



Save the Children



EVALUATION OF FIRST STEPS (*INTERA ZA MBERE*) IN RESPONSE TO COVID-19

*Quality Early Childhood Care and Development
through Holistic Parenting Education*

Baseline Report

ACKNOWLEDGMENTS

The “**First Steps (Intera za Mbere) towards quality Early Childhood Care and Development through Holistic Parenting Education in Response to COVID-19**” baseline study is the result of the cooperation of several organizations “**other partners**” including UMUHUZA monitoring Team and individuals including community volunteers, and the research team would like to take this opportunity to thank them all. We would like to start by expressing our appreciation of UMUHUZA and the Save the Children- field team for helping facilitate the data collection. Save the Children and its partners implementing the First Steps-Second Cohort project enabled the research team to access the participants’ contacts during phone survey as an adaptation used during COVID-19. Our thanks to the parents/caregiver’s “**respondents**” who took their time to talk with our enumerators and shared their thoughts and opinions about the First Steps program.

The research team has got a tremendous support from different people and organizations including Laterite Ltd, Imbuto Foundation, VSO who facilitated our research design and getting contacts of the respondents. Finally, we would like to acknowledge the Save the Children MEAL and Operations team who, despite the very busy time, given comments and advise to make this study happens. Without the help and valuable contribution of each group of people mentioned here, and several whom we may have missed, it would not have been possible to complete this exercise and the writing of this report.

Contributors

Abimpaye Monique
Harerimana Jean de Dieu
Uwamahoro Marie Diane,
Dusabe Caroline
Kabarungi Noella

DISCLAIMER

The authors’ views expressed in this report do not necessarily reflect the views of the Save the Children or the donors of the project.

Table of Contents

ACKNOWLEDGMENTS.....	i
LIST OF TABLES AND FIGURES.....	iv
LIST OF ANNEXES.....	v
ACRONYMS.....	vi
EXECUTIVE SUMMARY	vii
INTRODUCTION.....	1
1.1 Background.....	1
1.2 Rationale.....	1
1.2.1 First Steps Programming Since 2015.....	1
1.2.2 First Steps programming for COVID-19 response.....	2
1.3 Study aim.....	4
METHODOLOGY	5
2.1 Adaptation from the previous design.....	5
2.2 Sampling Strategy: Sample size, selection criteria, Unit of Analysis.....	5
2.2.1 The design of the first wave which we will build on (from Laterite).....	6
2.2.2 Selection of study population.....	7
2.2.3 Procedures at enrolment.....	8
2.2.4 Follow-up if cohorts' study or trial.....	8
2.2.5 Measurement of exposures and confounders.....	8
2.3 Measurement of outcomes.....	9
2.4 Data Management.....	9
2.5 Analytical approach.....	9
2.6 Ethical considerations.....	10
FINDINGS.....	12
3.1 The response rates.....	12
SECTION 1: First Steps Program for Families with Children Aged 0-36 Months.....	12
3.2 Socio-Demographic characteristics.....	12
3.3 Additional information on household profile.....	14
3.4 Child Health and Nutrition.....	16
3.4.1 General Health and Nutrition Information.....	16
3.4.2 COVID-19: Household behavior and its impact on household welfare	18
3.5 Caregiver/parent and Child Interactions.....	22
3.5.1 Caregiver-child interaction.....	22
3.5.2 Male's (father) involvement and interaction.....	23

3.6 Exposure/Participation in First Steps Activities24

SECTION 2: Caregiver Reported Early Development Instruments (CREDI).....26

CONCLUSION AND RECOMMENDATION.....27

 4.1 Conclusion.....27

 4.2 Recommendation.....27

REFERENCES.....29

ANNEXES.....31

LIST OF TABLES AND FIGURES

Figure 1: Intervention and Research Design per wave of First Steps.....	6
Figure 2: Distribution of gender among the household members.....	12
Figure 3: Distribution of parents by relation with child and marital status.....	13
Figure 4: Distribution of age for the parents (years) and children (months).....	13
Figure 5: Distribution of parents by education background.....	13
Figure 6: Household Assets and belongings.....	14
Figure 7: Toys, and books for children under three within households.....	14
Figure 8: Heard any advice on care and for children under three years.....	15
Figure 9: Children living with parents: size and children under three years.....	15
Figure 10: General health and nutrition information: Breastfeeding and washing hands..	16
Figure 11: Current breastfeeding status across respondents.....	16
Figure 12: Breastfeeding Status among children under 3 years.....	17
Figure 13: Observing COVID-19 measures: handwashing and wearing masks.....	18
Figure 14: COVID-19 period affected relationship with or parenting a child.....	18
Figure 15: Parent: Emotional feeling during COVID-19.....	19
Figure 16: Child: Emotional feeling during COVID-19.....	19
Figure 17: Selfcare activities engaged to gain good mental health.....	20
Figure 18: Father’s involvement and time spent with children.....	23
Figure 19: Father’s care to child in absence of the mother.....	23
Figure 20: Heard on radio discussing about child development.....	24
Figure 21: Radio aired the programs.....	24
Figure 22: Recall aired programs.....	25
Figure 23: Distribution of overall CREDI scores.....	26
Table 1: Heard any advice on care related to children under three years.....	14
Table 2: The impact of COVID-19 on household wellbeing.....	20
Table 3: The interaction between caregiver and child.....	22

LIST OF ANNEXES

Annex 1: Neighborhood and degree of contamination.....	31
Annex 2: Distribution of intervention among Districts in Rwanda.....	31
Annex 3: Distribution of Children within surveyed District.....	32
Annex 4: Heard any advices related to care practice last 6 months.....	32
Annex 5: Socio-economic situation during pandemic.....	33
Annex 6: Mean comparison for hearing message on radio and interventions.....	33
Annex 7: Caregiver-child interaction.....	34

ACRONYMS

ANOVA	Analysis of variance
CDC	Centers for Disease Control and Prevention
COVID-19	Coronavirus disease
CREDI	Caregiver-Reported Early Development Instruments
ECD	Early Childhood Development
FS	First Steps (Intera za Mbere)
FT	Full Touch
HOME-SF	Home Observation Measurement of the Environment-Short Form
IZU	Inshuti z'umuryango (IZU)/Friends of the family
LT	Light Intervention
NECDP	National Early Childhood Development Program
RCT	Randomised Control Trails
RNECP	Rwanda Education NGO Coordination Platform

EXECUTIVE SUMMARY

Background: This document reports the findings of “**First Steps (Intera za Mbere) towards quality Early Childhood Care and Development through Holistic Parenting Education in Response to COVID-19**”. The Cohort 2 aimed to evaluate the First Steps (Intera za Mbere) towards quality Early Childhood Care and Development through Holistic Parenting Education in Response to COVID-19. The study presents the benchmark through which the project may have an impact, such as parental practices, attitudes, skills and knowledge related to early childhood care and development and how caregivers do respond to parenting in this time of COVID-19. Besides, the study draws the description on the development, validation, and initial evidence from the Caregiver-Reported Early Development Instruments (CREDI). The CREDI was designed as a caregiver-reported, household-level measure of ECD for children under three years. The main objective of the CREDI is to provide an accurate and easy-to-administer assessment of ECD for children between 0 and 35 months that functions across a wide variety of household, and socioeconomic contexts.

The new adaptation of the First Steps project will have three (3) approaches (radio program, phone calls, and home visits) as channels to reach our project targeted families. In addition to the existing interventions, the messages on COVID-19 will be added for the actual radio transmission packages and the message will be broadcasted on weekly basis for a period of 18 weeks and families will have access to the additional support of follow up via phone counseling and home visits by Inshuti z’umuryango (IZU)/ Friends of the family.

In order to scale up the project, we have increased the number of the local radio stations from 2 to 8, and all 30 districts in Rwanda will have access to the radio sessions but only 3 districts Kirehe, Ruhango and Gasabo will be the project’s focus, where 2340 families as the remaining targeted families to benefit from the parenting education for families with children below 3 years for the 2nd wave.

Survey Design and Methodology: The baseline captures data on the adaption of COVID-19 response among households having children under three years. Intera za Mbere expects sound and robust evidence on the effectiveness of the studied interventions. To achieve this, we will implement again a Randomized Controlled Trial in all districts of Rwanda with a focus in 3 districts (i.e. Kirehe, Ruhango and Gasabo). The intervention conducted and target selected sectors within three districts (Kirehe District, Eastern Province; Ruhango District, Southern Province; and Gasabo District, City of Kigali). All districts will receive both light touch and full intervention. To maximize the power of the trial, the sample for the research study has an equal number of light touch and full intervention households.

The unit of observation is the household. For each household, we expect to interview one caregiver, and to assess - with the ECD instruments (i.e. CREDI short-form)- one child less than three years old. The identification of causal effects is based on a cluster Randomized Controlled Trial (RCT) over 18-weeks period. Cluster corresponds to cells (i.e., an administrative geographical unit in Rwanda composed by the aggregation of a few villages). The treatment was randomly assigned at cell level. Control, full intervention, and light touch intervention cells will be equally distributed across all three districts under the program.

The sampling frame was parents or caregivers of children under three years in the First Steps Project area. The baseline results will be compared to an endline survey scheduled to be conducted after 18 weeks of the project implementation to assess cohort 2 outcomes and impact. All procedures followed ethical standards to ensure that participation was informed and voluntary and maintained confidentiality at all stages.

The key methodological survey design elements for this household-based survey including the stratification strategy, base sample size determination, and sampling protocol were developed in close consultation with different partners of the First Read Partnerships program implementation and with the research team of the Save the Children-Rwanda. Data was collected from 5th to 30th October 2020 simultaneously with both caregiver questionnaire and CREDI short form survey. Data was drawn from 45 villages for three districts (Gasabo, Ruhango and Kirehe) representing 46% of the total sample under the RCT including control arm, with a sample of 12 households per village. In addition, 395 villages drawn from 27 Districts for other partners. In total 1,305 respondents were identified randomly during the baseline survey.

Key Findings: This report outlines the baseline findings from the RCT method as follows:

- Among respondents 1,300 (99.6%) reveals their gender and 70.5% of parents/caregivers were female and 29.5% were male. 69% of the respondents were mother's child, 29%, father and the remaining percentages were for grandmothers/fathers (1%), foster parent (0.5%) and others (~0.2%).
- The evaluation dominated with married respondents (61.4%), cohabitated (26.7%), single parents (9.3%), divorced and widows were 1.7% and 1%, respectively.
- Analysis of data from baseline survey shows that around all respondents breastfed their babies at some point in their lives, with 95.48%, with 2.76% who did not, and remaining 1.76% were not applicable. And currently, presented with 86.4% who breastfed their children under three years.
- Respect to COVID-19 measures, around 87.5% parents in average wash their hands either before eating (78.3%), cooking (59.4%), feeding children (78.2%), after toileting (82.6%), cleaning a young child's bottom (60.7%), eating (57.2%), cleaning home (47.8%) and meeting someone (36.5%).
- Respondents revealed that COVID-19 period affected relationship with or parenting a child, 43.18% did not get any specific effects, but 29.22% respondents reveal to have high temper than before COVID-19, 24.83%, experienced more stress than usual. However, the remaining 1.7% and 1.08%, are less interested in playing and talking and less patience with child.
- Parent presents challenging emotional situation during COVID-19 and their behavior was abnormal up to 73.32% and becomes too nervous/stressed: very often (8.1%), fairly often (16.89%), sometimes (28.53%) and other parents did not present any stress 19.89% and 26.6%, with usual stress. This might have a significance that many parents had to manage difficulties and pain related to having sick relatives or other needs, having had wage reductions or having lost their work. It is easy to understand how families have been exposed to a very strong emotional and psychological stress.
- In the same setting, children also suffered too, where respondents strongly agree (4.23%) and agree (25.23%). This shows that the magnitude of the impact of COVID-19, affect children directly and indirectly depends on the circumstances.
- The study reveals that 98.47% parents wash their hands as recommended by health actors using soap or detergent, the remaining percentage use hand sanitizers. While, only 12.17% children under 3 wear masks when goes out. The evidence on the benefits and harms of children wearing masks to mitigate transmission of COVID-19 and other coronaviruses is limited. Furthermore, some studies confirm that wearing or use mask in children decline the attack of influenza and other respiratory viruses.
- The findings revealed that parent and their emotional situation during COVID-19, their behavior was abnormal up to 73.32% and becomes too nervous/stressed: very often (8.1%), fairly often (16.89%), sometimes (28.53%) and other parents did not present any stress 19.89% and 26.6%, with usual stress. This might have a significance that many parents had to manage difficulties and pain related to having sick relatives or other needs, having had wage reductions or having lost their work.

It is easy to understand how families have been exposed to a very strong emotional and psychological stress.

- Since pandemic -2020, 87.78% involved in different self-care activities as a mean of gaining good mental health: prayer (67.2%), talking to friends (48.1%), sleeping (38.7%), meditating (29.8%) and exercising (8.5%). During the COVID-19 pandemic, regardless of the severity and duration of socio-economic conditions that hits the family. They engaged in the activities that may release the pain either physical, mental, and emotional in hard and challenging situation.
- Over 50% of the caregivers interact with the child once a day, 19.23%, more than once per day, 12.18%, a few times each week, 7.82%, a few times each month, 6.36%, rarely and 3.52% did not interact with their child at all.
- The media exposure and participation to the *Intera za Mbere* program aired via radio, the respondents listened the program related children development via Radio Rwanda (85.7%), followed by Huguka (2.8%), Salus (1.3%). The significance of the radio in the life of the modern parenting is beyond question, as the caregiver observing his or her own children development by following the radio provider as an educator (Atagame et al., 2017; Yoder et al., 1996). One of the greatest challenges is to the limited program offered by the mass educator, as in this study the top three radios have social and economic agenda as their editorial line compared to the rest.
- Finally, when it comes to child development through CREDI-SF, the findings show that in average 27.2% of children score at or above the average of the reference group. Girls are slightly higher development scores compared to their boys agemate, with 29% of girls and 26% of boys scoring at or above reference group average.

Conclusion and recommendation: The baseline study presented an understanding of: (a) child health and nutrition including the related information aimed to promote breastfeeding and sanitation (hand washing), household behavior in response to COVID-19; (b) caregivers and child interaction, and father's involvement in parenting, exposure and or participation in projects activities including listening to the radio aired programs on child development and their discussion to their partners and (c) the extent to which the caregivers reported early development.

The baseline study has collected quantitative data on these main outcomes for 1,305 participants in the whole 30 Districts including 3 Districts under our RCT. This data serves as the benchmark against which the impact of the activity to be assessed. Participants have great expectations from the broadcasted program. Based on the comments given by respondents, it appears that these expectations may be beyond the scope of First Steps program. There is a need for the caregivers to discuss explicitly and upfront what the activity can and cannot do (such provision of radio, and other necessary materials help to boost the cognitive capacity of the children). This will help set more realistic expectations on the part of the participants and reduce possible disappointment.

1.1 Background

Parents' interactions with infants and children in the first years can have a long-term impact on physical, health, on social and emotional well-being, and on cognitive capacities (CDC, 2007). With training, parents can become more effective providers of the care and stimulation that babies and young children need to develop properly (Evans, 2006). Yet although there are many parenting education programs on particular issues or for specific target populations, few countries have implemented a nation-wide holistic parenting education approach (Baker-Henningham & Lopez Boo, 2010).

Furthermore, most large-scale parenting education programs rely solely on mass media communications, which are limited in effectiveness unless accompanied by opportunities for interpersonal communication (Saunders & Goddard, 2002). Finally, few programs target issues of cognitive development in the first 1000 days (approximately 3 years)—and even these rarely address supply-side challenges, such as whether parents can actually access books that are suitable for reading aloud with their children (Baker-Henningham & Lopez Boo, 2010).

Children that grow up in an atmosphere of deprivation, low interaction with adults, or ongoing, persistent stress (e.g. parental emotional instability, domestic or community violence, neglect, or food insecurity) may fail to build or maintain important brain connections. This ongoing toxic stress causes visible changes in brain structure¹. For young children who perceive the world as a threatening place, a wide range of conditions can trigger anxious behaviors that then impair their ability to learn and to interact socially with others especially in this time of the COVID-19 pandemic.

1.2 Rationale

1.2.1 First Steps Programming Since 2015

Since the Pilot Phase of First Steps (*Intera za Mbere*) Program in 2015, Save the Children continues to implement the program with an aim to improve parenting practices, child development outcomes, and promotion of emergent literacy in the home. The program targets caregivers of children under three years of age. *Intera za Mbere* is delivered through 18 weekly parenting education group sessions that focus on 4 areas: responsive caring, playful learning, language & literacy, and health beginnings and each session takes approximately 75-90 minutes in length, with use of blended radio programming and community-based activities. Families also receive an average of two home visits during the intervention but vulnerable families receive additional home visits. The FS material package includes a facilitators' guide, parenting session posters, illustrated activity cards on parenting practices, one children's book per family, and a demonstration of home book-making using local supplies.

Furthermore, built on a randomized control trial involving two arms of implementation and one control group with a little modification to the implementing phase. The trial conditions are as follows:

- Group (Arm) 1: Parents attend parenting education sessions facilitated by radio, supported by a local volunteer that has received three half-day trainings and a basic package of training materials;

¹ https://developingchild.harvard.edu/wp-content/uploads/2005/05/Stress_Disrupts_Architecture_Developing_Brain-I.pdf

- Group (Arm) 2: Parents attend parenting education sessions facilitated by radio, supported by a local volunteer that has received a more robust package of materials and an additional training for the volunteer on how to use them, book gifting to participating families, plus a salaried area facilitator supporting the local volunteers in guiding group sessions and conducting home visits.
- Group (Arm) 3: Control

The pilot phase evaluated the effect of *Interaza Mbere* at scale, where the objectives were to explore the impact, cost-effectiveness, and scalability of different forms, components and implementation platforms.

From the pilot phase in 2015-2016 in Ngororero district, the evaluation found that both the full and light-touch versions of the program improved child health and nutrition practices and parent-child engagement, which contributed to children reaching appropriate developmental milestones. At this pilot stage it was difficult to make conclusions about the differential contribution of the light touch program compared to the full intervention program due to the delayed implementation of the full intervention but further research which are being done are attempting to answer this question. However, the study concluded that the light touch intervention and the full touch intervention as they were implemented had strong significant impact on both parents and children in Ngororero District.

For both light touch and full intervention treatment groups compared to a control group, a randomized controlled trial¹ of the first Pilot Phase of First Steps in Ngororero district, Rwanda found:

- **Improved** child development, health and nutrition practices
- **Improved** parent-child engagement
- **Increase** in children ability in reaching appropriate developmental milestones
- Strong correlation between improved parent-child engagement and children's ability to reach age appropriate developmental milestones

Given the benefits seen in one district during the pilot phase of First Steps, Save the Children scaled up the project to 3 districts (Gasabo, Kirehe and Ruhango) with continued focus on early child stimulation and learning of the intervention. Scaling up the intervention provides excellent opportunity to extend the benefits of First Steps to more parents and children in Rwanda while testing the relative benefits of each of the two treatment groups with a larger sample of parents. And the baseline for the first cohort has already been done.

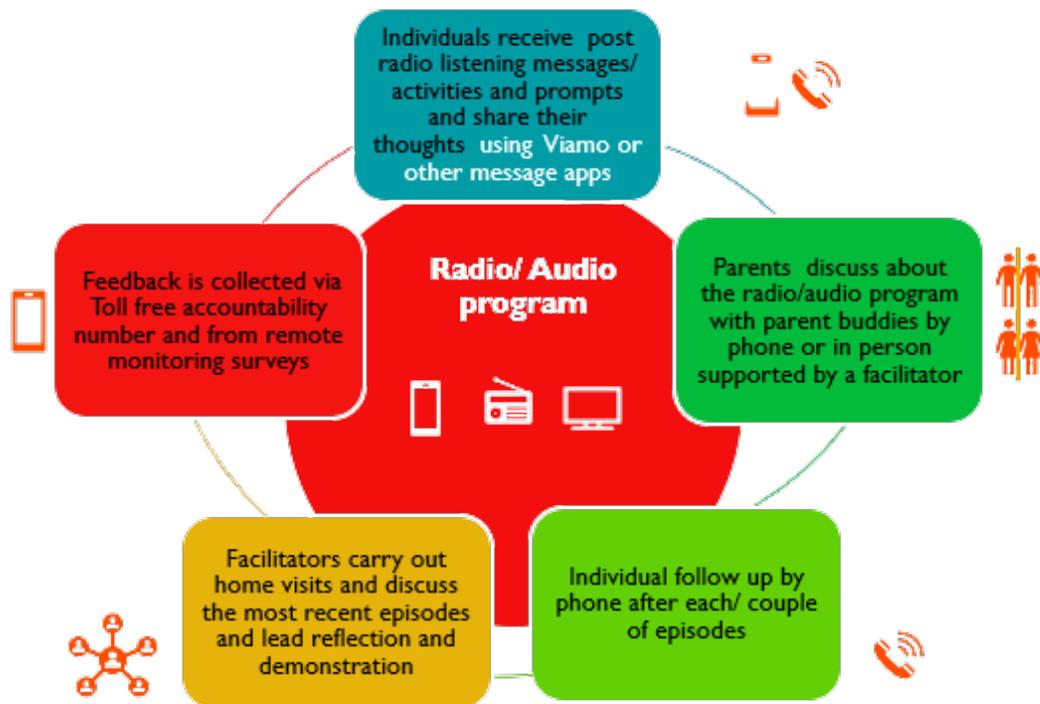
1.2.2 First Steps programming for COVID-19 response

Recently, Save the Children and UMUHUZA have made an adaptation of the First Steps project to respond to the COVID-19 pandemic, due to government restrictions, where all social gatherings including parenting meetings are not allowed in the community. The new adaptation of the First Steps project will have three (3) approaches (radio program, phone calls, and home visits) as channels to reach our project targeted families. In addition to the existing interventions, the messages on COVID-19 will be added for the actual radio transmission packages and the message will be broadcasted on weekly basis for a period of 18 weeks and families will have access to the additional support of follow up via phone counseling and home visits by Inshuti z'umuryango (IZU)/ Friends of the family.

In order to scale up the project, we have increased the number of the local radio stations from 2 to 8, and all 30 districts in Rwanda will have access to the radio sessions but only 3 districts Kirehe,

Ruhango and Gasabo will be the project’s focus, where 2340 families as the remaining targeted families to benefit from the parenting education for families with children below 3 years for the 2nd wave. Full touch will have 420 families (21 villages * 20 families) and LT will have 1920 families (96 villages * 20 families).

Information channel²: FS Programming for COVID-19 response



Expanding Radio messages: Changes to Radio scripts to add Caregiver well-being and COVID19 Health messages on hand washing, wearing face masks, breastfeeding, addressing stigma etc.

Social Media posters: Development of Social media posters to sensitize parents and share First Steps strategies and tips with all Rwanda population

Coverage: Decision to scale Radio program nationally by expanding number of Radio stations airing FS and working with NECDP and RNECP partners to disseminate messages and radio schedule

Training while respecting physical distancing and remote coaching via phone where possible, and remote training via audio (audio training podcast)

Home visiting: The home visit here is intensive in comparison to the first cohort because each volunteer will be responsible for 10 families and visiting/calling them. Volunteers will be trained on how to conduct home visits, they will complete hard copy registers, they will visit more than before

² Existing groups (faith groups, cooperatives, volunteers, etc.) can be used if possible. Groups can be formed for groups with a common situation (e.g. with newborns, children with disabilities, daily wage earners, landless, fathers, mothers, etc.). ECCD teachers call parents once a week for a one-on-one call. Facilitators should have the information on where to get the services. Caregivers are connected as "buddies" who check in on each other every day at the same time, just to see how they are doing.

i.e. every week or every two weeks, they will follow the same home visit schedule as well as phone call counselling to families.

1.3 Study aim

The purpose of this research was to evaluate the First Steps (*Intera za Mbere*) towards quality Early Childhood Care and Development through Holistic Parenting Education in Response to COVID-19. The study assessed the mechanisms through which the programme may have an impact, such as parental practices, attitudes, skills and knowledge related to early childhood care and development and how caregivers do respond to parenting in this time of COVID-19.

This second study compared the short –term effect of the full intervention versus the light touch intervention, as well as the effect of both interventions compared to the control group. First Steps (FS) aims to achieve improvements in parenting practices, child development indicators, and increase emergent literacy promotion in the home by reaching children aged 0-3 years old through community-based parenting education sessions, home activities and radio programs in Rwanda.

2.1 Adaptation from the previous design

The design for the previous phases of First Steps focused on determining the most feasible and cost-effective approach to delivering parenting education, suitable for national expansion in the Rwandan context and effective in achieving improvements in parenting practices, child development indicators, and emergent literacy promotion in the home. Intera za Mbere expects *sound and robust* evidence on the effectiveness of the studied interventions. To achieve this, we will implement again a Randomized Controlled Trial in all districts of Rwanda with a focus in 3 districts (i.e. Kirehe, Ruhango and Gasabo). Measurements include a pre- and post-treatment (e.g. a baseline and end-line survey) on parenting outcomes.

Activity ³	Full Touch [FT]	Light Intervention [LT]	Control
Accompanied by radio programme 18 radio programs of 15-20 min each, played to pass messages directly to parents and facilitators. The program will be played on 8 radio stations on different times to allow for flexibility as a mitigation in case someone misses the first airing due to unavoidable circumstances.	Yes	Yes	Yes
2 local volunteers per village trained for 4 days and who guide a parenting session.	Yes	Yes	No
Home cards: Family take home activity cards/leaflets	Yes	No	No
Book Borrowing: Book banks managed by parent committees existing in every parenting group: minimum 40 baby books with different titles, which allow parents to borrow books to read at home with their children.	Yes	No	No
Home visit: conducted by community volunteers at least twice during the 18 weeks parenting sessions period (with more visits for at risk families). Focuses on encouraging men to participate in parenting activities and allows the volunteers to practice parenting facilitation exercises with parents at home	Yes	Yes	No
Phone follow up: Individual follow up by phone after each/couple of episodes	Yes	Yes	No

2.2 Sampling Strategy: Sample size, selection criteria, Unit of Analysis

The intervention conducted and target selected sectors within three districts (Kirehe District, Eastern Province; Ruhango District, Southern Province; and Gasabo District, City of Kigali). All districts will receive both light touch and full intervention. To maximize the power of the trial, the sample for the research study has an equal number of light touch and full intervention households.

³ All activities respected gender sensitivity (target both men and female. Volunteer should follow both fathers and mothers) for phone counselling and home visits

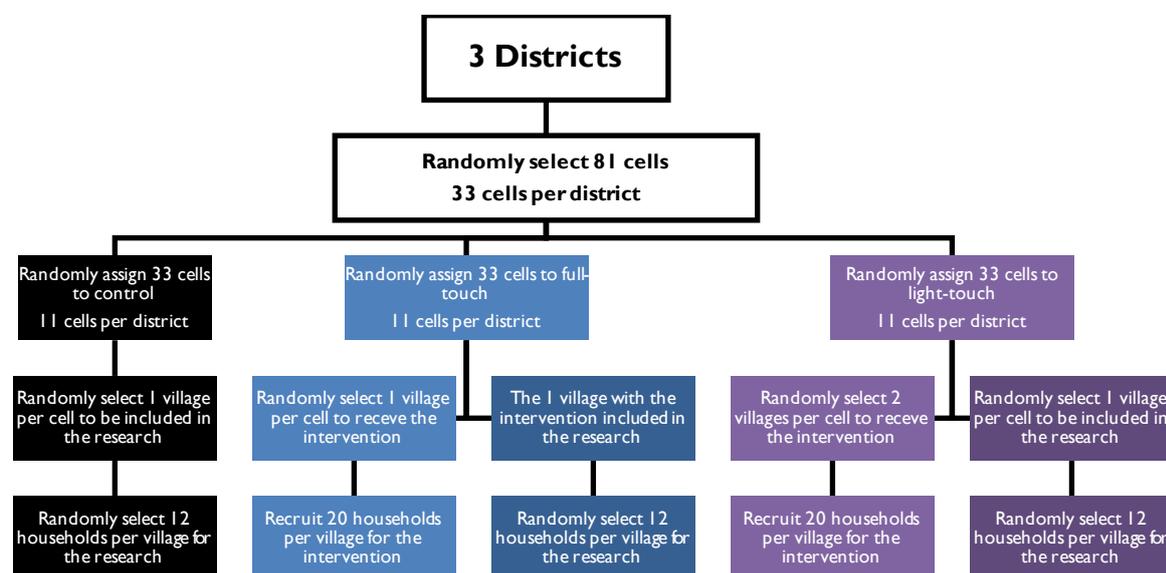
We will base on the first wave RCT design as the families that we will target in the 2nd wave are ones who left on the waiting lists from the same villages/cells from the first wave. Therefore, the design is similar but the number of people to ask will differ as the population number also differs.

2.2.1 The design of the first wave which we will build on (from Laterite)

The unit of observation is the household. For each household, we expect to interview one caregiver, and to assess - with the ECD instruments (i.e. CREDI short-form)- one child less than three years old. The identification of causal effects is based on a cluster Randomized Controlled Trial (RCT) over a 18-weeks period. Cluster corresponds to cells (i.e., an administrative geographical unit in Rwanda composed by the aggregation of a few villages). **The treatment will be randomly assigned at cell level. Control, full intervention, and light touch intervention cells will be equally distributed across all three districts under the program.**

One village was randomly selected within each cell, and 12 households were randomly selected within each village. The 12 household will all share the same assignment to one of the two treatment arms or to the control group. Data were collected at baseline and will be collected for the same households at endline. Only one or two villages per cell participate in the intervention, to prevent contamination between nearby villages with different treatment statuses. We illustrate the design of the intervention and research in **Figure 1** for each the first wave of data collection.

Figure 1: Intervention and Research Design per wave of First Steps



Assuming a two-sided t-test with a 5% significance level, 80% power, and intra-cluster correlation (ICC) of 0.1⁴, **this design is powered to detect a difference greater than 0.289 standard deviations between any two arms of the trial.** The power to detect a difference between either treatment arms combined (looking at the effect of any treatment) versus control is 0.250. A minimum detectable effect smaller than 0.3 standard deviations should be sufficient, based on the magnitude of the coefficients of the impact of the programme on ASQ scores available from the pilot

⁴ The ICC is based on estimates from the Sugira Murungu trial in Rwanda which also assessed early childhood development. This means 10% of the variation in ECD outcome scores is explained by factors that are common within cells. These numbers are relatively low, meaning that most of the variation in ECD outcome scores is explained by household or child factors.

evaluation.⁵ We will not have sufficient power to report results by district and will only report overall results for the study.

The most effective way to increase power in this trial is to increase the number of cells (e.g. clusters) in the trial – as opposed to further increasing the number of households per cluster. The table below shows the minimum detectable effect given variations in the study design: the number of cells per arm and the number of households per cell (cluster), assuming an alpha of 0.05 and power of 0.80.⁶ An increase from 27 to 33 cells per arm of the trial results in an increase in minimum detectable effect of about 0.03 standard deviations.

Particular attention devoted in tracking the same children and caregivers across baseline and endline, and in reducing attrition to the minimum. However, assuming there is a 20% attrition rate as seen in the pilot study, the cluster size may decrease by approximately 2 households per cluster between baseline and follow-up. This would lead to an increase in minimum detectable effect of about 0.01 – 0.02 S.D. The study is still significantly powered, with a minimum detectable effect of around 0.3, given this attrition.

For this second wave, the RCT evaluation will follow this first RCT wave’s framework

The sample for this RCT included 14 clusters (14 cells) per treatment condition, including the control group. In each of these Cells, 12 families from each of cells will be included, for a total sample size of 168 families per treatment condition, and 504 families across the 3 arms. This sample size is appropriate for this study using the assumptions based on how we have seen the CREDI short form work in other countries: .30 MDE, baseline-endline correlation of .70 (found .75 in RCT in Bhutan so rounded down to be conservative), cluster size of 12 families (based on Laterite protocol), intra-cluster correlation of .05 (found .03 in Bhutan and .046 in Ghana so rounded up slightly) and power at 80%. **With these assumptions, we can have appropriate power with 13 clusters of 12 families each. If we assume 15% attrition, then suggest 14 clusters of 12 families each or 15 clusters of 10 families per arm.**

2.2.2 Selection of study population

The study population for this RCT targeted all families with children ages 0 to 23 months at the time of the baseline data collection in Kirehe, Gasabo and Ruhango Districts of Rwanda. In addition, a parent or legal guardian asked to agree to participate in the intervention and a possible follow-up assessment 5-6 months later in order to measure changes in parental and child outcomes over time across the three study groups.

⁵ The pilot evaluation “Saving Brains: First Steps 0-3 Program in Rwanda Endline Report” available online at <https://www.savethechildren.org/content/dam/usa/reports/ed-cp/saving-brains-rwanda.pdf> does not report standardised coefficients. Back of the envelope calculations assuming that the ASQ dependent variables are binary suggest that the standardised coefficients are equal or bigger than 0.5 in most cases. However, the difference between the full and light touch appears to be small. As a consequence, we adopted a standard coefficient of 0.3 as the main benchmark in the power calculations. During the second cohort we changed the instrument of assessment from MDAT to CREDI.

⁶ The minimum number of cells per District in the 3 included Districts, considering the exclusion criteria (no radio or other existing interventions), is 34 cells in Ruhango. Divided by the 3 arms of the trial, this means there can be at most 11 cells per arm in any District and 33 cells per District overall.

2.2.3 Procedures at enrolment

In all selected villages for treatment who have a child aged 1-30 months were identified for them to participate in the intervention. Families in the different treatment groups will not be told about the other interventions from other arms. The study aims for a participation of 12 households in each village; however, all 20 identified families will be allowed to join the intervention at the launch of cohort two. This cohort is mainly composed by families who were on the waiting lists (were “buffer”) which remained beyond the first 20 families which attended the first cohort”. amongst those participating in the study, but who have children of eligible ages so that all eventually will be allowed to participate, but not in the first cohort. No payment will be offered to participants, and no incentives will be promised to ensure participation.

2.2.4 Follow-up if cohorts’ study or trial

Parents and children sampled for the baseline study in September 2020 will be interviewed again in February 2021 in order to measure changes in parental and child outcomes over time across the three study groups. Some attrition between baseline and follow-up studies is anticipated and previous studies of this type suggest that 10-15 percent would be within the normal range. Logistic regression analyses will be used to determine any differences in attrition rates related to the study groups or other demographic factors, and any mitigating factors will be controlled for in the impact evaluation analyses.

2.2.5 Measurement of exposures and confounders

Continuous monitoring will be carried out by both Save the Children Rwanda and UMUHUZA staff, with strategies for learning in action beginning at the local level—however this must be done in a way that will not interfere with the RCT. All local volunteers organizing parenting sessions will be asked to keep a register about the listenership level of parents and how they are being visited by volunteers. The volunteers will also be asked to ensure the smooth monitoring of the intervention given and to measure their capacity around the session being given. The First Steps project staff will also visit some areas once and analyse their observations based on a list of quality benchmarks and a standardized observation form with quality indicators related both to facilitators’ practices and parents’ level of participation.

For groups in treatment condition 1 and 2, program staff will also accompany area facilitators on a certain number of home visits and invite them to reflect on the quality of the parenting sessions and home visits and on ways to bring about improvements. The Save the Children and UMUHUZA Programme Managers will carry out monthly monitoring visits to the implementation area in addition to virtual meetings with the programme staff each time. The Programme staff will also participate in one review and planning meeting each month, collecting reflections and feedback from facilitators in order to inform programme decision making and quality improvement.

These meetings translate learning into action by connecting analysis of the previous month’s activities to plans for the next month’s implementation. Finally, participants will be invited to final meetings at the very end of the pilot phase, once the end-line evaluation has been completed, in order to learn from their reflections on the experience and their recommendations for future parenting education efforts. These meetings will also be used for planning next steps about how parents can continue to carry out the activities without support from Save the Children and UMUHUZA.

The potential barriers to achieving proof of concept in the intervention areas are thus essentially the same as those that might exist elsewhere in the country: convincing parents to set aside their other priorities in order to follow aired sessions; ensuring that families actually have access to a functioning radio for each weekly session due to the network issues; and scheduling home visits. These are some of the potential difficulties with the radio facilitation modality that we expect the Randomized Controlled Trial to test.

2.3 Measurement of outcomes

Child development benefits measured through a Caregiver Reported Early Childhood Development Instruments (CREDI-SF)⁷. The tool assesses development across five domains: motor, language, cognition, social-emotional, and mental health. The tool is appropriate for children ages 0-36 months and takes approximately 15 minutes to administer. The tool is open-source and free to use.

In addition to the child outcomes this study will also measure changes in parental knowledge, attitudes and behaviours. A parenting practices survey based on the Home Observation Measurement of the Environment-Short Form (HOME-SF), adapted for the Rwandan context, and adapted to COVID-19 situation with focus on key practices in the areas of hygiene, nurturing and discipline, conversational interactions, book-reading, and the home literate environment.

2.4 Data Management

Data were collected using Kobo toolbox software. This software enables customized enumerator-led assessments that can be administered off-line and later uploaded to a central, cloud-based location. The database has restricted access enabled and only senior researchers on the project who have access to the raw data. Random IDs were generated for children and parents participating in the study and all data were de-identified before being shared off the cloud. Only Research personnel have access to participant-identifying information. The data collectors have temporary access to this information as they collect it, but will not retain any of it and will not be able to access data after they have completed each interview. Information from parent questionnaires and child assessments were uploaded to the cloud daily after data collection has been completed and Research and Evaluation Coordinator at Save the Children Rwanda checked the uploaded information for ensuring the data quality assurance and against paper records of families to be interviewed that day. If any assessments are missing, they will inform the concerned enumerators.

2.5 Analytical approach

The overall study is a randomized control trial of a parenting education programs designed to improve healthy development for children ages 0-26 months. This randomized control trial will contain 3 groups, three experimental conditions. Samples sizes have been determined by power calculations based on observed effects in Save the Children's previous efforts at implementing parenting programs in other contexts. Analyses of covariance will be used to determine the effects of the two experimental conditions on children's early development, controlling for age, gender, baseline development, and home/parental characteristics.

⁷ Information on the CREDI is from the Harvard School of Public Health, Caregiver Reported Early Childhood Development Instruments website, <https://sites.sph.harvard.edu/credi/>.

- a) **Early development assessment:** Children's CREDI scores measured before the intervention begins, and changes in their scores over time analyzed six months later, clustering standard errors within sectors to control for shared variance at this level. OLS regression models will be used to determine the effect size, if any, of each intervention.
- b) **Home Environment and Parental Interview:** Parents' knowledge, attitudes and behaviors analyzed before the intervention begins and changes in their scores over time measured six months later, clustering standard errors within sectors to control for shared variance at this level. Quantitative analyses, using OLS regressions examined the relationships between the home environment and children's development scores.

Specifically, explanatory variables which significantly contribute to the explanation of the variance in the outcomes of interest (i.e. changes in parenting knowledge, attitudes and behaviors; child development as measured by the CREDI) were identified. Analysis of variance (ANOVA) were used to estimate the significance of differences between changes in key outcomes across the three study arms, using a Tukey-KRAMER post-hoc adjustment to account for testing multiple null hypotheses at one time. ANOVA results used to assess the relationship between changes in key variables of interest over time and exposure to First Steps interventions.

Information about the amount of participation in First Steps interventions allowed to analyze of how dosage impacts changes in key outcome variables. In addition, multivariate regression analysis will be used to investigate the equity of study outcomes by including relevant socio-demographic characteristics (i.e., age, education, socioeconomic status, etc.). When considering intervention scale-up the issue of equity of study results is critical. Together ANOVA and multivariate regression results displayed whether the intervention arms are differentially effective and also whether related changes are consistent across the participants in the study. Stata was used in data cleaning and analysis.

2.6 Ethical considerations

Confidentiality

Confidentiality is of primary importance to the research team throughout the research activities. To ensure confidentiality, the research team did not share the names, place, or other identifying information needlessly, and guarantee the privacy of individuals. The data collection was done with Kobo software. The Kobo database has restricted access enabled and only senior researchers on the project will have access to the raw data. Random IDs were generated for children and parents participating in the study and all data de-identified before being shared off the cloud. To prevent the possibility of participant names being exposed, all data files were password protected. The computer files were stripped of any identifying information prior to transmission over email or other electronic means.

Informed consent and assent

During the data collection, we sake verbal informed consent of all adults in the study as this study were carried-out over phone.

Data collection

After sample size computation and adjustment of the questionnaire in tablets, the next plan will be to start the process for data collection. Data collection were done using phone where respondents called and asked to voluntary participate in the study.

Recruitment of enumerators

In order to speed up the process of recruitment for enumerators, the opportunity was given to the existing enumerators in the database who worked with SCl and have experience in previous surveys.

Training of Enumerators

Following the recruitment of the required number of enumerators, selected enumerators were invited to a 2-day virtual training to get the team ready for the fieldwork. The training was led by the Research, Evaluation and Learning team in collaboration with the MEAL team. During the training, enumerators reviewed and discussed all survey instruments and provide comments, including suggestions of changes to the instruments when necessary.

Piloting survey questionnaire

Before starting data collection activities, a pilot survey will be conducted to get the team acquainted with the study procedures including how to approach the selected participants, obtaining the participant consent, and the assessment of how sound and appropriate are the study instruments including how long the survey last. Pilot activities will last one day and be conducted among the participants presenting similar characteristics with sampled participants for the actual survey to expose the enumerators to the kind of experiences they might face throughout the survey. Following the pilot survey, enumerators convened for a debrief session through which they discussed good practices to maintain during the survey, anticipate challenges they might face, and suggest final changes required to improve the survey instruments.

Measures of assuring data quality

In order to ensure the high quality of data collected for the study, the measures put in place, including the adequate capacity of staff, documentation of process and protocols, routine cross-checking, and adequate and logistical resources.

Documentation of process and protocols: Efforts made to facilitate the work of enumerators during data collection. To achieve that, enumerators were equipped with different documentation, such as data collection schedules. Besides, the communication platform, such as WhatsApp, will be used to allow continuous communication between the members of the team.

Routine cross-checking mechanisms: During data collection, cross-checking mechanisms deployed to ensure enumerators follow established procedures and that data collected remain of high quality. The mechanisms included routine cross-check of the data collection schedule to ensure that data collection was completed from the sampled participants. The Research and Evaluation Coordinator routinely cross-checked the data received in the Kobo server and communicate with the enumerators about any issues observed. If any issue is observed, corrective measures will be taken as soon as possible and be communicated with the team of enumerators.

3.1 The response rates

The baseline survey was intended to collect data to benchmark the “**Evaluation of First Steps (Intera za Mbere) towards quality Early Childhood Care and Development through Holistic Parenting Education in Response to COVID-19**”. The sample of household who participated in the study were selected at the village as unit of analysis based on the study design of the First Steps Cohort-1 (Laterite, 2020). Ultimately, the data gathered will be useful in measuring the impact change in the outcomes from the intervened villages at the end of 18 weeks of implementation. The data collection focuses on different sections covering demographic information, parenting care practices, child health and nutrition and other socio-economic characteristics. In total 1,305 respondents were identified randomly during the baseline survey.

The key methodological survey design elements for this household-based survey including the stratification strategy, base sample size determination, and sampling protocol were developed in close consultation with different partners of the First Read Partnerships program implementation and with the research team of the Save the Children-Rwanda. Data was collected from 5th to 30th October 2020 simultaneously with both caregiver questionnaire and CREDI short form survey. Data was drawn from 45 villages for three districts (Gasabo, Ruhango and Kirehe) representing 46% of the total sample under the RCT including control arm, with a sample of 12 households per village. In addition, 395 villages drawn from 27 Districts for other partners. The findings show that the likelihood of noisy among intervened villages participated in the randomized controlled trial is 2.7%, which is low in respect to the objective of the project.

SECTION 1: First Steps Program for Families with Children Aged 0-36 Months

3.2 Socio-Demographic characteristics

The baseline Survey was conducted with a sample of caregiver/parent’s participants from all Districts of Rwanda, but with unequal distribution, except intervened Districts (i.e. Gasabo Ruhango and Kirehe) other Districts the distribution of the respondents was based on the sampling frame (shared contacts of parents from the partnered organizations). Analysis of survey data shows that of the 1305 respondents.

Figure 2: Distribution of gender among the household members



Household

1,280 parents and 25 caregivers participated in baseline phone survey (phone calls). Among respondents 1,300 (99.6%) reveals their gender and 70.5% of parents/caregivers were female and 29.5% were male.

When asked parents about the gender of their children ranging between 0-3 years, the girls are 52.2% and 47.8% are boys (Figure 2).

The demographic characteristics, gender, for the children is quite distributed according to the current projections of Rwandan Population census (NISR, 2012), and demographic findings give an opportunity to compare the concerned variables without additional assumptions in terms of gender disaggregation.

Figure 3: Distribution of parents by relation with child and marital status

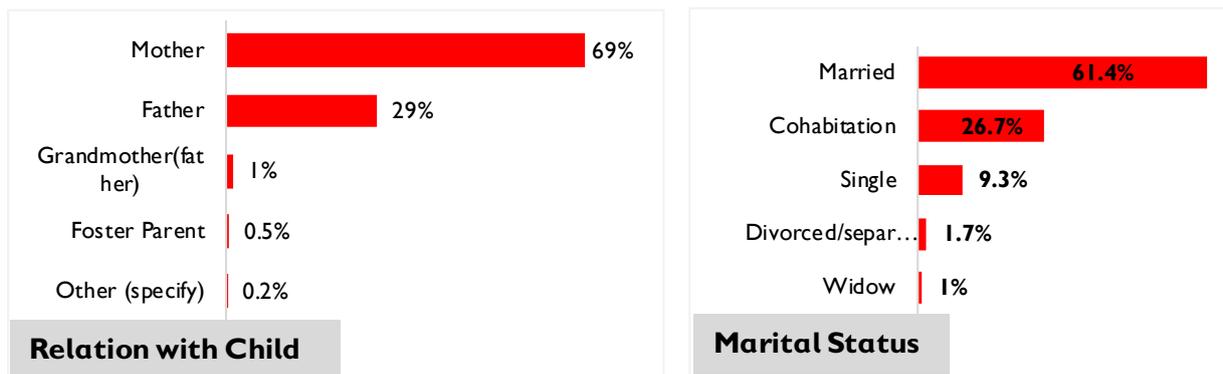
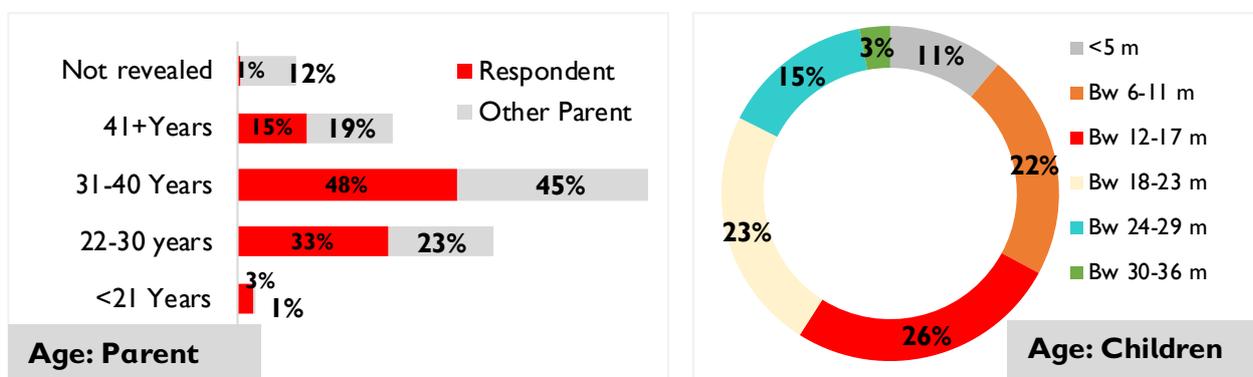


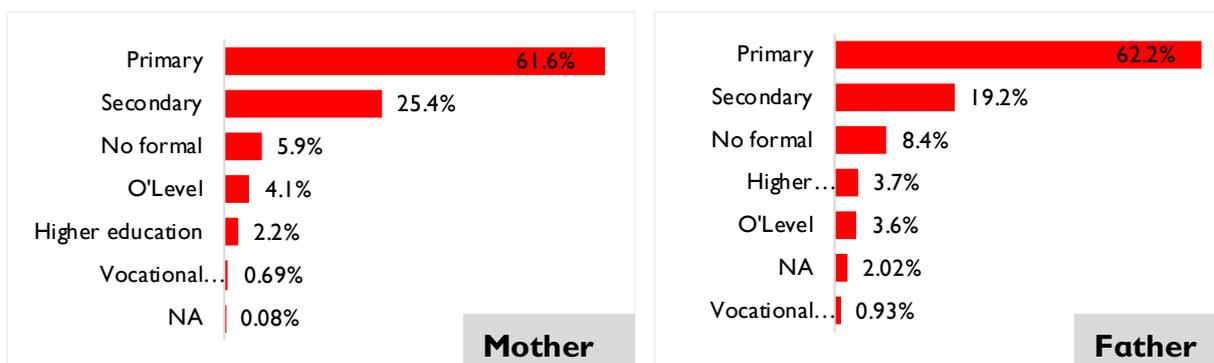
Figure 3 shows that 69% of the respondents were mother’s child, 29%, father and the remaining percentages were for grandmothers/fathers (1%), foster parent (0.5%) and others (~0.2%). Furthermore, the evaluation dominated with married respondents (61.4%), cohabitated (26.7%), single parents (9.3%), divorced and widows were 1.7% and 1%, respectively. The findings were expected as the outcomes relied on the parental observations of the children’s development or someone too close to the children.

Figure 4: Distribution of age for the parents (years) and children (months)



The distribution of the age for the parents in years and children (age in months) revealed that respondent mean’s age range between 31 and 40 Years: female, 33 years and 36 years for male. For both respondent and other parents’ range between 31 and 40 years, 48% and 45%, respectively, and followed parents ranging between 22 and 30 years, 33% (respondents) and 23% (other parents) (Figure 4).

Figure 5: Distribution of parents by education background



Considering the education background among parents, more than 60%, both parents completed primary education and secondary 25.4% and 19.2%, mother and fathers, respectively.

Few parents have completed ordinary (O'level): 4.1%, mothers and 3.6%, fathers, and higher education, 2.2%, mothers, and 3.7% fathers. Figure 5 shows that 5.9% and 8.4% of parents did not attend formal education, for mothers and fathers, respectively.

Figure 6: Household Assets and belongings

Figure 6 shows that households possess phone, 92.1%, followed by radio, 63.6%, others possess television and computer, 11.26% and 2.76%, respectively. This evaluation uses household assets and possessions for the purpose of receiving First steps airing programs but not for wealth measures.

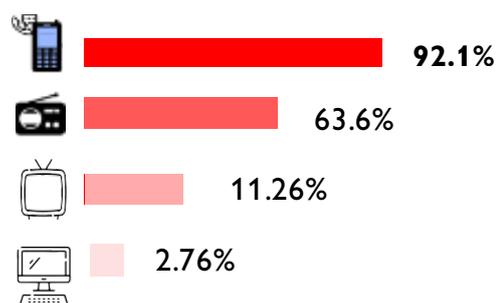


Figure 7: Toys, and books for children under three within households



N=1,302

Figure 7 depicts that among household participated in the survey only 40.94% have children's toys. While 70.42% do not have a book specialised to children, 12.17% have only one book and 17.41% have more than a book.

N=1,298



3.3 Additional information on household profile

Additional information related to household profile if in the last 6 months, any household member has heard any advice on how to care for or feed children under three years. Table 1 shows that among parents/caregivers, female heard message in almost categories than male, except radio, 64.5% (male) and 56.9% (male). This is associated with the socio-culture where male like to listen news and care messages aired right after the news or during news breaks.

Table 1: Heard any advice on care related to children under three years

Category	Parent/caregiver (N=1,297)		Child (N=1,302)	
	Male (N=383)	Female (N=914)	Boys (N=623)	Girls (N=679)
	%	%	%	%
NGO	2.1	5.5	3.9	5.2
Parenting Session	12	16.5	15.9	14.4
Radio	64.5	56.9	61.5	57.1
Television	4.4	6.6	6.4	5.4
Newspaper	1.6	3.2	2.4	2.9
Friends	8.1	14.2	12.7	12.1
Family members	5	7.9	7.5	6.5
Health Workers	28.5	42.7	39	38.1
IZU	10.2	10.3	9.6	10.8
Nutrition Program	12.8	21.3	19.7	18
Internet	0.5	1.5	1.3	1.2

While, parents with children either boys or girls do not reflect the variation significantly, as participation in either nutrition program do not require to specification in child's gender differences. Generally, the respondents (Annex 4) revealed that they got message from radio (56.2%), health workers (38.6%), nutrition program (18.8%), parenting session (15.1%), friends (12.4%), and IZU (10.2%), among others.

Figure 8: Heard any advice on care and for children under three years

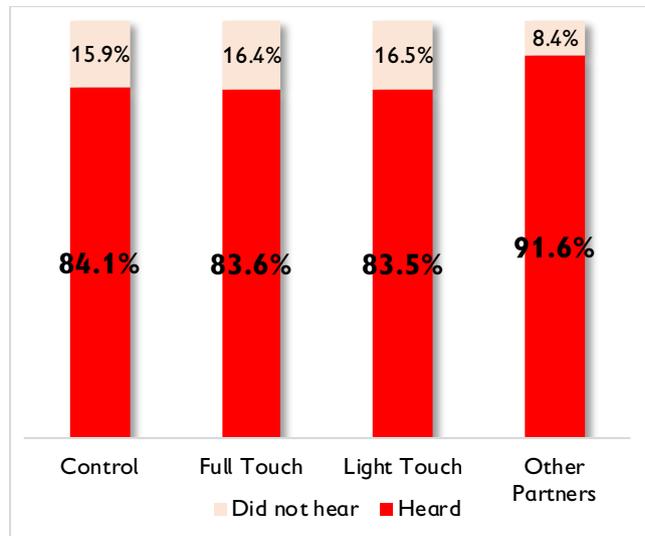
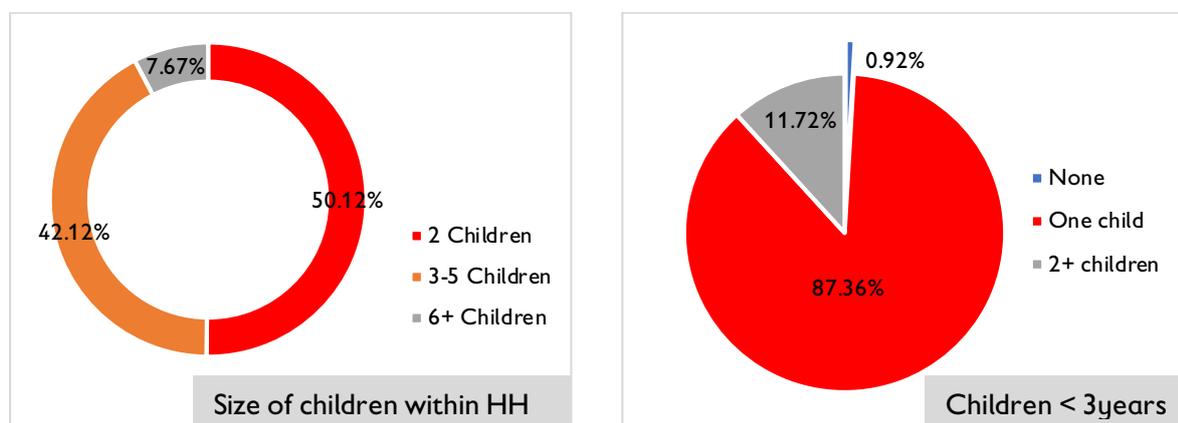


Figure 8 showed that participants in each arm, have heard any advice last 6 months, with an equal distribution for the RCT targeted districts under control, and 2 interventions. This implies that the cohort 2 interventions build on certain equilibria against information asymmetry and the aired message will automatically results to the expected impact based on the interventions.

Figure 9 depicts that one in two parents/caregivers interviewed has two children and 42.12% of the parents/caregivers have between 3 to 5 children and 7.67% have 6+children living within the households. The results, furthermore, showed that among these parents, 87.36%, confirms to have one child under three years within household and 11.72% have two or more children. Thus, although the findings revealed that most caregivers recognised the importance of pregnancy spacing.

Figure 9: Children living with parents: size and children under three years



3.4 Child Health and Nutrition

Children develop their immune and improve their quality life from diversity but specifically nutrition and general health practices can increase their survival situation before 1000 days. This subsection aims to give a brief overview of child health and nutrition before and during COVID-19 and after some measures were lifted. We recognise that the efforts to mitigate the transmission of COVID-19 are disrupting food systems, upending health and nutrition services, devastating livelihoods, and threatening food security.

3.4.1 General Health and Nutrition Information

Health and nutrition information is substantial underlying factor contributing to high maternal and child development in Rwanda and places an additional survival opportunity to save their brains with respect to the limited resources within household. Breastfeeding lays an important foundation for child survival and health by providing essential nutrition and protection necessary for early growth and development. When optimal, breastfeeding can prevent child deaths every year, making it arguably the most effective child mortality prevention intervention, while also offering longer-term benefits including reduced risk for obesity, diabetes, asthma and dermatological.

Figure 10: General health and nutrition information: Breastfeeding and washing hands

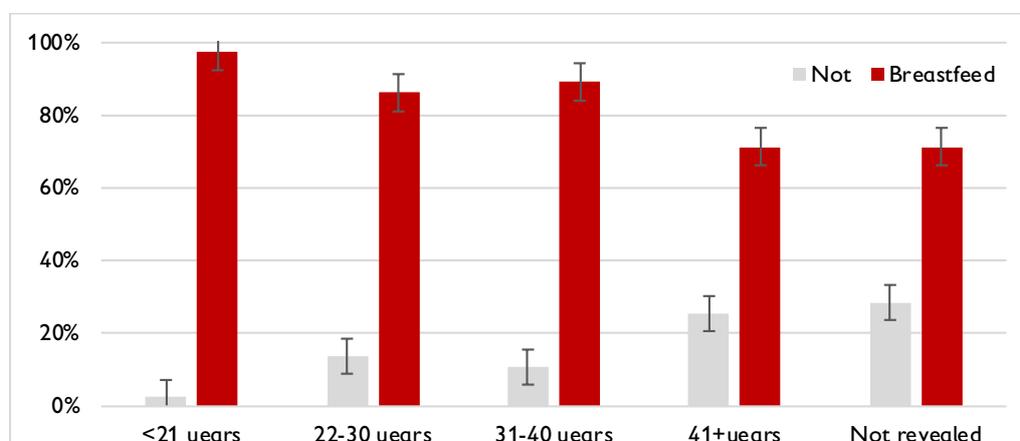


Analysis of data from baseline survey shows that around all respondents breastfed their babies at some point in their lives, with 95.48%, with 2.76% who did not, and remaining 1.76% were not applicable. And currently, presented with 86.4% who breastfed their children under three years.

Parents during the period of COVID-19, around 87.5% in average wash their hands either before eating (78.3%), cooking (59.4%), feeding children (78.2%), after toileting (82.6%), cleaning a young child's bottom (60.7%), eating (57.2%), cleaning home (47.8%) and meeting someone (36.5%).



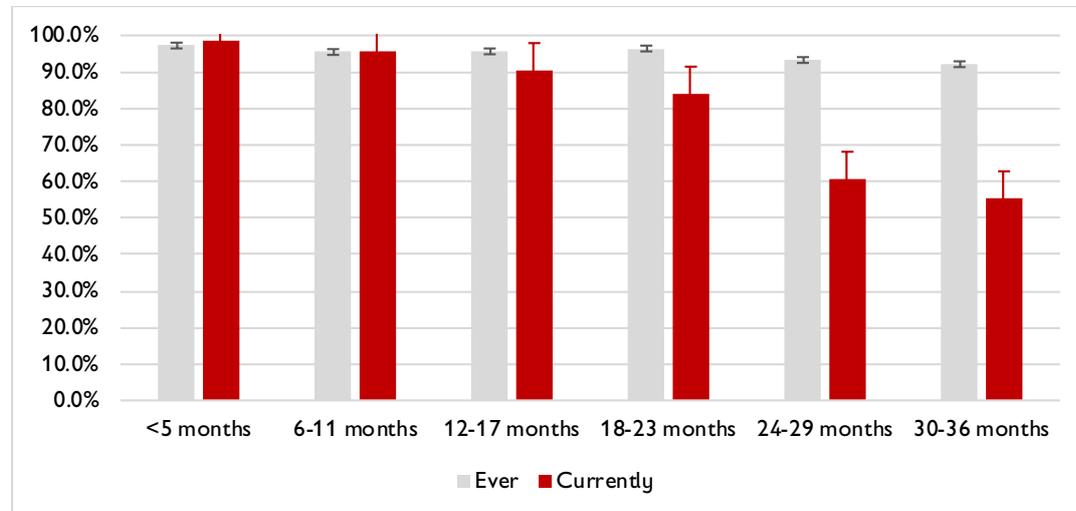
Figure 11: Current breastfeeding status across respondents



Despite the overall ever breastfeeding rate (~95%) presented by respondents, the current breastfeeding practices has reduced up to 86.4% even it is higher to the current national practices presenting 81% (Ahishakiye *et al.*, 2020), and the rate reduced as the age of mother increases (Figure 11), it might be associated with multiple factors but in this study none of the factors were associated with this decline either pandemic, age of the child, economic stress and other socio-economic factor.

Since breastfeeding and general sanitation play key role during an early age (less than 3 years), among our respondents reported to breastfeeding at higher rate (>90%) up to 17 months and show a dramatic decrease of 23.3%, between 18-23 months (83.9%) and 24-29 months of age (60.6%). This is a huge drop compared to the prior range (12-17 months) presenting a decrease of 6%. This implied that mothers can still present a higher risk to the child development, even though the baby is more than 1000 days windows of opportunity.

Figure 12: Breastfeeding Status among children under 3 years

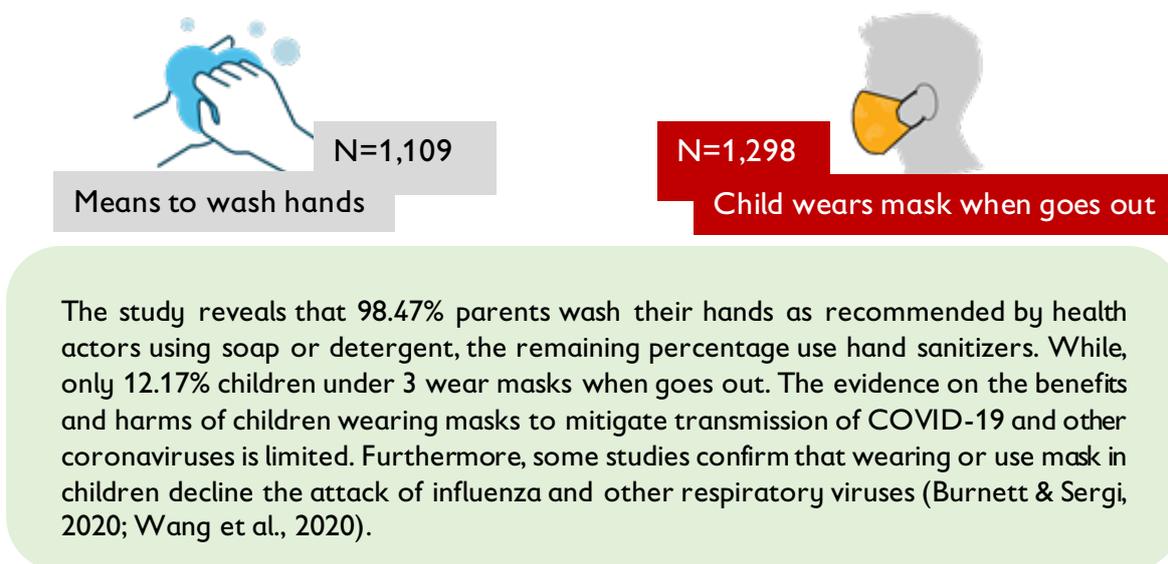


The findings, furthermore, revealed that the current breastfeeding practices under our study is higher for children under two years compared to the recommended practices for first 1000 days. And the respondents reported a good percentage of children ever breastfed which is high, and similar across time and maternal age groups. Our findings support evidence provided by other studies that breastfeeding rates and practices vary across maternal age-groups (Benova *et al.*, 2020; Nordang *et al.*, 2015; Sipsma *et al.*, 2013).

3.4.2 COVID-19: Household behavior and its impact on household welfare

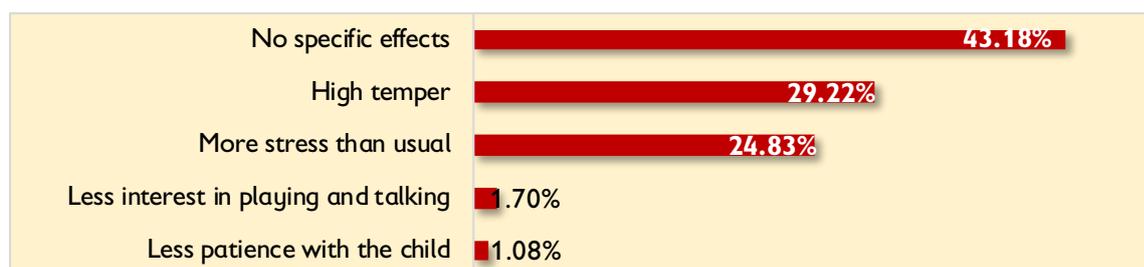
From the government response measures are high in Rwanda, and the impact of crisis on household remains uncertain as we are currently facing the side effect of public health measures during the total lockdown (March – July 2020), where the situation affected economic, parenting outcomes and highlights the significant impact the measures had on the livelihoods of many. As lockdown measures are gradually easing and the economy is opening up, some of the challenges will ease yet many respondents feel that the COVID-19 crisis will have a long-term impact on their livelihoods. This subsection aims to assess the household behaviour and impacts of household welfare among household with children under three years.

Figure 13: Observing COVID-19 measures: handwashing and wearing masks



Besides protective measures against COVID-19, the effects of Coronavirus on household behaviour are associated with mental health characteristics and they are all likely to experience some level of emotional discomfort given the spread of COVID-19. Concerns about health, stress from the disruption that is needed for public health measures, and social distancing may all have impacts on one's mental health and/or may exacerbate underlying symptoms. Figure 14 shows that 43.18% did not get any specific effects, but 29.22% respondents reveal to have high temper than before COVID-19, 24.83%, experienced more stress than usual. However, the remaining 1.7% and 1.08%, are less interested in playing and talking and less patience with child. This imply that children are also suffering large scale disruptions of basic social services as described in the Figure 13 and their access to the basic needs and safe social interaction is increasingly affected.

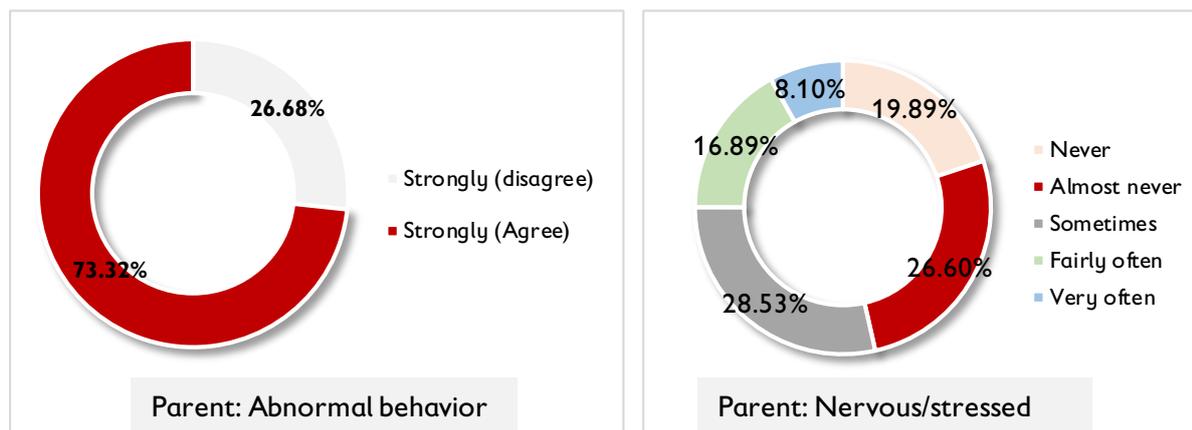
Figure 14: COVID-19 period affected relationship with or parenting a child



The spread of the pandemic COVID-19 in Rwanda from March 2020 and subsequent health emergency led to restrictive measures. Schools and businesses (including informal economy that employed more proportions after the agriculture sectors) have been closed in mid-March 2020 and start total lockdown as a measure to reduce spread and infection rate. Children and families have been deprived of their daily activities but also social life such as visiting friends and other relational contacts were restricted prohibited.

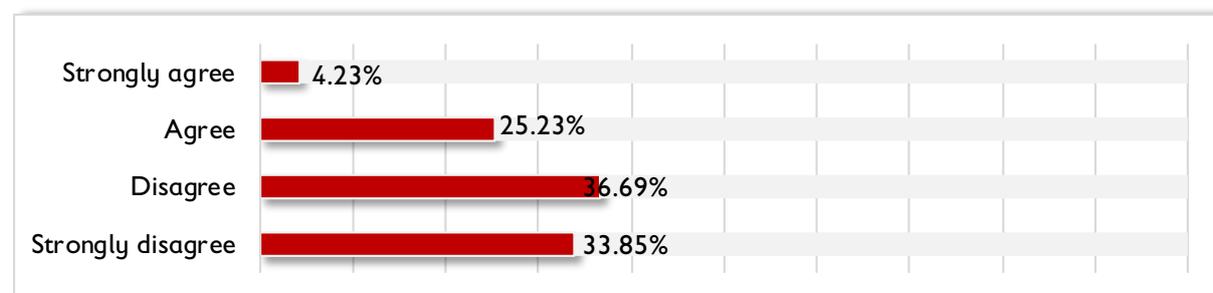
Figure 15 describes parent and their emotional situation during COVID-19, their behavior was abnormal up to 73.32% and becomes too nervous/stressed: very often (8.1%), fairly often (16.89%), sometimes (28.53%) and other parents did not present any stress 19.89% and 26.6%, with usual stress. This might have a significance that many parents had to manage difficulties and pain related to having sick relatives or other needs, having had wage reductions or having lost their work. It is easy to understand how families have been exposed to a very strong emotional and psychological stress.

Figure 15: Parent: Emotional feeling during COVID-19



In the same setting, Figure 16 shows that children also suffered too, with unusual emotional feelings and respondents strongly agree (4.23%) and agree (25.23%), but around 70% of the respondents said that children did not present any strange emotional feelings. Hence, the magnitude of the impact of COVID-19, affect children directly and indirectly depends on the circumstances. However, with the closure of schools and children having to spend time in lockdown within families that may be violent and abusive, one may predict possible psychological wounds and or psyche development.

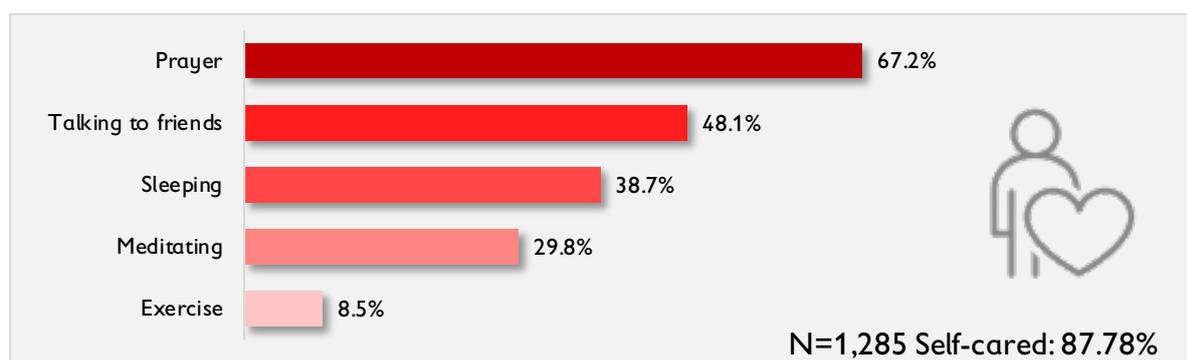
Figure 16: Child: Emotional feeling during COVID-19



Since pandemic -2020, 87.78% involved in different self-care activities as a mean of gaining good mental health: prayer (67.2%), talking to friends (48.1%), sleeping (38.7%), meditating (29.8%) and exercising (8.5%). During the COVID-19 pandemic, regardless of the severity and duration of socio-economic conditions that hits the family. They engaged in the activities that may release the pain either physical, mental, and emotional in hard and challenging situation. The findings from Figure 17

reveals that families are aware and engaged in selfcare activities as means of gaining good mental health and psychological well-being adherence, but with critical engagement in exercise.

Figure 17: Selfcare activities engaged to gain good mental health



With policy measures imposed by governments around the country to contain and prevent the spread of COVID 19, domestic economic activities and source of income for many households have been interrupted. The unexpected shocks of COVID 19 negatively affect not only Rwanda's economy, but also the livelihoods of Rwandan households. Table 2 shows that parents lose an income (80.7%) either through loss of work/employment (83.63%) or inability to sell farm product (16.37%) (Annex 4). But, the parents got time for their family (26.47%) and tell story or playing with their children (23.38%).

Many households in Rwanda have incomes from both agricultural and non-agricultural activities including informal economy and services. The widespread closure of stores, and other non-farm businesses in March-May's lockdown period and the subsequent gradual economic recovery have affected almost all Rwanda households.

Table 2: The impact of COVID-19 on household wellbeing

	Loss of income (80.71%)	Time for family (26.47%)	Tell story/playing (23.38%)
Wealth	-4.3%**	-3%	29.5%**
Middle	-28.22%**	-3%	29.5%**
Education	13.8%**	11.9%**	15.5%***
Primary	45.42%*	-17.9%	-64.7%**
Secondary	93.7%***	9.94%	-41.4%
Higher education	-31%	21.5%	12.5%
TVET	35.48%	73.9%	48.9%
O'Level	98.4%**	38%	29.2%
HH Size	-15.3%	8.65%	16.9%*
3-5 children	-14.2%	10.4%	21.7%
6+ children	-32.2%	14.5%	26.8%
Children: unusual behavior due to COVID-19			
Yes	7.16%**	3.27	-10.1***

*** $p < 1\%$, ** $p < 5\%$, and * $p < 10\%$

Table 2, further, presents that incomes fell greatly for poor and middle households' wealth category that rely heavily on vulnerable non-farm income sources, results show that participants who are middle wealth households lose an income significantly impacted by the period with 28.2%, and decreased by 4.3% to all participants in this survey. This led to significant increases in poverty during the lockdown period. To some observations, income

loss was not significant to respondents with higher education even they experienced a decrease in earning.

Despite, the results show that COVID-19 affects other well-being characteristics including time for family, but generally, there was a positive increase in having time for family based on education background. The same, middle wealth parents got an opportunity to tell story and or play with family members up to 29.5%, unfortunately, basic educated parents (parent with primary level of education) decreased by 64.7% to tell story or play with their children during the period. This might affect the quality of child development when a parent miss or did not avail themselves to play, tell story as it increase child-parent interaction.

3.5 Caregiver/parent and Child Interactions

In literature, studies proved that the relationships between individuals are reciprocal, whether the relationship is between parent and child but also a moral obligation from caregiver side define deep interactions (Barfoot *et al.*, 2017; Duncan *et al.*, 2009; Hudson & Rapee, 2001; Kirkorian *et al.*, 2009). Each relationship begins with the first interaction and continues to grow if the interaction is satisfactory for both people. In addition, the interaction can be verbal or non-verbal interaction, and there are several factors that influence the relationship. Some of these include proximity between the interacting partners, eye contact, physical contact, one partner's responsiveness to the other partner, and the length and frequency of the interactions. In this section, the baseline survey evaluated the parent (mother/father)'s involvement/engagement and father's interaction with child when mother is absent.

3.5.1 Caregiver-child interaction

The findings for caregiver-child interaction analysed in time as a proxy to define the responsiveness, sensitivity towards the children. Because of the high caregiver spend nearly all their time with children in routine care, such as playing, bathing, feeding, and toileting, and very little time interacting with the children in play (Spratt *et al.*, 2012; van Ijzendoorn *et al.*, 2011). Table 3 summarizes the routine care as a mean of interaction between caregiver and child (*see* Annex 6), over 50% of the caregivers interact with the child once a day, 19.23%, more than once per day, 12.18%, a few times each week, 7.82%, a few times each month, 6.36%, rarely and 3.52% did not interact with their child at all.

Table 3: The interaction between caregiver and child

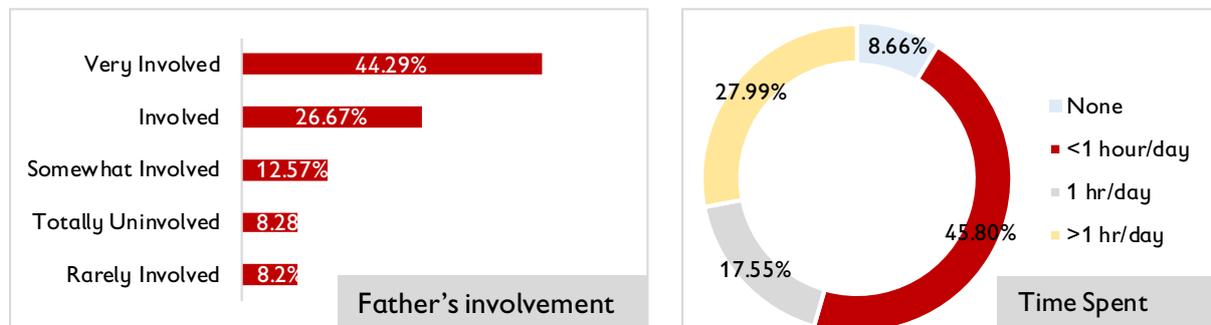
	Once/day	>1/day	Few/week	Few/month	Rarely	Not at all
Sex of the Child						
Male	47.59	47.41	47.17	47.06	48.19	54.35
Female	52.41	52.59	52.83	52.94	51.81	45.65
Age of the child						
<5 months	1.66	9.56	16.35	28.43	38.55	47.83
6-11 months	16.42	27.09	28.3	20.59	33.73	30.43
12-17 months	29.67	27.49	20.13	21.57	18.07	13.04
18-23 months	30.12	22.71	18.87	14.71	3.61	2.17
24-29 months	18.37	11.16	12.58	13.73	6.02	4.35
30-36 months	3.77	1.99	3.77	0.98	0	2.17
Intervention						
Control	14.01	12.75	15.09	20.59	16.87	23.91
Full Touch	16.11	14.74	11.95	22.55	15.66	4.35
Light Touch	16.87	19.92	16.98	4.9	10.84	6.52
Other Partners	53.01	52.59	55.97	51.96	56.63	65.22
Overall	50.88	19.23	12.18	7.82	6.36	3.52

Table 3, further, shows the characteristics of the caregivers in general towards the sex of the child, there is no difference interaction when it comes to boys or girls across all routine care time. When it comes to age difference, daily interaction increases from day one to 23 months, and the remaining interaction time, decrease as the child become older. The interaction categories such as, more than once per day, a few times each week and a few times each month were distributed as child grows but decrease after two years. Fortunately, all respondents reveal that the least interaction category decrease as the growth of the child when asked how rarely or did not interact with their child at all.

3.5.2 Male's (father) involvement and interaction

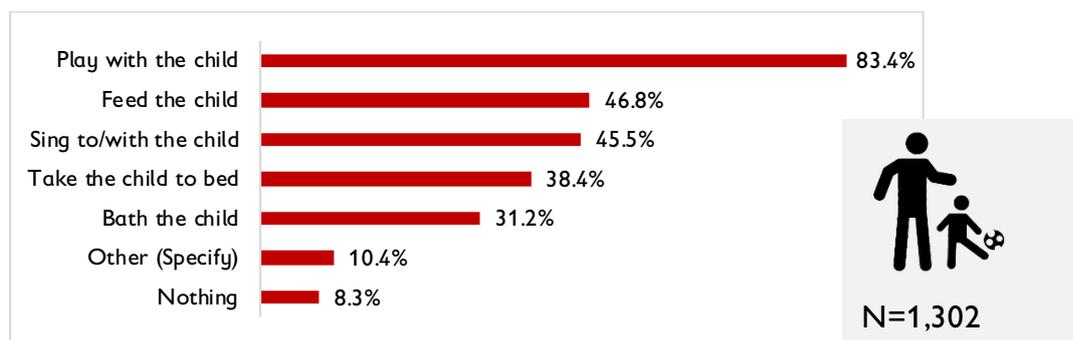
Besides, the overall caregiver-child interaction (see 3.5.1), parenting care on the side of the father matters on child development. Figure 18 shows that more than 44% were very involved and 26.67%, involved, 12.57% somehow involved and only 8.2% were rarely involved. Furthermore, the findings depict that their involvement varies with time but only 8.66% did not spend any second to parent their children. Around 28% spent more than an hour/day, 17.55% and 45.8% spent an hour and less an hour per day, respectively.

Figure 18: Father's involvement and time spent with children



And male's involvement varies with activities, Figure 19, shows some activities linked to father's care to child in absence of the mother, 83.4%, play with the child, 46.8%, feeding the child, 45.5%, sing to or with child, 38.4%, take the child to bed, and 31.2%, bath the child. Viewing the attachment's theories, a strong emotional and social bond of trust between child and caregiver, the attachment to the mother is natural and primal but to the fathers depend on multiple factors including involvement and time spent, and in an absence of the mother (Kotila & Kamp Dush, 2012).

Figure 19: Father's care to child in absence of the mother



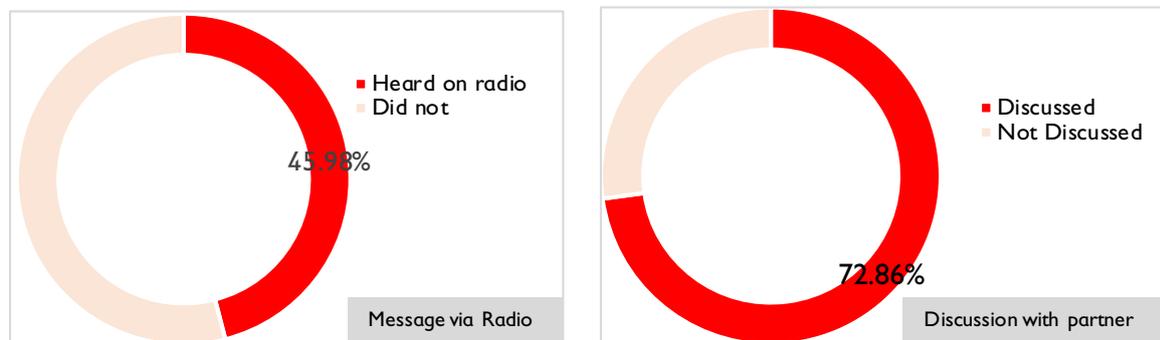
From the Ainsworth's theory, the quality of the attachment relationship has some relevance to the non-maternal care relationship for children (Cerniglia *et al.*, 2014; Planalp & Braungart-Rieker, 2016). The findings revealed that male's involvement is non-doubtable as it defined their engagement, accessibility, and responsibility⁸, and shows an adaptation to adequate parenting care and it might influence child cognitive and language outcomes by providing cognitively stimulating teaching exchanges (Mclanahan & Beck, 2010).

⁸ **Engagement** is the most direct way to interact with a child and includes cognitively stimulating teaching interactions. **Accessibility** is the presence and availability of a father and **responsibility** is the extent to which a father provides financial support as well as caregiving.

3.6 Exposure/Participation in First Steps Activities

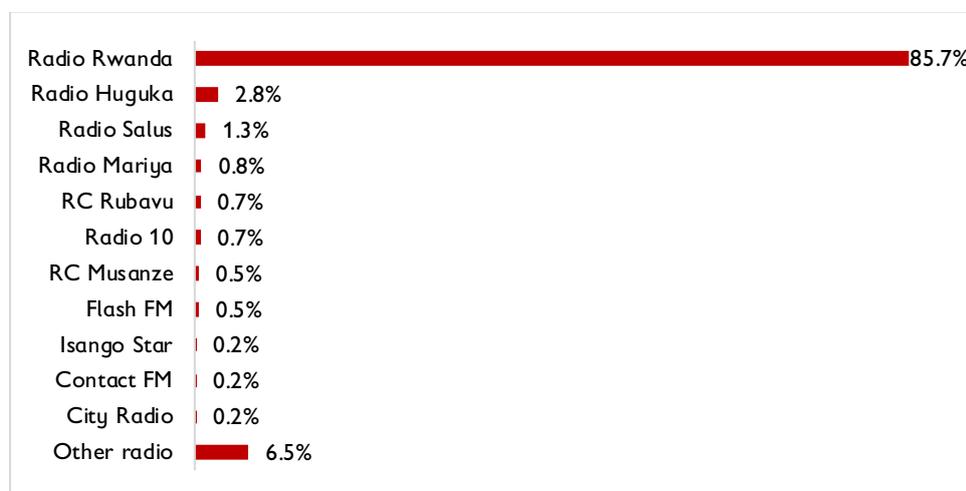
The following results focuses on exposure and child development in projects activities, 45.98% caregivers revealed that that they have followed or heard message on radio discussing about children development, and showed a significant difference to the caregivers who did not heard message about child development (Annex 6). Moreover, among the caregivers who heard message, 72.86% discussed with their partner about the message heard (Figure 20).

Figure 20: Heard on radio discussing about child development



The media exposure and participation to the *Intera za Mbere* program aired via radio, the respondents listened the program related children development via Radio Rwanda (85.7%), followed by Huguka (2.8%), Salus (1.3%) (Figure 21). The significance of the radio in the life of the modern parenting is beyond question, as the caregiver observing his or her own children development by following the radio provider as an educator (Atagame *et al.*, 2017; Yoder *et al.*, 1996). One of the greatest challenges is to the limited program offered by the mass educator, as in this study the top three radios have social and economic agenda as their editorial line compared to the rest. The respondents reported low interest on radio preference to listen aired program related to children development were radio Mariya (0.8%), RC Rubavu (0.7%), radio 10 (0.7%), RC Musanze (0.5%), Flash FM (0.5%), Isango Star (0.2%), Contact FM (0.2%), and City Radio (0.2%).

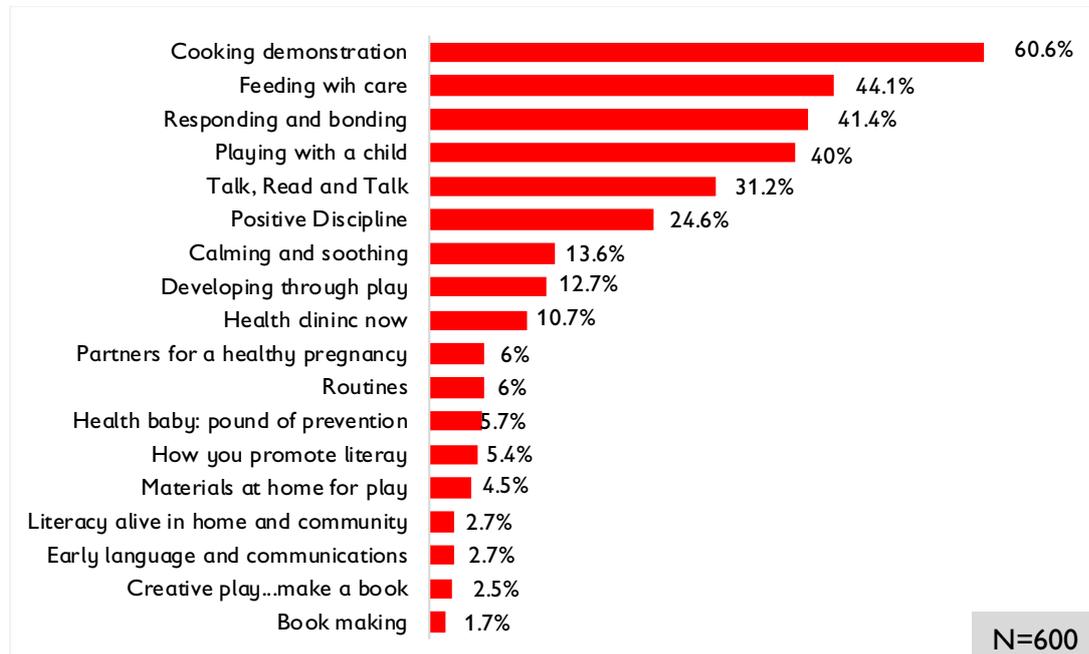
Figure 21: Radio aired the programs



In households where the caregivers/parents had heard message via radio related to the child development, cooking demonstration were most recalled aired programs, 60.6%, 44.1% recall to feed with care, 41.4%, responding and bonding. Among other aired program 40%, playing with a child, 31.2%, talk, read and talk, 24.6%, positive discipline, 13.6%, calming and soothing.

In addition, 12.7% recalled how to develop through playing and health clinic related information were recalled by 10.7% respondents. Unfortunately, the remaining aired programs were least recalled, including, partners for a healthy pregnancy (6%), routines (6%), health baby: pound of prevention (5.7%), how to promote literary (5.4%), materials at home for play (4.5%), literacy alive in home and community (2.7%), early language and communications (2.7%), creative play...make a book (2.5%) and booking making (1.7%).

Figure 22: Recall aired programs



SECTION 2: Caregiver Reported Early Development Instruments (CREDI)

The second section aims to describe the development, validation, and initial evidence from the Caregiver-Reported Early Development Instruments⁹ (CREDI). The CREDI was designed as a caregiver-reported, household-level measure of ECD for children under three years (McCoy et al., 2018). The main objective of the CREDI is to provide an accurate and easy-to-administer assessment of ECD for children between 0 and 35 months that functions across a wide variety of household, and socioeconomic contexts. At baseline, CREDI can also allow the comparison of child development scores against a reference population (Altafim *et al.*, 2020).

Figure 23: Distribution of overall CREDI scores

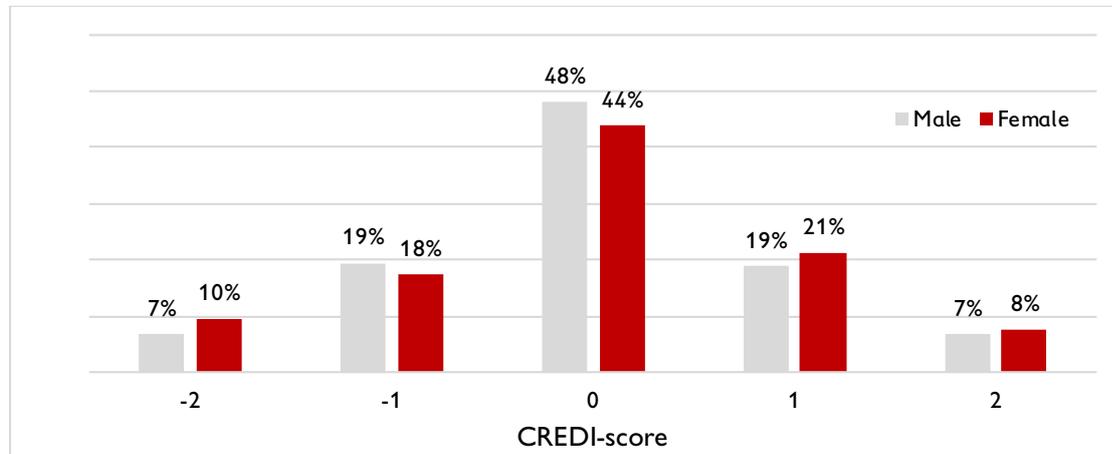


Figure 21 highlights the overall CREDI scores for children sex based on the response given by their caregivers, compared to the reference population. The CREDI-score indicates that the child's development score falls below the average for reference children of the same age (0 or below); a score of 1 or higher indicates development above the average for the reference group. The units in the graph are standard deviations: a score of 1 indicates that the child scored up to 1 standard deviation above the average score for reference group children of the same age. The figure shows that in average 27.2% of children score at or above the average of the reference group. Girls are slightly higher development scores compared to their boys agemate, with 29% of girls and 26% of boys scoring at or above reference group average.

⁹ Child development has been measured using the 2018 version of the Caregiver Reported Early Development Instrument (CREDI) tool. This tool was “designed to serve as a population-level measure of early childhood development (ECD) for children from birth to age three.” The questionnaire is administered to the caregiver “and thus primarily focuses on milestones and behaviours that are easy for caregivers to understand, observe, and describe.” It is important to keep in mind that the CREDI tool is designed to give a picture of the overall level of child development within a population, and not to diagnose developmental delays in individual children. The CREDI tool will therefore be of particular value in comparing development levels between treatment and control areas, once the intervention has been implemented.

4.1 Conclusion

In this study, we aimed to evaluate the First Steps (Intera za Mbere) towards quality Early Childhood Care and Development through Holistic Parenting Education in Response to COVID-19. The study presents the benchmark through which the project may have an impact, such as parental practices, attitudes, skills and knowledge related to early childhood care and development and how caregivers do respond to parenting in this time of COVID-19. The characteristics of respondents in terms of child health and nutrition either in general health and nutrition information or in COVID-19 pandemic. Despite the overall ever breastfeeding rate (~95%) presented by respondents, the current breastfeeding practices has reduced up to 86.4% even it is higher to the current national practices presenting 81% (Ahishakiye *et al.*, 2020), and the rate reduced as the age of mother increases (Figure 11), it might be associated with multiple factors but in this study none of the factors were associated with this decline either pandemic, age of the child, economic stress and other socio-economic factor.

The findings, furthermore, revealed that the current breastfeeding practices under our study is higher for children under two years compared to the recommended practices for first 1000 days. And the respondents reported a good percentage of children ever breastfed which is high, and similar across time and maternal age groups. Our findings support evidence provided by other studies that breastfeeding rates and practices vary across maternal age-groups (Benova *et al.*, 2020; Nordang *et al.*, 2015; Sipsma *et al.*, 2013).

Besides protective measures against COVID-19, the effects of Coronavirus on household behaviour are associated with mental health characteristics and they are all likely to experience some level of emotional discomfort given the spread of COVID-19. Concerns about health, stress from the disruption that is needed for public health measures, and social distancing may all have impacts on one's mental health and/or may exacerbate underlying symptoms.

The findings showed the characteristics of the caregivers in general towards the sex of the child, there is no difference interaction when it comes to boys or girls across all routine care time. When it comes to age difference, daily interaction increases from day one to 23 months, and the remaining interaction time, decrease as the child become older. The interaction categories such as, more than once per day, a few times each week and a few times each month were distributed as child grows but decrease after two years. Fortunately, all respondents reveal that the least interaction category decrease as the growth of the child when asked how rarely or did not interact with their child at all.

Finally, when it comes to child development through CREDI-SF, the findings show that in average 27.2% of children score at or above the average of the reference group. Girls are slightly higher development scores compared to their boys agetate, with 29% of girls and 26% of boys scoring at or above reference group average.

4.2 Recommendation

This is a baseline study designed to provide a point of comparison for change resulting from the effects of First Steps programming aimed to promote quality Early Childhood Care and Development through holistic parenting education. However, during course of baseline study a few points of note/recommendations for the implementing team are as follows.

- (i) Participants have great expectations from the broadcasted program. Based on the comments given by respondents, it appears that these expectations may be beyond the scope of First Steps program. There is a need for the caregivers to discuss explicitly and upfront what the activity can and cannot do (such provision of radio, and other necessary materials help to boost the

cognitive capacity of the children). This will help set more realistic expectations on the part of the participants and reduce possible disappointment.

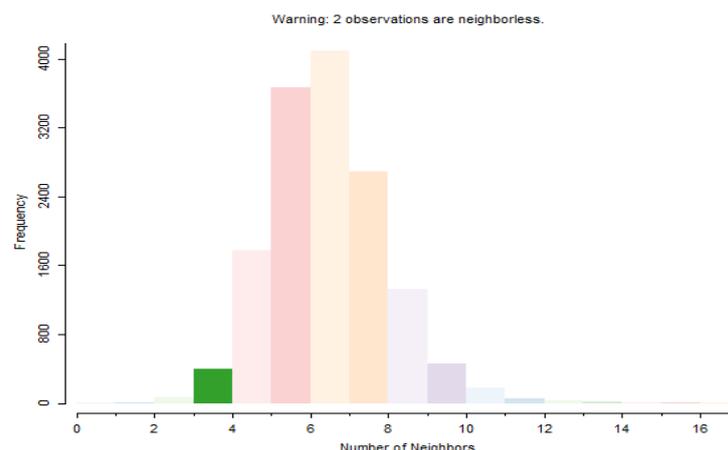
- (ii) The research team noted that there is a need for strengthening the relationship of the SC radio partners and project team to enhance child development programs in their editorial line so to increase the likelihood of the child survival at early age. This will help in greater awareness of child development and household members greater access to programs and increase discussion among caregivers or members of the households.

REFERENCES

- Ahishakiye, J., Bouwman, L., Brouwer, I. D., Vaandrager, L., & Koelen, M. (2020). Prenatal infant feeding intentions and actual feeding practices during the first six months postpartum in rural Rwanda: A qualitative, longitudinal cohort study. *International Breastfeeding Journal*. <https://doi.org/10.1186/s13006-020-00275-y>
- Altafim, E. R. P., McCoy, D. C., Brentani, A., Escobar, A. M. de U., Grisi, S. J. F. E., & Fink, G. (2020). Measuring early childhood development in Brazil: validation of the Caregiver Reported Early Development Instruments (CREDI). *Jornal de Pediatria*. <https://doi.org/10.1016/j.jped.2018.07.008>
- Atagame, K. L., Benson, A., Calhoun, L., Corroon, M., Guilkey, D., Ijiwose, P., Kebede, E., Lance, P., O'Hara, R., Ojogun, O. T., Speizer, I. S., Stewart, J. F., & Winston, J. (2017). Evaluation of the Nigerian Urban Reproductive Health Initiative (NURHI) Program. *Studies in Family Planning*. <https://doi.org/10.1111/sifp.12027>
- Barfoot, J., Meredith, P., Ziviani, J., & Whittingham, K. (2017). Parent-child interactions and children with cerebral palsy: An exploratory study investigating emotional availability, functional ability, and parent distress. *Child: Care, Health and Development*. <https://doi.org/10.1111/cch.12493>
- Benova, L., Siddiqi, M., Abejirinde, I. O. O., & Badejo, O. (2020). Time trends and determinants of breastfeeding practices among adolescents and young women in Nigeria, 2003-2018. *BMJ Global Health*. <https://doi.org/10.1136/bmjgh-2020-002516>
- Burnett, M. L., & Sergi, C. M. (2020). Face Masks Are Beneficial Regardless of the Level of Infection in the Fight against COVID-19. *Disaster Medicine and Public Health Preparedness*. <https://doi.org/10.1017/dmp.2020.320>
- Cerniglia, L., Cimino, S., & Ballarotto, G. (2014). Mother-child and father-child interaction with their 24-month-old children during feeding, considering paternal involvement and the child's temperament in a community sample. *Infant Mental Health Journal*. <https://doi.org/10.1002/imhj.21466>
- Duncan, L. G., Coatsworth, J. D., & Greenberg, M. T. (2009). A Model of Mindful Parenting: Implications for Parent-Child Relationships and Prevention Research. *Clinical Child and Family Psychology Review*. <https://doi.org/10.1007/s10567-009-0046-3>
- Hudson, J. L., & Rapee, R. M. (2001). Parent-child interactions and anxiety disorders: An observational study. *Behaviour Research and Therapy*. [https://doi.org/10.1016/S0005-7967\(00\)00107-8](https://doi.org/10.1016/S0005-7967(00)00107-8)
- Kirkorian, H. L., Pempek, T. A., Murphy, L. A., Schmidt, M. E., & Anderson, D. R. (2009). The impact of background television on parent-child interaction. *Child Development*. <https://doi.org/10.1111/j.1467-8624.2009.01337.x>
- Kotila, L. E., & Kamp Dush, C. M. (2012). Another baby? Father involvement and childbearing in Fragile families. *Journal of Family Psychology*. <https://doi.org/10.1037/a0030715>
- McCoy, D. C., Waldman, M., & Fink, G. (2018). Measuring early childhood development at a global scale: Evidence from the Caregiver-Reported Early Development Instruments. *Early Childhood Research Quarterly*. <https://doi.org/10.1016/j.ecresq.2018.05.002>
- McLanahan, S., & Beck, A. N. (2010). Parental relationships in fragile families. *Future of Children*. <https://doi.org/10.1353/foc.2010.0007>
- NISR. (2012). Fourth Population and Housing Census, Rwanda, 2012. *Rwanda*.

- Nordang, S., Shoo, T., Holmboe-Ottesen, G., Kinabo, J., & Wandel, M. (2015). Women's work in farming, child feeding practices and nutritional status among under-five children in rural Rukwa, Tanzania. *British Journal of Nutrition*. <https://doi.org/10.1017/S0007114515003116>
- Planalp, E. M., & Braungart-Rieker, J. M. (2016). Determinants of father involvement with young children: Evidence from the early childhood longitudinal study-birth cohort. *Journal of Family Psychology*. <https://doi.org/10.1037/fam0000156>
- Sipsma, H. L., Magriples, U., Divney, A., Gordon, D., Gabzdyl, E., & Kershaw, T. (2013). Breastfeeding behavior among adolescents: Initiation, duration, and exclusivity. *Journal of Adolescent Health*. <https://doi.org/10.1016/j.jadohealth.2013.04.005>
- Spratt, E. G., Friedenberg, S., LaRosa, A., Bellis, M. D. De, Macias, M. M., Summer, A. P., Hulse, T. C., Runyan, D. K., & Brady, K. T. (2012). The Effects of Early Neglect on Cognitive, Language, and Behavioral Functioning in Childhood. *Psychology*. <https://doi.org/10.4236/psych.2012.32026>
- van Ijzendoorn, M. H., Palacios, J., Sonuga-Barke, E. J. S., Gunnar, M. R., Vorria, P., McCall, R. B., Le Mare, L., Bakermans-Kranenburg, M. J., Dobrova-Krol, N. A., & Juffer, F. (2011). Children in Institutional Care: Delayed Development and Resilience. *Monographs of the Society for Research in Child Development*. <https://doi.org/10.1111/j.1540-5834.2011.00626.x>
- Wang, J., Pan, L., Tang, S., Ji, J. S., & Shi, X. (2020). Mask use during COVID-19: A risk adjusted strategy. In *Environmental Pollution*. <https://doi.org/10.1016/j.envpol.2020.115099>
- Yoder, P. S., Hornik, R., & Chirwa, B. C. (1996). Evaluating the Program Effects of a Radio Drama about AIDS in Zambia. *Studies in Family Planning*. <https://doi.org/10.2307/2137953>

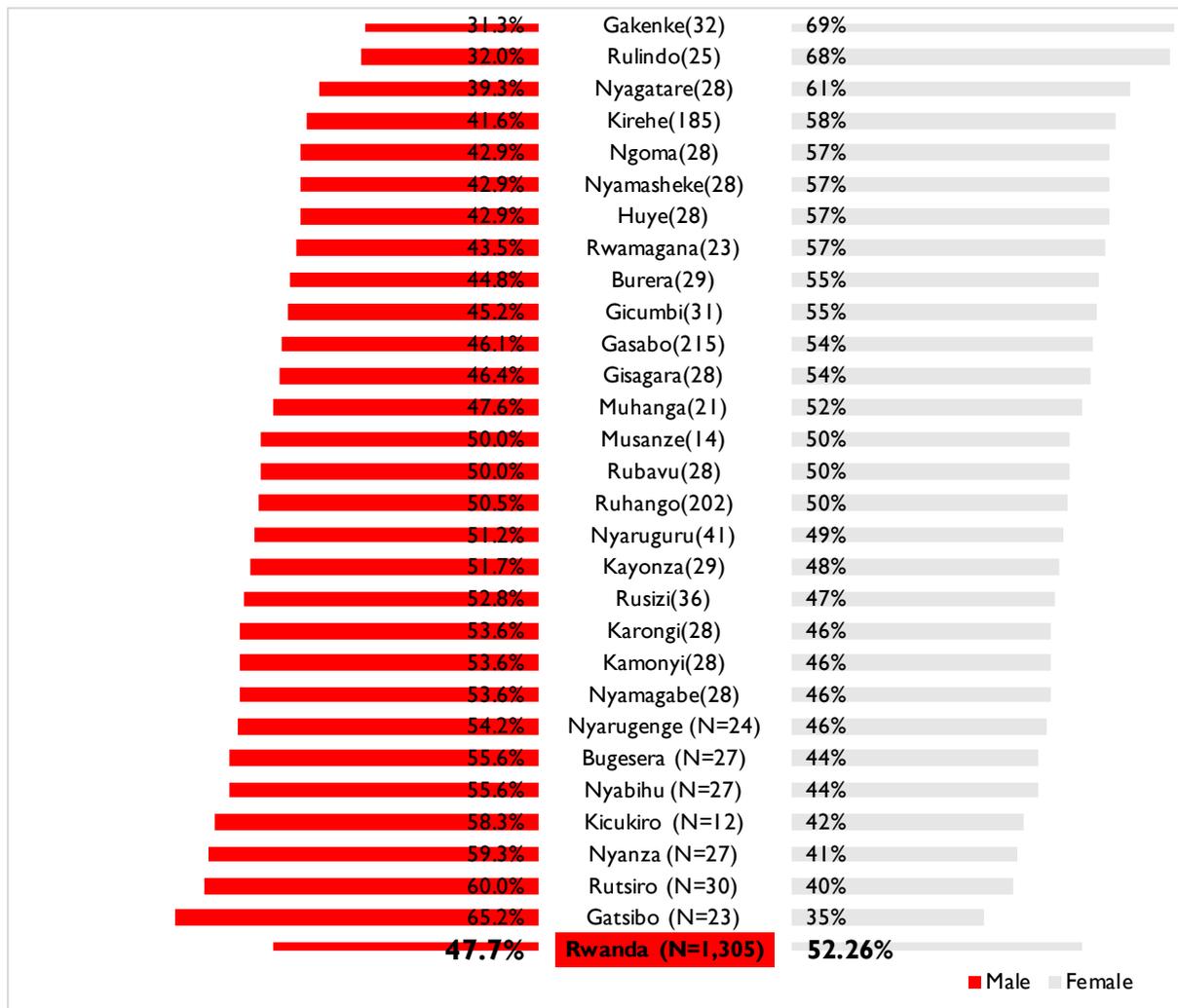
Annex 1: Neighborhood and degree of contamination



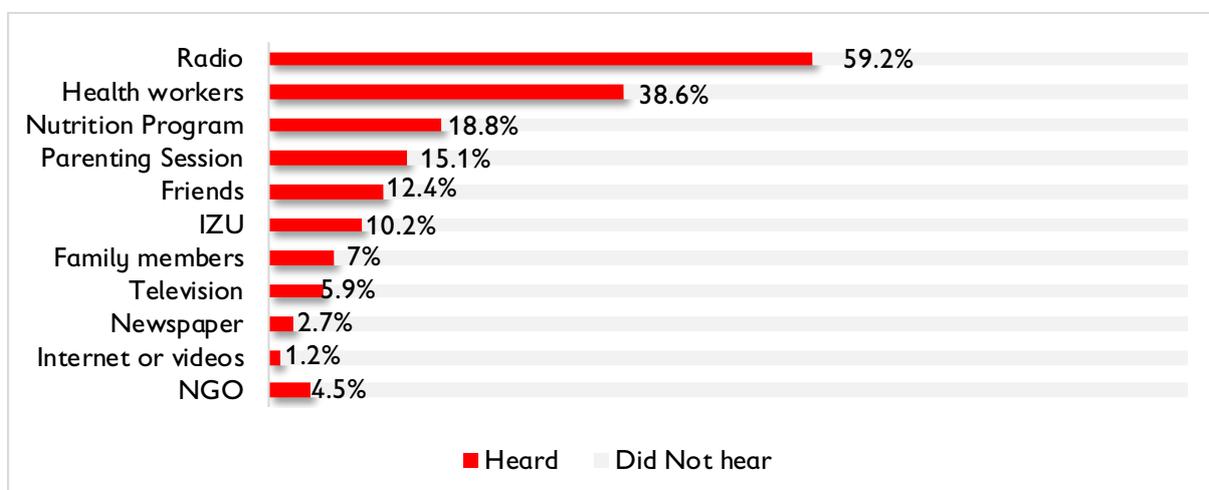
Annex 2: Distribution of intervention among Districts in Rwanda

Interventions Category					
District	Control	Full Touch	Light Touch	Other Partners	Total
Nyarugenge				24	24
Gasabo	70	70	75		215
Kicukiro				12	12
Nyanza				27	27
Gisagara				28	28
Nyaruguru				41	41
Huye				28	28
Nyamagabe				28	28
Ruhango	63	70	69		202
Muhanga				21	21
Kamonyi				28	28
Karongi				28	28
Rutsiro				30	30
Rubavu				28	28
Nyabihu				27	27
Rusizi				36	36
Nyamasheke				28	28
Rulindo				25	25
Gakenke				32	32
Musanze				14	14
Burera				29	29
Gicumbi				31	31
Rwamagana				23	23
Nyagatare				28	28
Gatsibo				23	23
Kayonza				29	29
Kirehe	62	61	62		185
Ngoma				28	28
Bugesera				27	27
Total	195	201	206	703	1,309

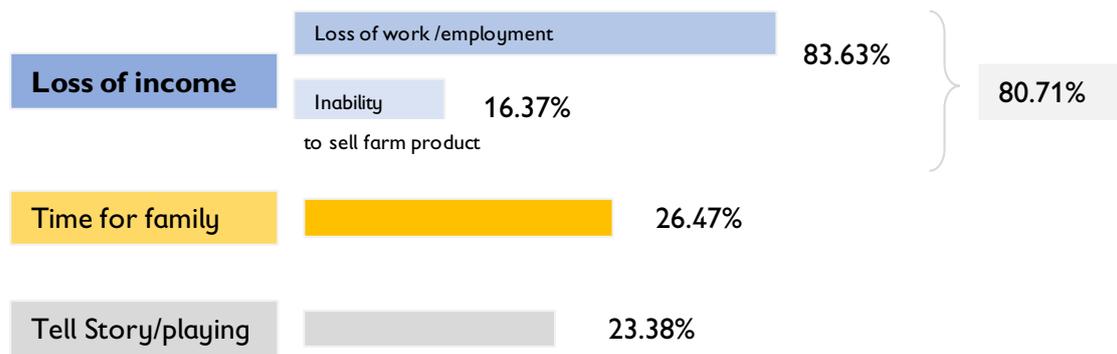
Annex 3: Distribution of Children within surveyed District



Annex 4: Heard any advices related to care practice last 6 months



Annex 5: Socio-economic situation during pandemic



Annex 6: Mean comparison for hearing message on radio and interventions

Group	Group	group means		Mean dif	HSD-test
The interventions arm in respect to the media exposure					
Control	FT	0.4256	0.3781	0.0475	1.4985
Control	LT	0.4256	0.4739	0.0483	1.5224
Control	Other partners	0.4256	0.4886	0.0630	1.9860
FT	LT	0.3781	0.4739	0.0958	3.0209
FT	Other partners	0.3781	0.4886	0.1105	3.4844
LT	Other partners	0.4739	0.4886	0.0147	0.4635
Media exposure on child development					
Heard Message	Did not	50.8291	56.9353	6.1062	3.1934*

Annex 7: Caregiver-child interaction

	Once/day	>1/day	Few/week	Few/month	Rarely	Not at all
Play	14.2	75.2	6.5	0.9	2.5	0.7
Male	14.9	74.5	6.4	1.1	2.6	0.5
Female	13.5	76	6.6	0.7	2.3	0.9
Sing	14.1	54.9	13.4	2.4	8.5	6.7
Male	13.5	54.7	14.4	2.7	8.2	6.4
Female	14.7	55.1	12.5	2.1	8.8	6.9
Read picture books	2.7	7.8	10.7	4.4	15.8	58.6
Male	2.7	7.7	10.9	5	14.6	59.1
Female	2.6	7.9	10.6	3.8	16.9	58.2
Tell stories	4.2	14	13	8.2	18.2	42.4
Male	5	14.1	14.6	7.2	15.7	43.3
Female	3.5	13.9	11.4	9.1	20.5	41.5
Play inside with toys	7.1	28	15.7	7.1	15.1	27
Male	7.5	27	14.6	8.2	14.1	28.6
Female	6.7	28.9	16.7	6.2	16	25.5
Take child outside	10.3	42.5	18.2	6.7	12.2	10.2
Male	9.6	41.4	17.7	6.9	12.8	11.6
Female	10.9	43.4	18.6	6.6	11.6	8.9
Show picture books	2.8	6.5	11	6.3	17.2	56.2
Male	3.4	6.3	10.1	6.9	16.4	57
Female	2.3	6.7	11.7	5.7	17.9	55.6
Take out to visit relatives	2.5	8.6	20.8	18.4	23.9	25.8
Male	2.1	7.5	21.8	18.3	24.4	25.8
Female	2.9	9.5	19.8	18.5	23.5	25.8
Teaching child	5.4	21.5	19.1	12	18.7	23.3
Male	5.8	22	18.8	12.7	16.9	23.9
Female	5	21.1	19.4	11.4	20.4	22.7
Hug/Kiss	12.9	72.4	6.1	2.8	2.8	3.1
Male	12.8	72.7	6.1	2.9	2.4	3
Female	12.9	72.1	6.2	2.6	3.1	3.1
Soothe when s/he is upset	12.5	59.8	13.8	3.9	7	3
Male	11.4	61.3	14.1	4.3	6.3	2.6
Female	13.5	58.5	13.5	3.5	7.6	3.4
Respond verbally	4.6	21	8.5	7	12.9	46
Male	3.2	23	8.8	6.9	11.2	46.9
Female	5.9	19.2	8.2	7.2	14.4	45.2
Praise/Appreciate	14.9	54.4	11.3	3.6	4.5	11.3
Male	13.8	55.2	11.9	2.9	4.8	11.4
Female	16	53.7	10.7	4.3	4.3	11.1
Name objects/routines	5.6	25.1	15.9	9.7	16.3	27.4
Male	5	25.8	15.7	10.6	14.3	28.6
Female	6.2	24.3	16.1	8.9	18.2	26.2
Count or sort objects	3.5	10.1	11.7	7.1	18.5	49
Male	3.7	10.6	10.6	7.1	18	50.1
Female	3.4	9.7	12.8	7.2	18.9	48.1
Guide	9.4	23.8	15	7.5	14.9	29.3
Male	8	22.5	15.9	7.2	16.4	30
Female	10.7	25.1	14.2	7.8	13.6	28.6
Criticize/shout	3.7	9.6	12.1	9	25.1	40.5
Male	3	10.9	12.2	7.5	26.5	39.8
Female	4.3	8.4	12	10.3	23.9	41.2
Threaten	2.1	4	7.3	6.3	23.6	56.8
Male	2.1	3.9	6.1	6.1	24.2	57.6
Female	2.1	4.1	8.4	6.5	23	56