

THE IMPACT OF EMPOWERED WORLD VIEW ON REDUCING CHILD
STUNTING

by

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Abstract

This research examines the effectiveness of the Empowered World View (EVW) program in Kigoma and Iringa regions of Tanzania, focusing on reducing child stunting. The program aimed to empower women and safeguard maternal care and nutrition, promoting positive cultural behaviors to protect the rights of mothers and children. The study employed a Difference in Difference approach to investigate the impact of the program in reducing child stunting. The results indicate a notable decrease in the odds of child stunting among those who received the EVW treatment, with an overall Average Treatment Effect on the Treated (ATT) of -1.072 at 95% CI and a p-value of less than 0.01. This suggests that children participating in the EVW program had a 1.072 times lower likelihood of experiencing stunting compared to their non-intervention counterparts. These findings underscore the significance of the EVW program in combating child stunting while shedding light on key determinants that require attention for effective public health interventions.

Preface/Preamble

Child stunting is a pressing global health issue that has far-reaching consequences for the well-being and development of millions of children worldwide. The effects of chronic malnutrition, resulting in impaired growth and development, can have severe and long-lasting impacts on a child's physical, cognitive, and socio-emotional development. Despite international efforts to address this issue, stunting remains prevalent, particularly in low and middle-income countries.

Dedication

This research is dedicated to all the children who have been affected by stunting and its consequences. It is a testament to our unwavering commitment to improving their lives and ensuring their well-being.

I also dedicate this research to the dedicated healthcare professionals, researchers, policymakers, and organizations working tirelessly to combat child stunting. Your tireless efforts and unwavering dedication are instrumental in creating a world where every child can thrive.

To the families and communities affected by child stunting, I dedicate this research to you. Your stories and experiences serve as a reminder of the urgent need to address the underlying factors contributing to stunting and to empower communities to make sustainable changes for the well-being of children.

Finally, this research is dedicated to the future generations. May our collective efforts pave the way for a world where no child suffers from stunting, where every child has the opportunity to reach their full potential, and where the well-being and rights of children are prioritized.

This work is dedicated to you, and it is my sincerest hope that it contributes to a brighter and healthier future for all children, both present and generations to come.

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Glossary of terms

AP	Area Program
ATT	Average Treatment Effect
DID	Difference in Difference
EWV	Empowered Word View
RCT	Randomized Control Trials
WB	World Bank Group
WHO	World Health Organization
WVT	World Vision Tanzania

List of Tables

Table 1: Observations	7
Table 2: Summary Statistics	8
Table 3: Descriptive Statistics Summary	12
Table 4: Findings	15

Table of Contents

Abstract.....	i
Preface/Preamble.....	ii
Dedication.....	iii
Acknowledgements	iv
List of Tables.....	v
CHAPTER ONE: INTRODUCTION	1
1.1 Background to study	1
1.2 Problem statement	2
1.3 Research objective.....	2
1.4 Justification of the study	3
1.5 Organization of the report.....	3
<i>CHAPTER 2: LITERATURE REVIEW.....</i>	<i>3</i>
2.1 Introduction	3
2.2 Theoretical Framework.....	3
2.3 Review of Empirical Studies.....	4
2.4 Contribution to the Literature	5
2.5 Insights from the literature	6
<i>CHAPTER 3: RESEARCH METHODOLOGY.....</i>	<i>6</i>
3.1 Introduction	6
3.2 Data Description	6
3.3 Analytical approaches	10
3.4 Limitations of the model.....	11
3.5 Data processing	11
<i>CHAPTER 4: RESULTS AND DISCUSSION</i>	<i>12</i>
4.1 Introduction	12
4.2 Descriptive Statistics Summary	12
4.3 Findings	13
4.4 Conclusion.....	16
<i>CHAPTER 5: CONCLUSION</i>	<i>17</i>
5.1 Introduction	17
5.2 Summary of the Study.....	17
5.3 Policy implications	17

5.4 Further research areas	17
5.5 Study limitations	17
Reference.....	18
Appendix	21

CHAPTER ONE: INTRODUCTION

1.1 Background to study

Stunting is defined as the impaired growth and development due to chronic malnutrition (WHO, 2009) and has a severe consequence on child's physical, cognitive and social emotional development. Children are categorized as stunted when their height for age falls more than two standard deviations below median of the WHO growth standards (WHO, 2007). For a very long time period stunting has remained a critical global health issue affecting millions of children worldwide. In 2022 148.1 million children were stunted globally accounting for 22.3% of all total children with more than half of all under five years children affected by stunting lived in Asia and two out of five children lived in Africa (WHO/WB/JME, 2023). The sub-Saharan Africa region accounts for 30% of global child stunting and the prevalence is more pronounced in the Middle and East Africa with 37.4% and 30.6% respectively. In this study I focus on investigating the impacts of Empowered World View (EWV) in reducing child stunting.

Stunting can be caused by various factors in both before conception, during pregnancy and after birth. Among factors that has been reviewed as sources of stunting includes inadequate complementary feeding programs, short birth spacing, inadequate sanitation and water supply, pregnancy and lactation infections as well as social beliefs and actions regarding child and maternal nutrition (WHO, 2013).

Stunting frequently remains unnoticed in communities where being short is considered normal, as primary health facilities do not routinely assess linear growth and visual identification of stunting can be sometimes challenging (de Onis, 2016). Children who suffer from stunting are less likely to achieve their full growth and development potentials specifically full height and their brains fails to develop cognitive potential as the result they start their life with demerits that would finally affect their adulthood either during school or at work (Walker et al, 2000). With this evidence there is a need to promote awareness about these problem in order for communities and other stakeholders to collaborate in fighting this problem. There are have been various measures to solve the problem of stunting globally, under the Sustainable Development Goals (SDG) number 2 the aim is attain 13.5% of under 5 years stunting by the year 2030.

In Tanzania the government through its agencies and other stakeholders have been implementing various community interventions to fight stunting (Ministry of Health, 2016). In 2019 was reported that stunting rate decreased from 34.7% in 2014 to 31.8% in 2019 (TNNS, 2019). The Joint Child Malnutrition Estimates (JCME) reported the average of 30.6% of under five years stunting in Tanzania for the year 2022 and Tanzania was recognized as among countries with very high rate of stunting compared to the global under five stunting

averages of 22.3%. In Tanzania the magnitude of stunting varies from one region to another, the top five regions with more than 40% of under five years stunting includes Njombe (53.6%), Rukwa (47.9%), Iringa (47.1%), Songwe (43.3%) and Kigoma (42.3%) (TNNS, 2019). This calls for extra efforts to rescue the critical problem within those areas. Several studies suggested that community-based interventions can play a crucial role in fighting stunting in Tanzania (Moffat et al, 2022).

1.2 Problem statement

Tanzania is among the Sub-Saharan Africa countries with the highest level of stunting, the Tanzania National Nutrition Survey (TNNS) revealed that 31.8% of children suffered from stunting (MoHCDGEC 2018). Kigoma and Iringa regions are among the regions with high levels of severe stunting where 42.3% and 47.1% of children under five years are stunted respectively. Stunting affects areas of the brain involved in cognition, memory and locomotor skills. This is associated with long term effects particularly school performance and productivity Andrew and Jean, (2014). These raise the importance of immediate actions that can be adopted to improve child well-being. Empowered World View (EWV) is among the community-based interventions programs being implemented by World Vision Tanzania in collaboration with World Vision international and the University of Alberta. The aim of this program is to empower communities to make sustainable changes that will positively improve child well-being.

1.3 Research objective

The purpose of this research is to investigate the impact of EWV program on reducing child stunting through promoting positive social and cultural norms to promote women's and children's rights to nutrition. The EWV is working under the premises that by addressing the underlying mindset and worldviews contributing to poverty and negative child well-being outcomes, communities can be empowered to makes sustainable changes that will finally impact their lives (WVT, 2021). By examining the interplay between psychosocial factors and child nutrition, the study seeks to identify potential strategies for improving child health outcomes and inform policy programs aimed at reducing child stunting globally.

The objective of this research is to identify the potential impacts of positive social and cultural beliefs on reducing child stunting implemented by WVT under the EWV program in Kigoma and Iringa regions, Tanzania. This will help to provide evidence-based recommendations for specific policies and community interventions with similar goals of fighting child stunting through promoting positive cultural and social change regarding women and children nutrition.

1.4 Justification of the study

The justification for this study lies in the urgent need to understand and address the underlying factors contributing to child stunting. This study addresses a critical research gap by investigating the impact of positive mindset and decreased family conflicts and contributes to a more comprehensive understanding of child stunting determinants.

The findings of this research have the potential to inform the design and implementation of targeted community-based interventions and policies aimed at reducing child stunting rates. By identifying the influence of caregivers' mindsets and family conflicts, policy makers and program implementers can develop contextually appropriate strategies to promote positive parenting practices and strengthen family support systems.

By considering the influence of psychosocial, health and development factors this study takes a holistic approach towards child well-being. Recognizing that nutrition alone is not sufficient to address the complex issue of child stunting (Ramli et al., 2009).

1.5 Organization of the report

Chapter two presents reviews on various literatures, chapter three discusses the research methodology, chapter four presents the findings and discussion while chapter five provides the conclusion about the whole research.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This part introduces the theoretical framework behind child stunting, the review of various empirical studies on stunting, the contribution to literature as well as gained insights from respective empirical studies.

2.2 Theoretical Framework

Within the period of 1,000 days of early life children are mostly vulnerable to stunting this is due to the rapid growth and development under this period (Martorell, 2017). They experience rapid physical and cognitive development. It is during this stage intensive development of brains as well as tissues and organs occur, which demands a substantial amount of nutrients including proteins, fats, vitamins, and minerals. If these essential nutrients are not well provided in a balanced manner will hinder child growth and development and consequently leading to stunting (Roth et al, 2017). They are also more susceptible to infections to diseases and illness such as diarrhea due to underdeveloped immune system (Dilruba et al, 2023). This would lead to

reduced appetite and failures in nutritional absorption thus will cause stunting. Therefore, during this stage of development, it is crucial to consider these underlying factors that may affect child growth in one way or another in order to ensure that they attain their biological growth conditions.

Various measures have been proposed to fight against child stunting as it is a multidimensional issue. In 2020, UNICEF formulated a framework to explain about the determinants of maternal and child nutrition at various levels by taking into account intermediate determinants, underlying determinants as well as enabling determinants as a solution against child stunting. There is different on-going intervention that attempt to address different level of causes. WVT has various programs that aim to address underlying causes (World Vision Tanzania, 2021). In 2013 WHO, developed a framework to explain about under 5 years stunting that proposed women empowerment through access to education, resources and decision-making power to influence children's health and nutrition.

The EWV model is attempting to address the enabling cause of norms that aim at promoting positive social, cultural behaviors and actions to enable children's and women's right to nutrition (World Vision Tanzania, 2021). The model is based on the premise that there is a strong correlation between people's mindsets, their behaviors and outcomes to their families and communities (Muvengi, 2016).

2.3 Review of Empirical Studies

Stunting is a complicated issue. The relevance and amplitude of the links vary, and there are no set categories for any one element because this depends on the underlying theory. Some elements are changeable, and a lack of knowledge on the results of changing these aspects creates research gaps that call for more analysis. Various studies have been made to investigate key factors for stunting and potential solutions to eradicate the problem. These factors could be either household level factors, mother factors or child specific factors (WHO, 2013). These chapter introduces the reviews about factors associated to stunting from different literatures.

In 2015 Utami et al in their study about factors associated with stunting in Indonesia found that family income has a significant impact of family stunting in Indonesia. Families with lower incomes, specifically below the regional minimum wage, were found to have a higher risk of stunting in their children. This suggests that poverty and economic disparities can play a crucial role in childhood stunting. Similar results were observed in studies conducted by Nakumbi et al. (2015), Wake et al. (2023), Semali et al. (2015), and WHO (2012). On other hand access to improved sanitation facilities is among household level factors associated with stunting. A systematic review by Mudadu et al. (2023) on the relationship between access to safe drinking water, sanitation, and hygiene practices revealed that children living in households with improved sanitation were less likely to experience stunting compared to children in households without improved sanitation.

Nevertheless, marital status is another household influential factor in determining child stunting. The study conducted by Tausi et al. (2023) in Tanzania reveals that children with married mothers or caregivers are less likely to experience undernutrition. Similar results observed by Yani et al. (2023). This finding implies that family structure and stability may have an impact on the nutritional status of children.

Not only that but also mothers' behavior and attitude towards maternal practices has an impact to child stunting. A study by Berenge (2022) indicates that a mother's knowledge and attitudes related to nutrition significantly influence a child's risk of stunting. This underscores the importance of maternal education and awareness in preventing stunting. Other studies have also pointed that pre- and post-natal practices has a significant relation with child stunting Maryam et al. (2023) investigated the association between prenatal conditions and stunting in Pakistan using a health demographic survey the study revealed a significant correlation between prenatal practices, such as the intake of food supplements, including iron tablets. Children of mothers who consumed iron tablets during pregnancy had a lower likelihood of being stunted and underweight compared to children of mothers who did not take iron supplements during pregnancy.

Furthermore, gender differences among children could also form another important aspect that explains about the link between child sex and stunting. The study by Gebreyohannes and Dessie (2022) in Ethiopia highlights a gender difference in stunting prevalence, with boys showing a higher risk of stunting compared to girls. This finding indicates that gender-specific factors may contribute to stunting disparities

Moreover, several studies have examined the long-term psychological effects of stunting on individuals who experienced stunting during their early life, underscoring the need for urgent action to address this problem, particularly in developing countries. For instance, Susan et al. (2007) conducted research in Kingston, Jamaica, on the emotional and behavioral outcomes of stunting, which showed that non-stunted participants exhibited fewer symptoms of anxiety and depression and had better self-esteem than those who experienced stunting during childhood. Additionally, Walker et al. (2007) found that stunting has both short- and long-term impacts on child growth, affecting physical ability, the risk of chronic diseases, psychological well-being, and productivity.

2.4 Contribution to the Literature

While many literatures focus on explaining underlying causes of stunting together with some measures and recommendations. There are few literatures on the impacts of community-based interventions attempting to reduce child stunting through addressing enabling cause of norms. This adds a broader understanding of community-based interventions in reducing child stunting through promotion of positive cultural behaviors and actions towards child and maternal nutrition.

2.5 Insights from the literature

Overall, the literature review provides valuable insights into the multifaceted nature of stunting, indicating that it is influenced by a range of factors, including economic status, maternal knowledge, sanitation, prenatal practices, and even gender. Moreover, the long-term consequences of stunting on various aspects of individuals' lives emphasize the importance of addressing this issue early on to ensure healthier and more productive populations.

Policymakers and public health professionals can use this information to design targeted interventions and programs aimed at preventing and addressing stunting in children, especially in vulnerable populations and resource-limited resource setting.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter discuss about variable description, analytical approach used, limitations of the model and the software used during analysis.

3.2 Data Description

I used quantitative cross-sectional survey data collected in two different time periods by the University of Alberta in collaboration with World Vision on their ongoing Empowered World View (EWV) in Tanzania. The data was collected from four area programs (APs) in two clusters in southern central (Iringa) and western (Kigoma) Tanzania. The APs comprise two control sites and two treatment sites, the control sites are Kasanda in Kigoma and Wasa in Iringa. The treatment sites are Nyaronga in Kigoma and Kihanga in Iringa. The selected treatment Area Program (AP) received a combination of conventional World Vision programs, including Livelihood, WASH (Water, Sanitation, and Hygiene), Maternal and Newborn health, Child health, and Child protection, along with the EWV program. The aim of these interventions was to reduce child stunting and enhance child protection. On the other hand, the comparison AP was solely provided with the conventional World Vision programs without the inclusion of the EWV program. Empowered World View (EWV) is a faith-based curriculum that aims to address internal constraints to empowerment by facilitating a shift in individual mindsets from pessimism, jealousy and dependence to hope, improved relationships, and self-reliance. It accomplishes this by using biblical and Quran principles to engage individuals on issues of identity, self-esteem, hope and envisioning a better future. The curriculum encompasses five key themes, Identity, vision, compassion, relationship and faith (World Vision Tanzania, 2021). Total number of households with children involved in the survey were 4,000, 956 children were surveyed twice while 2,088 were surveyed once

the number of children surveyed twice were low because under age of 5 limit was applied in both surveys (See Table 1)

Table 1: Observations

Number	N	Percent	Total	Percent
Number of surveys			Observation	
1	2,088	69%	2,088	52%
2	956	31%	1,912	48%
Total	3,044	100%	4,000	100%

Source: EWV baseline and endline survey

Variables description

Variables was selected based on UNICEF conceptual framework on the determinants of maternal and child nutrition (UNICEF, 2020). These variables are grouped into three categories first category comprise child factors (child sex, child age, low birth weight, bed net, the history of diarrhea two weeks prior to the study, minimum meal frequency, minimum acceptable diet, consumption of iron rich foods, minimum food diversity of child, exclusive breast feeding at one year, child vaccination and delivery birth at health facility). Second category comprise maternal factors such as maternal age, mother’s weight, inter pregnancy interval, maternal malaria, number of antenatal visit and mother’s education. And the third category includes household factors such as household wealth, sex of the household head, access to sanitation facilities, food security, access to safe drinking water and access to health care.

Stunting was measured using the WHO growth standards and the collected data on every child’s length/height, age and sex to calculate the number of standard deviations (Z-Score) that his/her length/height is below or above the median of the 2006 WHO growth reference population. These measures were recorded to two implied decimal points and finally stunting was defined as normal stunting normal for Z-score less than -2 and severe stunting for more than -3 standard deviations (WHO,2006).

Mother’s height was considered low if it was below 145 cm. Child weight at birth was defined as low if it was less than 2.5 kg (de Onis et al, 2008). The variable missed was mother’s education and was not recorded during both surveys.

In both the baseline and endline surveys, more than 60% of children were aged above 25 months, while children below six months constituted only 2% and 1% respectively. Female children comprised 51% of the total participants in both surveys. However, there were notable changes in certain health indicators. The proportion

of mothers with a normal body mass index decreased from 74% in the baseline to 70% in the endline, while obesity increased from 4% to 11% during the same period. During the endline survey, there was an improvement in the proportion of mothers attending antenatal visits, particularly for those with 5 to 8 visits, which increased from 32% to 36%. Nevertheless, the majority of mothers still had under 4 antenatal visits, accounting for 60% of the respondents (See Table 2).

On the positive side, the proportion of children vaccinated against measles increased from 86% to 92% between the baseline and endline surveys. Additionally, the number of mothers taking iron-rich intakes improved from 191 to 293, although the majority still did not consume sufficient iron-rich foods. The prevalence of diarrhea was significantly higher during the endline survey, with 1,475 reported cases, compared to only 283 cases in the baseline survey. Marriage rates remained high in both surveys, with more than 85% of mothers being married. Furthermore, over 30% of households had more than six members.

Table 2: Summary Statistics

Variable	Baseline		Endline	
	N	%	N	%
Child Sex				
Male	1014	48.84%	934	48.54%
Female	1062	51.16%	990	51.46%
Child age in Months				
0-11	251	12.09%	187	9.72%
12-23	481	23.17%	421	21.88%
24-35	480	23.12%	428	22.25%
36-47	481	23.17%	487	25.31%
48-60	383	18.45%	401	20.84%
Child birth weight				
Low	129	6.70%	102	5.97%
Normal	1658	86.13%	1480	86.65%
High	138	7.17%	126	7.38%
Body mass Index of mother respondents				
Low (<18.50)	80	4.30%	94	5.46%
Normal (18.50–24.99)	1373	73.86%	1209	70.25%
Overweight (25.00–30.00)	332	17.86%	297	17.26%

Obese (>30.00)	74	3.98%	195	11.33%
Duration of breastfeeding of mother respondents				
<6	9	10.59%	3	3.09%
6–12	7	8.24%	14	14.43%
13–24	65	76.47%	75	77.32%
>24	4	4.71%	5	5.15%
Number of antenatal visits				
0-4	1221	64.57%	1058	59.54%
5-8	600	31.73%	645	36.30%
>8	70	3.70%	74	4.16%
Marital Status				
Never married	180	9.00%	107	5.96%
Divorced	104	5.20%	109	6.08%
Married	1716	85.80%	1578	87.96%
Number of living children of mother respondents				
2	352	18.63%	314	17.67%
3	389	20.59%	326	18.35%
4	249	13.18%	269	15.14%
5	221	11.70%	243	13.67%
>5	678	35.89%	625	35.17%
Household size				
2	16	0.77%	22	1.02%
3	226	10.88%	380	17.69%
4	391	18.82%	356	16.57%
5	417	20.07%	390	18.16%
6	341	16.41%	322	14.99%
>6	687	33.06%	678	31.56%
Vaccination against measles				
Yes	279	85.85%	1583	91.61%
No	46	14.15%	145	8.39%
Vaccination against DPT_HP				

Yes	316	97.23%	1712	99.25%
No	9	2.77%	13	0.75%

Source: EWV Tanzania Survey

3.3 Analytical approaches

The estimation model used under this study the difference in difference approach. This model is suitable to measure the intervention at aggregate level and the interest of this study was to measure the impact of Empowered World View interventions across the area programs and not within the area programs (WVT, 2021). The basis of DiD rely on the assumption that in the absence of intervention stunting would have improved at the same trend in the treated and control group.

The traditional DiD model is given by $DID = (Y_{1t} - Y_{0t}) - (Y_{1c} - Y_{0c}) \dots\dots\dots (1)$

Where:

Y_{1t} represents the average outcome in the treatment group after the treatment.

Y_{0t} represents the average outcome in the treatment group before the treatment.

Y_{1c} represents the average outcome in the control group after the treatment.

Y_{0c} represents the average outcome in the control group before the treatment

This model calculates the average treatment effects by taking the difference in average outcome of the pre-intervention and post-intervention among the treated and control groups. But it has two major limitations firstly, it doesn't indicate if the impact is significant or not and the second major limitation is that it doesn't allow to control for other observed and unobserved variables that may interfere the intervention such as time varying covariates that change from time to time either at the same rate or different rates. Hence the DiD regression model is suitable since it helps to overcome these limitations by allowing control of other variables which may reduce the residual variances or lead to smaller standard errors. Also, it is easy to calculate standard errors and finally it allows to study treatments with different treatment intensities as well as to include multiple periods.

The DID regression model is given by

$$Y = \beta_0 + \beta_1 \text{Treat}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Post} * \text{Treat})_{it} + \beta_i X_{it} + \varepsilon \dots\dots\dots (2)$$

Were

Y = Stunting Dummy

Post = post treatment dummy

Treat= a dummy if the observation is in the treatment group

X_{it} = Other covariates such as child effects, mothers' effects and household effects

ε = Error term

3.4 Limitations of the model

This model requires the parallel trend assumption to hold in order to ensure internal validity of the model. The parallel trend assumes that in the absence of treatment, the difference between treatment and control group remains constant over time Duflo et al, (2007). The assumption doesn't hold if baseline characteristics differ between groups and/ or groups characteristics change differentially over time (Paul et al, 2016). But this situation can be adjusted.

3.5 Data processing

Data cleaning and analysis was conducted using Stata version 14 (Stata SE/14).

CHAPTER 4: RESULTS AND DISCUSSION

4.1 Introduction

This section discusses statistical summaries about the proportion of stunting among the study group, findings of the study and conclusion of the study.

4.2 Descriptive Statistics Summary

I test the prevalence of stunting among participated children under 5 years according to the descriptive characteristics under the area program. The chi square test was applied to test the level of significance according to the distribution of stunting.

The results indicate a significant prevalence of stunting in male children, constituting 52.3% of all stunted cases. Among different age groups, children aged 24 to 47 months showed a high prevalence of stunting. Surprisingly, the duration of breastfeeding and marital status did not yield significant results in explaining stunting distribution. However, children with divorced mothers exhibited higher stunting rates accounting for 48.79% of total stunting rate. Moreover, the number of living children had a notable impact on stunting distribution among the participants. Mothers with more than six living children accounted for 40.69% of the total stunting rate, showing a substantial proportion of stunted cases. These findings were observed (See Table 3), highlighting the importance of family size as a contributing factor to stunting prevalence.

Table 3: Descriptive Statistics Summary

Variables	Not Stunted		Stunted	
	N	%	N	%
Child Sex				
Female	1132	54.16	830	47.7
Male	958	45.8	910	52.3
P Value	<0.001			
Child age in months				
0-11	327	15.65	71	4.08
12-23	445	21.29	422	24.25
24-35	422	20.19	464	26.67
36-47	468	22.39	453	26.03

48-60	428	20.48	330	18.97
P Value	<0.001			
Child birth weight				
Low	92	4.77	135	8.49
Normal	1720	89.17	1331	83.71
High	117	6.07	124	7.8
P Value	<0.001			
Duration of breastfeeding of mother respondents				
<6	5	5.95	5	5.21
6-12	5	5.95	17	17.71
13-24	58	69.06	53	55.21
>24	16	19.05	21	21.88
P Value	0.083			
Number of living children of mother's respondent				
1	226	11.57	141	8.69
2	375	19.19	271	16.71
3	399	20.42	299	18.43
4	254	13	249	15.35
>=5	700	35.82	660	40.69
P Value	<0.001			
Marital status of child's mother				
Married	1747	54.41	1464	45.59
Divorced	106	51.21	101	48.79
Never married	159	57.4	277	42.6
P Value	0.396			

4.3 Findings

To determine the impact of EWV program, I first conducted a traditional Ordinary Least Square (OLS) regression model by combining all 17 variables and the using Haz-Scores as a dependent variable while under

the second model I ran the same OLS without changing the independent variables except the dependent variable was stunting. The third model was a full logistic model using the same independent variables and the dependent variable of stunting by calculating odds ratio (OR), 95% confidence interval (CI) and p -value ($\alpha = 0.05$) was considered as a significance level.

The results, presented in Table 4, demonstrated a significant reduction in the odds of child stunting among those who received the treatment, with an overall ATT of -1.072 [95% CI] and a p -value of less than 0.01. This indicates that children exposed to the EVW program had a 1.072 times lower likelihood of experiencing stunting compared to their counterparts who were not part of the intervention. Among the control variables only two variables depict the significant results on determining stunting. First, the place of delivery played a significant role, with children born in hospitals showing lower odds of stunting (-1.154, p -value <0.01). Second, food security emerged as a crucial determinant, with children from food-insecure families being more vulnerable to stunting (OR 0.0721, p -value <0.01). While other 15 variables didn't show any significant association with stunting.

The findings of this study have several important implications for public health and policy in Tanzania. Firstly, they underscore the value of empowering women in the fight against child stunting. Women play a central role in caregiving and nutrition within households, and when equipped with knowledge and resources, they can make informed choices that positively impact their children's health and development.

Secondly, the success of the EVW program highlights the need for targeted interventions in vulnerable regions. Kigoma and Iringa were specifically chosen for the implementation of the program, demonstrating the significance of tailoring interventions to address the unique challenges faced by each community.

Thirdly, the study raises the importance of Maternal Care the study's finding that children born in hospitals had lower odds of stunting underscores the critical role of maternal care during childbirth. Hospital deliveries often offer better access to skilled healthcare professionals, adequate facilities, and medical interventions, which contribute to healthier outcomes for both mothers and children. This highlights the importance of ensuring access to quality healthcare services to improve child and maternal health.

This finding also underscores the need for comprehensive strategies to address food insecurity and improve the nutritional status of vulnerable populations, especially women and children. Children from food-insecure families are at a higher risk of experiencing stunting due to insufficient access to nutritious food. Furthermore, the study's evidence of the EVW program's effectiveness provides a compelling case for scaling up similar

initiatives nationwide. By investing in programs that empower women and enhance maternal care and nutrition, Tanzania can make substantial progress in reducing child stunting rates and improving overall child health.

Table 4: Findings

Dependent Variable	Model 1	Model 2	Model 3
haz/stunting	b/se	b/se	AOR
Post Intervention	0.134 (-0.68)	-0.011 (-0.1)	-0.069 (-0.55)
Treated	-0.717* (-0.4)	0.240*** (-0.09)	1.344** (-0.53)
ATT	0.579** (-0.29)	-0.189** (-0.1)	-1.072** (-0.54)
Child Sex (Male)	-0.205 (-0.32)	-0.014 (-0.03)	-0.068 (-0.19)
Child Age (Months)	0.007 (-0.02)	-0.003 (0)	-0.014 (-0.01)
Low Birth Weight	-0.031 (-0.29)	0.014 (-0.07)	0.093 (-0.4)
Acute Respiratory Infection	0.002 (-0.21)	0.025 (-0.03)	0.139 (-0.19)
Bed Net	-0.296 (-0.21)	-0.028 (-0.04)	-0.165 (-0.22)
Diarrhea	-0.156 (-0.31)	0.013 (-0.06)	0.06 (-0.3)
Minimum Acceptable Diet	0.688 (-0.49)	-0.091 (-0.16)	-0.503 (-0.96)
Consumed Iron Rich Food	-0.461* (-0.25)	0.055 (-0.05)	0.302 (-0.29)
DPT-HB a vaccination	0.082 (-0.83)	0.241 (-0.27)	1.5 (-1.83)
Measles Vaccination	-1.475***** (-0.43)	0.083 (-0.13)	0.416 (-0.71)
Delivery facility	0.902** (-0.41)	-0.209** (-0.09)	-1.154** 9-0.55)
Mother BMI	0	0	-0.001 (0)
Mother's Parity	0.062 (-0.12)	-0.002 (-0.01)	-0.012 (-0.04)
Number of Antenatal Visit	0	0	0
Improved Sanitation	0.019 (-0.26)	-0.035 (-0.04)	-0.196 (-0.22)
Food Insecurity	-0.866***** (-0.21)	0.136*** (-0.05)	0.721** (-0.31)
Protected Water Source	-0.111 (-0.21)	-0.008 (-0.04)	-0.043 (-0.2)
WV sponsorship	-0.02 (-0.2)	0.039 (-0.04)	0.206 (-0.21)
constant	-0.317 (-1.28)	0.245 (-0.3)	-1.53 (-2)
N	861	861	861

* p<0.10, *** p<0.01, *** p<0.01, ***** p<0.001

4.4 Conclusion

This research investigated the effectiveness of the EVW program's implementation in the regions of Kigoma and Iringa, Tanzania, with the primary focus on reducing child stunting. The program aimed to achieve this objective by promoting positive cultural behaviors that empower women and protect the rights of both mothers and children in terms of maternal care and nutrition. The study analyzed the impact of the EVW program by comparing the outcomes of children exposed to the intervention against those who were not.

The findings of this research demonstrate the positive impact of the EVW program in reducing child stunting under the Area Programs. The implications of this study go beyond the immediate reduction in child stunting and highlight the importance of women's empowerment, integration of maternal care and nutrition, targeted interventions, and multi-sectoral collaboration. Policymakers and stakeholders can use these findings to inform evidence-based policies and programs that address child stunting and improve the overall well-being of vulnerable populations. Additionally, the study emphasizes the need for sustained efforts and collaboration to ensure the long-term effectiveness and impact of such interventions in combating child stunting on a broader scale.

CHAPTER 5: CONCLUSION

5.1 Introduction

This chapter discusses about the general research summary, policy implications, study limitations as well as further study areas that can be investigated.

5.2 Summary of the Study

In this study, a total of 4,000 children were initially considered, but only 956 children actively participated in both surveys. Among these participating children, the prevalence of stunting was found to be 45.43%.

The findings indicate a statistically significant association between the EWV program and a reduction in child stunting. Specifically, children who were exposed to the treatment had 1.0721 times lower odds of experiencing stunting. This suggests that the EWV program has a positive impact on reducing stunting rates in children.

Moreover, the study revealed improvements in certain behavioral characteristics that can influence stunting. For instance, an increase in the duration of breastfeeding months, higher rates of vaccination against measles, and an increased intake of iron supplements during the prenatal period were all associated with positive signs. These factors indicate that the EWV program is likely to observe long-term effects on reducing stunting.

5.3 Policy implications

The study's findings have important implications for policy and programmatic interventions aimed at reducing child stunting in similar contexts. It highlights the effectiveness of community-based programs, like the EVW initiative, that focus on empowering women and promoting positive cultural behaviors. Governments and organizations can use these findings to design and implement targeted interventions that prioritize maternal care, nutrition, and food security as crucial components of child health programs.

5.4 Further research areas

Moreover, the study's scope is limited to specific regions in Tanzania, and the results may not be generalizable to other populations. Future research should consider broader samples and longer follow-up periods to assess the sustainability of the program's impact and investigate additional factors that contribute to child stunting.

5.5 Study limitations

While the study provides valuable insights, it's essential to acknowledge its limitations. The research might not have accounted for all potential confounding factors that could influence child stunting. Hence, any further analysis or discussion should take into account additional confounding factors that were not accounted for in this study.

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Appendix

Section B: HOUSEHOLD DEMOGRAPHICS		
BI 09	What is the name of the household head _____	
BI 10	Household head consent for the interview? Yes = 1 No = 0 End interview	_ _
BI 11	What is the religion of the household head? [DO NOT READ LIST. CODE ONLY ONE RESPONSE] Catholic01 Protestant/other Christian.....02 Hindu03 Muslim04 Traditional05 No religion06	_ _
	Other (specify).....88	
BI 12	How many family members do you have? _____	_ _
BI 13	Does this household have a registered child in World Vision child sponsorship program? 1=Yes 0= No BI 15	_ _
BI 14	Does this household actively participate in planning and managing child sponsorship? (Send a child for all Sponsorship activities like Annual Progress Report (APR), Child Monitoring or writing Christmas Card) 1=Yes 0= No 88 = Don't know	_ _
BI 15	Are you or anyone in your household, including children, participating or involved or benefiting in any of the World Vision interventions? Eg. In Health, farmers groups, sponsorship etc) (Participating means: engaged eg in heath, agricultural, IGA or children committees/clubs activities etc or are members of the producer groups, SACCOS, Water user groups etc) Yes = 1 No = 0 DK = 88	_ _

Section C: Characteristics of all household Members

Administer this section of the survey to the household head.

PLEASE TELL ME THE NAME OF EACH PERSON WHO USUALLY LIVES HERE, STARTING WITH THE HEAD OF THE HOUSEHOLD.

List the head of the household first followed by all other households' members in descending order of their age. Fill the household member number in line HDM01 and proceed with the follow up questions as per given skips pattern. After finishing the entry of each member ask if there are any others person WHO LIVE there, EVEN IF THEY ARE NOT AT HOME NOW during your visit?

PLEASE ENSURE CHILDREN (6-59 months) ARE WEIGHED AND MEASURED ACCORDING TO APPROVED MINISTRY OF HEALTH STANDARDS (INCLUDING APPROVED EQUIPMENT AND CHILD SAFETY REGULATIONS).

HDM01.	HDM02.	HDM03.	HDM04.	HDM05	HDM06	HDM07	HDM07.1	HDM08.	HDM09	HDM10.	HDM11.	HDM11.1	HDM12.
Line no.	Name of the household member	What relationship is (name) to the head of household?*	What is (name's) gender? 1=Male 2=Female	What is (name's) date of birth? (DD/MM/YYYY)	Is (Name) a child aged 0-59 months 1. Yes 1. No HDM13	Does a Child have a Health card (ANC card)? 1=Yes 0=No	Child birth weight in kg	Did the child receive anthelmintic (deworming treatment) in the past six months 1=Yes 0=No	Caregiver name? (choose from the list and write the caregiver line number)	Weigh (name) and record weight in kilograms to the nearest 0.1 kg. Weight in kg —	Measure length of (name) and record in centimeters to the nearest 0.1 CM** Height in cm —	MUAC	Does (name) have clinical signs of Oedema?

* Codes for HDM03: Relationship to head of household: 01 Head, 02 Spouse / Partner, 03 Son / Daughter, 04 Son-In-Law / Daughter-In-Law, 05 Grandchild, 06 Parent, 07 Parent-In-Law, 08 Brother / Sister, 09 Brother-In-Law / Sister-In-Law, 10 Uncle / Aunt, 11 Niece / Nephew, 12 Other relative, 13 Adopted / Foster/ Stepchild, 14 Servant (Live-in), 96 Other (Not related), 98 DK

****Hint:**

For children 6-59 months Measure length of (name) when he/she is lying down (6-23) and the height while standing (24-59) months)

HDMI3	HDMI4	HDMI5	HDMI6	HDMI7	HDMI8	HDMI9
<p>Does (name) have a birth certificate?</p> <p><i>(Make sure he/she understand the type of certificate, not the clinic card) Ask for children aged 0-17</i></p>	<p>Does (name), have a disability of any kind? (For example: difficulty in moving any part of a body, hearing, or seeing, epilepsy, intellectual disability (IQ lower than average) or mental illness, a child with albinism etc)</p> <p><i>Ask for children aged 0-17</i></p>	<p>Is (name) orphaned or abandoned by parents?</p> <p><i>Ask for children aged 0-17</i></p>	<p>Is (name) sponsored by World Vision?</p> <p><i>Ask for children aged 0-17</i></p>	<p>Are you currently enrolled in school?</p> <p>1=Yes</p> <p>0=No HDM19</p> <p><i>Ask for people aged 5-24</i></p>	<p>Which class is (name) currently enrolled?</p> <p>0= Nursery or KG, 1=Class 1, 2= Class 2, 3= Class 3, 4= Class 4, 5= Class 5, 6= Class 6, 7=Class 7, 8=Class 8, 9= Class 9, 10= Class 10, 11=Class 11, 12= Class 12, 13= Attended college or higher, 98=don't know / too young.</p> <p><i>Ask for people aged aged 5-24</i></p>	<p>Are there any others people who live here, even if they are not at home now</p>
<p>1=Yes</p> <p>0=No</p>	<p>1=Yes</p> <p>0=No</p>	<p>1=Yes</p> <p>0=No</p>	<p>1=Yes</p> <p>0=No</p>			<p>1=Yes</p> <p>0=No PPI10I otherwise to HDM0I until all household members have been registered</p>

**SECTION D: HOUSEHOLD POVERTY AND ECONOMIC
RESILIENCE**

Address this question to the household head.

PPI I01	What is the main building material used for the walls of the main building? 1. Baked bricks 2. Poles and mud, grass, sun-dried bricks, or other 3. Stones, cement bricks, or timbe 4. Mud bricks	_ _
PPI I02	What is the main building material used for the roof of the main building? 1. Grass/leaves, mud and leaves 2. Iron sheets, tiles, concrete, or asbestos 3. Concrete 96. Other	_ _
PPI I03	What is the main fuel used for cooking? 1. Firewood, solar, gas (biogas), wood/farm residuals, or animal residuals 2. Charcoal, paraffin, gas (industrial), electricity, generator/private source 3. 96.Other If other specify	_ _
PPI I04	Does your household have any television? Yes = 1 No = 0	_ _
PPI I05	Does your household have any radios, or hi-fi systems? Yes = 1 No = 0	_ _
PPI I06	Does your household have any lanterns? Yes = 1 No = 0	_ _
PPI I07	Does your household have any tables? Yes = 1 No = 0	_ _
PPI I08	Did your household cultivated any crops in the last 12 months?? Yes = 1 No = 0	_ _
PPII08_I	Does your household currently own any cows? Yes = 1 No = 0	_ _
Water and Sanitation (WASH)		

PPI 109	What is the main water source for your household? 1 = Protected source (Public Piped water, Public fountain, protected borehole, protected hand dug well and protected spring) 2 = Household has its own water tap 3 = Unprotected source (open well, river, pond, lake, canal, unprotected spring, dam, unprotected rain water)	_ _
PPI 110	Is water normally available from this source all the time? 1 = Yes 0 = No	_ _
	88 = Don't Know	
PPI 111	How much water do you collect every day? (Translate the responses in to liters if the respondents may not know scientific units)	_ _
PPI 112	What type of toilet facility do members of your household usually use? 1 = Pit latrine with slab 2 = Pit latrine with no slab 3 = Open pit latrines 4 = Flush toilet 5 = Ventilated improved pit latrine (VIP) 6 = No Facility/bush/field	_ _
PPI 113	Is there one or more adults (over 18 years) in the household earning a regular income to meet the needs of the family? 1 = Yes, If yes how many people? ____ 0 = No, 88 = Don't Know FSB 201 <i>A regular income means an income that is expected at certain intervals that can be relied on e.g. daily, weekly, monthly or seasonally.</i>	_ _
PPI 114	What are the household's sources of income - (select all applicable) 1 = Sale/exchange of own produce (farming) 2 = Labour (self-employed/ i.e. driver 3 = Wage employment (working for someone else) 4 = Direct Selling (i.e. cosmetics selling, etc) 5 = Petty business/Vending/Trading 6 = Pension 7 = Rental Fee 8 = Others (specify): _____	_ _
PPI 115	What is the household's main and alternative sources of income (Use Codes 1 to 8 in PPI 114)? Main Source: _____ Alternative Source/s: _____	_ _

SECTION E: FOOD SUPPLY AND BASIC NEEDS

<p>FSB 201</p>	<p>In the past 12 months how did your household meet daily food needs?</p> <p>1 = All 12 months of daily food needs were met through purchase and own production</p> <p>2 = For one month of the year daily food needs were met by using coping strategies*</p> <p>3 = For two to three months of the year daily food needs were met by using coping strategies*</p> <p>4 = For 4-6 months of the year daily food needs were met by using coping strategies*</p> <p>5= For more than 6 months of the year, daily food needs were met by using coping strategies*</p> <p><i>* such as eating less often, eating less preferred foods, borrowing money to buy food, doing casual labour, reducing expenses for schooling, health, agriculture etcF</i></p>	
<p>FSB 202</p>	<p>In the past four weeks was there ever no food to eat of any kind in your household because of lack of resources to get food?</p> <p>Yes = 1 No = 0 FSB 204</p>	<p> _ </p>
<p>FSB 203</p>	<p>How often did this happen?</p> <p>1 = rarely (about once or twice a month)</p> <p>2 = sometimes (about once a week)</p> <p>3 = often (about twice a week or more)</p>	<p> _ </p>
<p>FSB 204</p>	<p>In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?</p> <p>Yes = 1 No = 0 FSB 206</p>	<p> _ </p>
<p>FSB 205</p>	<p>How often did this happen?</p> <p>1 = rarely (about once or twice a month)</p> <p>2 = sometimes (about once a week)</p> <p>3 = often (about twice a week or more)</p>	<p> _ </p>
<p>FSB 206</p>	<p>In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?</p> <p>Yes = 1 No = 0 FSB 208</p>	<p> _ </p>
<p>FSB 207</p>	<p>How often did this happen?</p> <p>1 = rarely (about once or twice a month)</p> <p>2 = sometimes (about once a week)</p> <p>3 = often (about twice a week or more)</p>	<p> _ </p>

FSB 208	In the past 12 months did your household harvest any food crops for consumption? Yes = 1 No = 0 FSB 210	_
FSB 209	If yes, which of these crops did you harvest? (Select 1, 2, 3 if they produce any crop from these categories): Food crops category: 1 = Maize, Rice, Sorghum, Potatoes, banana or any other related staple food. 2 = Peas, Beans, Groundnuts, Green Beans and any other related protein food crops. 3 = Iron rich/dark green leafy vegetables; Orange Fleshed Sweet Potatoes 4= 1 and 2 5= 2 and 3 6 = 1 and 3 7 = All 1,2 and 3	_
FSB 210	In the past year, were you able to provide at least two sets of clothing (including uniform if applicable) for all the children (5-18 years) living in your household (without external assistance i.e from relative, the government, NGO or others) <i>If the respondent is having difficulty, or responds too quickly, probe:</i> For the children, 5-11 years? For the older children, 12-18 years? (If there is no child of this age fill 99 for each question) 2 = Yes (with no assistance) 1 = Yes (only with assistance) 0 = No unable to provide for all the children 99=Not Applicable.	_
FSB211	In the past year, were you able to provide a pair of shoes for all the children (5-18 years) living in your household without external assistance? (From relative, the government, NGO or others) <i>If the respondent is having difficulty, or responds too quickly, probe.</i> 2 = Yes (with no assistance) 1 = Yes (only with assistance) 0 = No unable to provide for all the children 99=Not Applicable.	_
FSB212	In the past year, were you able to provide for education needs (school fees and/or school contribution) for all the children (5-18 years) living in your household, without external assistance? (From relative, the government, NGO or others) <i>If the respondent is having difficulty, or responds too quickly, probe.</i> 2 = Yes (with no assistance) 1 = Yes (only with assistance) 0 = No unable to provide for all the children 99=Not Applicable	_
FSB213	In the past year, were you able to provide medical treatment for all the children (5-18 years) living in your household, (either from your own income or health insurance) without external assistance? (From relative, the government, NGO or others) <i>If the respondent is having difficulty, or responds too quickly, probe.</i> 2 = Yes (with no assistance) 1 = Yes (only with assistance) 0 = No unable to provide for all the children 99=Not Applicable	_

T. PREGNANCY, CHILD BIRTH AND CHILD HEALTH		
This section is to be administered to all women aged 10+		
DD400	Are you current pregnant? 1. Yes 0. NO 2. I don't like to respond	
DD401	Do you have any children? 1. Yes 0. No DD459	
DD402	How many children do you have?	
DD403	How many children 0-59 months do you have?	
DD403.1	What is the weight of the mother in kilogram?	
DD403.2	What is the height of the mother in Cm?	
	For each child specified in DD402 ask the questions D404 to DD458	
DD404	What is the name of the children	
DD405	What is (Name) Date of Birth (dd/mm/yyyy) If the child is aged 0-23 months proceed with DD406 otherwise go to DD426	
DD405b	Age of child in months	
DD405c	Gestation age during delivery of JINA	
DD405d	Was the the child delivered by cesarean section, i.e. did they have to cut your belly open to get the baby out? 1= Yes 0= No	
DD405e	Did you ever breastfeed JINA? 1= Yes 0= No	
DD405f	How long after birth did you first put JINA to the breast?	
DD405g	In the first three days after delivery, was JINA given anything to drink before your began breastfeeding him/her?	

DD405h	<p>What was \${DD404} given to drink?</p> <ol style="list-style-type: none"> 1. Milk (Other than breast milk) 2. Plain Water 3. Sugar/Glucose 4. Gripe water 5. Sugar-Salt-Water 6. Fruit Juice 7. Infant Formula 8. Tea 9. Honey 10. Infant canned milk 96. Other 	
DD405i	<p>Are you still breastfeeding JINA?</p> <p>1= Yes 0= No</p>	
DD405j	<p>If no, for how many months did you breastfeed JINA</p>	
DD405k	<p>How are you feeding \${DD404} now?</p> <ol style="list-style-type: none"> 1. Breastfeeding only 2. Breastfeeding and water 3. Breastfeeding but topping up with bottle feeding or formula 4. Breastfeeding and animal milk 5. Mixed feeding (breastfeeding, water, animal milk, formula, solid foods, porridge and other foods) 6. Family foods only 96. Others 88. NA 	
DD405l	<p>Does \${DD404} eat/drink anything else different from mothers milk?</p> <p>1= Yes 0= No 88=Don't know</p>	
DD405m	<p>Why \${DD404} is given other foods different from breast milk?</p> <ol style="list-style-type: none"> 1. I don't have enough milk 2. Formula is better for the baby 3. Baby is crying too much 4. Baby was not gaining enough weight 5. Baby sick 6. Bottle-feeding is easier 7. I don't like breastfeeding 	
	<ol style="list-style-type: none"> 8. I will go back to work soon after the birth 9. Breastfeeding will make my breasts sag 10. Mother had health problem 11. The baby's father can help with bottle-feeding/other feeds 12. I want to know how much milk baby has at each feed 13. Another pregnancy 96. Other 	

DD405n	How old was \${DD404} when she/he was first fed something other than breast milk			
DD406	While you were pregnant with (NAME), did you see anyone for antenatal care? 1= Yes 0= No			
DD407	How many times did you receive antenatal care when you were pregnant with (NAME)? Number of times: ___ ___ Don't know 98			
DD408	How many months pregnant were you when you first received antenatal care for this pregnancy with (NAME)? Months ___ ___ Don't know 98			
DD409	As part of your antenatal care during the pregnancy, were any of the following done at least once:			
	Was your blood pressure measured?	1=Yes	0=No	2=DK
	Did you give a urine sample?	1=Yes	0=No	2=DK
	Did you give a blood sample?	1=Yes	0=No	2=DK
DD410	During this pregnancy of (NAME), did your husband do any of the following?			
	Stopped you from receiving antenatal care?	1=Yes	0=No	2=DK
	Encouraged you to receive antenatal care?	1=Yes	0=No	2=DK
	Had no interest in you receiving antenatal care?	1=Yes	0=No	2=DK
DD411	During your pregnancy with (NAME), did you take SP /Fansidar? 1=Yes 0=No 8=Don't know			
DD412	During your pregnancy with (NAME), how many times did you take SP/ Fansidar in total? Days: ___ ___ ___ Don't know 998			
DD413	When you were pregnant with (NAME) did you receive any injection in the arm to prevent him/her from getting tetanus, that is, convulsions after birth? 1=Yes 0=No 8=Don't know			
DD414	During this pregnancy, how many times did you receive this tetanus injection? Number of times: ___ ___ Don't know 98			
DD415	At any time before this pregnancy, did you receive any tetanus injections? 1=Yes 0=No 8=Don't know			

DD416	<p>Before this pregnancy, how many times did you receive a tetanus injection? IF 7 TIMES OR MORE, RECORD '7'. Number of times: ____ ____ Don't know 98</p>	
DD417	<p>While you were pregnant with (NAME), were you given or did you buy any iron tablets or syrup or FEFO? SHOW IRON TABLETS OR SYRUP TO RESPONDENT. 1=Yes 0=No 8=Don't know</p>	
DD418	<p>During the whole pregnancy, for how many days did you take the iron tablets or FEFO? IF ANSWER IS NOT NUMERIC, PROBE FOR APPROXIMATE NUMBER OF DAYS. Days: ____ ____ ____ Don't know 998</p>	
HIV counselling and testing during most recent pregnancy		

DD419	<p>During any of the antenatal visits for your pregnancy with (name), were you given any information about HIV or the AIDS virus? 1= Yes 2= No (if no, skip to next section) 3= No Response (if 'no response', skip to next section)</p>	
DD420	<p>I don't want to know the results, but were you tested for HIV as part of your antenatal care? 1= Yes 2= No (if 'no', skip to next section) 3= Don't Know (if 'don't know' skip to next section) 4= No Response (if 'no response', skip to next section)</p>	
DD421	<p>I don't want to know the results, but did you get the results of the test? 1= Yes 2= No (if no, skip to next section) 3= Don't Know (if 'don't know', skip to next section) 4= No Response (if 'no response', skip to next section)</p>	
DD422	<p>After you were tested, did you receive counselling? 1= Yes 0= No</p>	

DD423	<p>Where did you give birth to (name)? (Do not read responses allow mother to answer freely)</p> <ol style="list-style-type: none"> 1. 1. Hospital 2. 2. Health center 3. 3. Dispensary 4. 4. Born before arrival 5. 5. Your home 6. 6. Another home 7. 96. Other(specify) 	
DD424	<p>Who assisted with the delivery of (name)?</p> <ol style="list-style-type: none"> 1. Doctor 2. Nurse/ Midwife 3. Auxiliary midwife 4. Traditional birth attendant 5. Community health worker 6. Relative/ Friend 7. No one 8. Don't know/No response 9. Other: (specify)_____ <p>For analysis: 1-3 = 1; 4-9 = 0</p>	

	<p>Now I would like to ask you about health care Acute Respiratory Infection (ARI) that (NAME) might have had in the past</p> <p>Ask DD426 to DD for all children aged 0 - 59 months</p> <hr/>	
DD426	<p>At any time in the last two weeks, has (NAME) had an illness with a cough? 1= Yes 0= No DD431</p>	
DD427	<p>When (NAME) had an illness with a cough, did he/she breathe faster than usual with short, rapid breaths or have difficulty breathing? 1= Yes 0= No DD429</p>	
DD428	<p>Was the fast or difficult breathing due to a problem in the chest or a blocked or runny nose? 1 = Problem in the chest DD429 otherwise DD431 2 = Blocked or runny nose 3 = None of above</p>	
DD429	<p>Did you seek any advice or treatment from any source? 1= Yes 0= No DD431</p>	

DD430	<p>From where did you seek advice or treatment? <i>Probe: Anywhere else? Check all providers mentioned, but do NOT prompt with any suggestions.</i></p> <p>Multiple answers are possible</p> <p>1= Gov't health facility (health post, health centre/dispensary, clinic, hospital) 2= Private physician 3= TBA/CHWs 4= Traditional / Spiritual Healer 5= Shop 6= Pharmacy 7= Relative / Friend</p>	
	Diarrhoea Management	
DD431	<p>In the last two weeks, has (Name) had diarrhoea? 1=Yes DD432 otherwise DD437 0=No 88= DK</p>	

	<i>(Diarrhoea is defined as three or more loose watery stool in a 24-hour period (if 'no', skip to next section)</i>	
DD432	<p>I would like to know how much (NAME) was given to drink during the diarrhoea, including breast milk. Was he/she given less than usual to drink, about the same amount, or more than usual? <i>If less: probe: Was he/she given much less than usual to drink, or somewhat less? Nothing to drink=1 Much less=2 Somewhat less=3 About the same=4 More=5</i></p>	
DD433	<p>I would also like to know how much (NAME) was given to eat during the diarrhoea, was he/she given less than usual to eat, about the same amount, or more than usual? <i>If less: probe: Was he/she given much less than usual to eat, or somewhat less? Stopped food=1 Much less=2 Somewhat less=3 About the same=4 More=5</i></p>	
DD434	<p>During the episode of diarrhoea, was (NAME) given to drink ORS (Oral Rehydration Solution) Yes=1 No= 0 DK= 88</p>	
DD435	<p>During the diarrhoea, did (name) take any tablets? (explore if she knows Zinc supplement, and if the child was treated) Yes =1 No=0</p>	
DD436	<p>Was anything (else) given to treat the diarrhoea? Yes=1 No= 0 DK= 88</p>	

	MALARIA PREVENTION	
DD437	Did (name) sleep under a net last night? Yes = 1 No = 0 DD439 DK = 88 DD439	
DD438	What kind of net did the children under 5 sleeps under?	
	Ask and observe the type / brand of the net if possible. reverse 1.Long-lasting treated nets (with blue & white ribbon) 2.Insecticide Treated Nets (ngao)	
Vaccination Coverage		
DD439	Does (Name) have a health/Clinic card? (Ask to see card and verify) 1= Yes 0= No DD447	
Use child's health card to answer questions (DD440-DD446)		
DD440	How many times has child been given DPT-HB a vaccination injection on the left thigh?	
DD441	The date for DPT-HB1/PENTA 1	
DD442	The date for DPT-HB2/PENTA 2	
DD443	The date for DPT-HB3/PENTA 3	
DD445	Has (Name) ever been given "vaccination" against measles? Yes=1 No= 0 DD447 DK= 88 DD447	
DD446	Date for "vaccination" against measles	
Children without Health Card (Base on mother's recall)		
DD447	Has (name) ever received a DPT vaccination – that is, an injection in the thigh or buttocks – to prevent him/her from getting three different infections called tetanus, whooping cough, and diphtheria? Probe by indicating that DPT vaccination is sometimes given at the same time as Polio 1 = Yes 0 = No	
DD448	How many times has child been given DPT-HB a vaccination injection on the left thigh?	
DD449	Has (name) ever been given "vaccination" against measles? That is, an injection in the upper arm? Yes=1	
	No= 0 DK= 88	

CHILD COMPLEMENTARY FEEDING INFORMATION**Ask this section for children aged 6-23 months**

Now I would like to ask you about the type of foods that children of 6-23 months ate yesterday in your household during the day and the night

DD450	Since this time yesterday (in the day or the night), did (NAME) eat any grains, cassava, or cereals, including porridge, ugali, rice, white potatoes, etc.? <input type="radio"/> Yes=1 <input type="radio"/> No=0 DD458
DD451	Since this time yesterday (in the day or night) did (NAME) eat any legumes and nuts <input type="radio"/> Yes=1 <input type="radio"/> No= 0
DD452	Since this time yesterday (in the day or night) did (NAME) eat any dairy products (milk, yogurt, cheese) Yes=1 No=0
DD453	Since this time yesterday (in the day or night) did (NAME) eat any meats, fish or poultry, including organs (i.e. chicken liver, fish meal)? <input type="radio"/> Yes=1 <input type="radio"/> No=0
DD454	Since this time yesterday (in the day or night) did (NAME) eat any eggs? Yes=1 No = 0
DD455	Since this time yesterday (in the day or night) did (NAME) eat any orange or yellow coloured fruits or vegetables for example, carrots, orange sweet potatoes, and mangoes? <input type="radio"/> Yes=1 <input type="radio"/> No=0
DD457	Since this time yesterday (during the day or night) did (NAME) eat any other fruits or vegetables? <input type="radio"/> Yes=1 <input type="radio"/> No=0
DD458	Does this woman have another child aged 0-59 months <input type="radio"/> Yes=1 DD404 <input type="radio"/> No=0 DD459

DD459	Outcome of the interview with this respondent: 1 = Completed 2 = Not at home 3 = Not competent 4 = Deferred 5 = Refused 6 = Not at home for an extended time 7 = Partially completed 9 = Other (specify)	
DD460	Any other household member to interview? 1=Yes ME01 0=No DD461	
DD461	Result of household interview: Completed.....01 No household member or no competent respondent at home at time of visit02 Entire household absent for extended period of time..... 03 Refused.....04 Dwelling vacant / Address not a dwelling.....05 Dwelling destroyed.....06 Dwelling not found.....07 Other (specify)..... 96	

Source: Baseline Report (WVT, 2021)