these capabilities are observed, a child is considered developmentally on track.
Early child development index: Physical	Child can pick up a small object such as a stick or a rock from the ground with two fingers and/or the mother does not indicate that the child is sometimes too sick to play. If a child can perform one of those two activities, the child is regarded as being on track in the physical domain
Early child development index: Social-emotional	Child gets along well with other children, and/or does not kick, bite or hit other children; and/or does not become distracted easily. If a child is able to show two out of three behaviours, the child is regarded as being on track in the social-emotional domain

Indicator Family Care Practices	Description
Early child development index: Learning	Child follows simple directions on how to do something correctly and when given something to do and is able to do it independently. If a child is able to perform one of those two activities, the child is regarded as being on track in the learning domain
Water, sanitation and hygiene	
Use of improved drinking water sources	Percentage of household members using improved sources of drinking water (piped water into dwelling/yard/plot, public tap/standpipe, tube well/borehole, protected dug well, protected spring and rainwater)
Households with an improved sanitation facility	Percentage of household members using improved sanitation facilities (flush to piped sewer system, flush to septic tank, flush to pit latrine, ventilated improved pit (VIP) latrine, pit latrine with slab, and composting toilet)
Place for handwashing	Percentage of households with a specific place for handwashing – where water and soap or other cleansing agents are present
Handwashing occasions	Percentage of caregivers who report always washing their hands after using the toilet, before cooking, before eating and/or before feeding young children
Nutrition	
Stunting	Percentage of children under age 5 who fall below (a) minus two standard deviations (moderate and severe) (b) minus three standard deviations (severe) of the median height for age according to the WHO standard
Wasting	Percentage of children under age 5 who fall below (a) minus two standard deviations (moderate and severe) (b) minus three standard deviations (severe) of the mean weight for age according to the WHO standard
Underweight	Percentage of children under age 5 who fall below (a) minus two standard deviations (moderate and severe) (b) minus three standard deviations (severe) of the median weight for height according to the WHO standard
Minimum dietary diversity	Children who received minimum dietary diversity (foods from four or more food groups during the previous day)
Micronutrient Supplementation and Vitamin A	Percentage of children receiving micronutrient supplementation over the past seven days / Percentage of children receiving vitamin A during the past 6 months
Health	
Children with diarrhoea	Percentage of children with diarrhoea in the last two weeks
Care-seeking for diarrhoea	Percentage of children with diarrhoea in the last two weeks for whom advice or treatment was sought from a health facility or provider
Children with fever	Percentage of children with fever in the last two weeks
Children with cough	Percentage of children with cough in the last two weeks
Care-seeking for cough	Percentage of children with cough in the last two weeks for whom treatment was sought from a health facility or provider
Care-seeking for fever	Percentage of children with fever in the last two weeks for whom advice or treatment was sought from a health facility or provider
Poor mental health	Percentage of caregivers with elevated levels of depression and anxiety symptoms

Indicator Family Care Practices	Description
Food Insecurity	
Household food insecurity	Percentage of households that did not have enough food or money to buy food on at least one day during the past week
Coping strategies to address food insecurity	<p>Frequency (mean number of days in the week before the survey) of households applying the following coping strategies because they did not have enough food or enough money to buy food:</p> <ol style="list-style-type: none"> 1. Rely on less preferred and less expensive foods 2. Borrow food or rely on help from a friend or relative 3. Limit portion size at mealtimes 4. Restrict consumption by adults to allow young children to eat 5. Reduce the number of meals eaten in a day

