

Enhancing Infant and Young Child Feeding Practices for Children Under Two Years in Rural Ghana: Leveraging Male Champion and Mother to Mother Support Group for Improved Outcome

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Abstract

Appropriate infant and young child feeding practices is crucial for the first 1000 days of life however, two in three children between six months and two years of age are not fed food that supports their rapidly growing bodies and brains in Ghana. Community structures, such as male champions and mother-to-mother support groups, play a pivotal role in enhancing IYCF practices but, little is known on the effectiveness of male champions and mother-to-mother support groups in improving IYCF practices in rural Ghana. Thus, this study aims to enhance infant and young child feeding (IYCF) practices for children under two years in rural Ghana by leveraging the influence of male champions and mother-to-mother support groups for improved outcomes. The study adopted a mixed method. Quantitative and qualitative method were utilized to collect and analyze the data using the formula $n = z^2 p(1-p)/d^2$, where n is the sample size, p is the prevalence of stunting, d is precision. At 95% confidence level and 5% degree of precision, the sample size was determined 1,354. Focus Group Discussion was used get in-depth information. The result showed that almost every mother who participated in the baseline and Endline surveys [98.6% (100% in Kassena Nankana West, 97.9% in Kintampo South and 98% in Sekyere East)] reported ever breastfeeding her youngest child. The overall exclusive breastfeeding rate ((94.7%) observed at evaluation across all beneficiary districts was significantly higher than the national 53.1%. It was observed that the project had contributed to significant improvement in the timely introduction of complementary food and the proportion of children who meet the MDD increased from 68.2% to 75.8%. In conclusion, it was evident that community level structures like mother-to-mother support group facilitators, mother to mother support groups, and male champions were effective to enhancing infant and young child feeding in rural Ghana where a significant improvement on exclusive breastfeeding was recorded.

Keywords. Infant and Young Child Feeding, Ghana, breastfeeding, under nutrition, under two years

1. INTRODUCTION

Appropriate feeding practices for infants and young children (IYC) reduce the risk of infections, prevent undernutrition, and promote optimal health during the first 1,000 days of life [1]. UNICEF and WHO advise starting breastfeeding within the first hour after birth, exclusively breastfeeding for the initial six months, and timely introducing age-appropriate, nutritious, and safe complementary foods at six months. They also recommend continuing breastfeeding up to two years or longer [1]. Despite this recommendation and the critical benefits related to IYCF, most studies have recorded suboptimal rates of appropriate IYCF practices. Almost two in three children between six months and two years of age are not fed food that supports their rapidly growing bodies and brains in Ghana [2]. Again, the prevalence of stunting and wasting among children under five during the 2021 survey stands at 17.5% and 6.0%, respectively [3]. Another study in n Nkwanta South Municipality of Ghana by [4] showed 12.5% and 27.5% stunting and wasting respectively.

In Ghana, 58% of children aged 0- 23 months engaged in early initiation of breastfeeding, 41% met the minimum dietary diversity requirement, and 53% Of children under 6 months were exclusively breastfed [3]. Despite high rates of breastfeeding initiation, complementary feeding practices in rural Ghana are often suboptimal [1]. Studies have shown that many children are introduced to complementary foods too early, and the nutritional quality of these foods is frequently poor. The prevalence of Minimum Dietary Diversity (MDD), Minimum Meal Frequency (MMF), and Minimum Acceptable Diet (MAD) among children aged 6–23 months remains low [1]. Rural Ghana is among the regions grappling with inadequate feeding practices. Recent research in Ghana uncovered distressing statistics: 63% of the children surveyed had an insufficient minimum dietary diversity score, and 77.9% did not receive the minimum acceptable diet [5]. It is well established that poor feeding practices are closely linked to the undernutrition of children [6]. In 2016, Ghana introduced the national nutrition policy as a step to implement nutrition programs and tackle issues of infant and young child feeding and undernutrition; yet child undernutrition still persists [7,2]. Several studies like [7, 8, 9, 10, 11, and 12] informed infant and young child feeding practices of children Ghana and other countries.

Community structures, such as male champions and mother-to-mother support groups, play a pivotal role

in enhancing IYCF practices. Male champions can influence household decision-making and promote positive feeding practices by supporting their partners and advocating for better nutrition. Mother-to-mother support groups provide a platform for women to share experiences, receive peer support, and learn about optimal feeding practices. These groups can significantly improve breastfeeding rates and complementary feeding practices, leading to better nutritional outcomes for children. However, little is known on the effectiveness of male champions and mother-to-mother support groups in enhancing IYCF practices in rural Ghana. Thus, this study is to enhance infant and young child feeding (IYCF) practices for children under two years in rural Ghana by leveraging the influence of male champions and mother-to-mother support groups for improved outcomes.

World Vision Ghana (WVG) collaborated with the Ghana Health Service (GHS), and the Department of Food and Agriculture, to implement the Improved Feeding Practices (IFP) for the first one thousand days (1,000) project between September, 2020 and August, 2023 which is explained in [13, 14, 15, and 16]. The project was funded by Japan Social Development Fund administered through the World Bank. The project was implemented in 70 communities in three districts: Kassena-Nankana West, Sekyere East, and Kintampo South districts. The IFP project aimed to improve the feeding practices of women of reproductive age (including pregnant and lactating women) and children under two years, the first one thousand days of life. This paper thus report on enhancing infant and young child feeding practices for Children under two years in rural Ghana: leveraging male champion and mother to mother support group for improved outcome.

2. METHODS AND MATERIALS

Study Philosophy, Site and Design

Mixed method was employed to investigate the infant and young child feeding practices of children under two years of age in rural Ghana. Quantitative and qualitative method were utilized to collect and analyze the information. The intervention spanned 30 months, from September 2020 to August 2023, and covered seventy rural communities in three districts: Kasena Nakana West District (KNW) in the Upper East Region, Kintampo South (KSD) in the Bono East Region, and Sekyere East District (SED) in the Ashanti Region.

Study Population, Inclusion, and Exclusion Standards

The study population was mothers and other caregivers with children under two years. The inclusion criteria encompassed mothers with children under two years residing in these districts. However, children who were sick and had congenital malformations at the time of the study were excluded from the analysis.

Sample Size and Sampling Technique

Convenience sampling was employed. Using the formula $n = z^2 p(1-p)/d^2$, where n is the sample size, p is the prevalence of stunting, d is precision. At 95% confidence level and 5% degree of precision, the sample size was determined to be 189, 219 and 208 for KNW, KSD, and SED respectively. Therefore, the total sample size of the study was determined to be 1,354. In each district, four communities were randomly selected from those selected for the household survey for the FGD with mothers/caregivers of children 6-23.

Data Collection Procedure, Data Validity and Reliability

The primary sources of data for this study were the existing data of the World Vision. The collected data were rigorously controlled for accuracy and consistency to ensure their reliability. Utilizing established and standardized measurement techniques and procedures that were a part of the initial nutritional intervention ensured data validity. Additionally, Cronbach's alpha reliability test was conducted to assess the internal consistency and reliability of data. Data were said to be valid and reliable with alpha value 70% or more which is the rule of thumb. Qualitative data were collected through focus group discuss and key informant interviews.

Data Analysis and Report Writing

The quantitative data were downloaded from the ODK app in Microsoft Excel format and imported into SPSS software version 17 for cleaning and data analysis. Continuous variables were summarized into means and standard deviation while skewed data were summarized into median/interquartile range [IQR]. Categorical variables were also summarized as frequencies and percentages. Bivariate analysis using cross-

tabulation was performed on selected indicators to get additional insights from the findings. The qualitative data were transcribed, verbatim, typed and analysed.

Ethical Consideration

The study received ethics permission and approval from the Navrongo Health Research Centre's Institutional Review Board, Navrongo- Upper East Region, Ghana (Approval Number: NHRCIRB421). Verbal consent was obtained from the respondents and they were assured of confidentiality and used only for the purpose of the study. Permission was also sought from World Vision Ghana in the usage of data.

Informed Consent

Participation was voluntary and consent was sought before any interviews.

3. RESULT

This section will focus on the socio-demography characteristics of respondent, early initiation of breastfeeding, exclusive breastfeeding, and timely introduction of complementary feedings at 6 months.

Sociodemographic Characteristics of Respondents

Table 1. Employment status of respondents

Employment type	Kassena Nankana West		Kintampo South		Sekyere East		Total	
	Baseline [N=423] (%)	Endline [N=423] (%)	Baseline [N=477] (%)	Endline [N=493] (%)	Baseline [N=423] (%)	Endline [N=423] (%)	Baseline [N=477] (%)	Endline [N=493] (%)
Apprenticeship	14.9	18.2	8.8	6.7	3.6	6.3	9.0	10.2
Farming	29.8	46.3	44.7	52.1	26.3	33.9	33.9	44.5
Housewife/unemployed	23.6	5.0	14.9	8.9	29.9	17.8	22.6	10.5
Manual work	0.5	70.0	1.5	0.6	0.0	0.7	18.7	0.7
Petty trading	14.7	13.5	17.8	20.9	25.9	0.7	0.7	19.6
Food Processing	0.5	1.2	0.8	0.4	0.0	24.3	19.5	0.6
Salary work	1.9	1.4	2.1	1.0	2.7	0.2	0.40	1.9
Skilled work	11.3	12.5	5.5	7.1	10.9	3.3	2.2	10.6
Others	2.8	1.2	4.0	2.2	0.7	12.8	9.1	1.4

From Table 1, majority of the respondent were farmers (44.5%) and petty traders (19.6%). From the table the minority under employment was the food processors (0.6%).

Table 2. Educational level of respondents

Educational level	Kassena Nankana West		Kintampo South		Sekyere East		Total	
	Baseline [N=423] (%)	Endline [N=423] (%)	Baseline [N=477] (%)	Endline [N=493] (%)	Baseline [N=423] (%)	Endline [N=423] (%)	Baseline [N=477] (%)	Endline [N=493] (%)
JSS/JHS	33.1	32.6	42.8	25.8	56.5	48.4	45.0	35.1
Middle /SSS /SHS	16.5	12.3	9.4	9.9	10.7	9.1	12.1	10.4
No formal education	20.1	24.8	18.0	23.1	10.5	13.3	16.2	20.5

Primary	25.3	27.7	27.7	39.8	20.1	27.6	24.4	32.1
Tertiary	2.8	2.1	2.1	1.4	2.2	1.6	2.4	1.7

As shown in Table 2, majority of the respondent had completed Junior High School (JHS) and primary. Only few (1.7%) had completed tertiary education.

Table 3. Marital status of respondents

Marital status	Kassena Nankana West		Kintampo South		Sekyere East [		Total	
	Baseline [N=423] (%)	Endline [N=423] (%)	Baseline [N=477] (%)	Endline [N=493] (%)	Baseline [N=448] (%)	Endline [N=428] (%)	Baseline [N=1348] (%)	Endline [N=1344] (%)
Co-habitation	0.9	0.0	24.1	20.2	37.1	48.2	21.1	20.2
Divorced	1.4	0.5	0.4	0.4	1.6	3.3	1.1	1.3
Married	88.7	91.5	59.7	63.1	47.1	43.9	64.6	65.9
Separated	0.7	0.7	2.3	1.2	1.8	1.6	1.6	1.2
Single	7.6	3.5	12.6	14.6	11.6	9.8	10.7	9.6
Widowed	0.7	3.8	0.8	0.4	0.9	1.7	0.8	1.7

As shown in table 3, over two-third (64.6% and 65.9% respectively) of the baseline and end- line respondents said they were married while about one-tenth (10.7% and 9.6% respectively) of them indicated they were single with about one-fifth (21.1% and 20.2% respectively) of them co-habiting.

Community Structures and Innovative Approach: Male Champion and Mother to Mother Support Group

Based on the IFP end of project report, the project successfully trained 140 mother-to-mother support group facilitators across 70 communities to be be facilitators of nutritional messages. Moreover, 65 MTMSGs were established to promote health and nutrition activities in the communities. 62 Male Champions were trained and were active in 26 Father Support groups, thus focusing on gender inclusiveness in nutrition education. The project disseminated high- impact nutritional messages through community structures like Mother-to-Mother Support Groups (MTMSG) and Male Champions. Sixty (60) food demonstrations sessions using local ingredients for appropriate infant feeding practice were conducted by community health nurses and mother to mother support groups. Additionally, the project utilized Radio Interactive programs lead by nutrition officers as platforms for nutrition education. In total 33 radio interactive session were held to discuss exclusive breastfeed, timely introduction of complementary feeding, dietary diversity, and appropriate complementary feeding practices. Also, community level information centres, and churches were used by mother-to-mother support facilitators, and male champions for community level nutrition education on infant feeding practices.

Early Initiation and Exclusive Breastfeeding

Almost every mother who participated in the baseline and endline surveys [98.6% (100% in KNW, 97.9% in KSD and 98% in SED)] reported ever breastfeeding her youngest child. There was however, a slight reduction in percentage of mothers who ever breastfed between the endline and the baseline (98.6% to 98.4%) as a result of reduction in KNW (100% to 98%). The main reason for not breastfeeding at endline was the same as that of the baseline, which is mother decided not to breastfeed (Endline of 56.3% compared to 57.9% baseline. Other reasons were child refuse to breastfeed (31.3% at endline and 26.3% baseline). In the baseline, some 5.3% did not breastfeed because the mother was not available to breastfeed. The only other reason in the endline was that the mothers were sick (12.5%).

Early Initiation of Breastfeeding

Figure 1 shows the early initiation (EI) rates at baseline and endline. It was observed that the proportion of mothers who initiated breastfeeding early, marginally increased thus 87.6%.

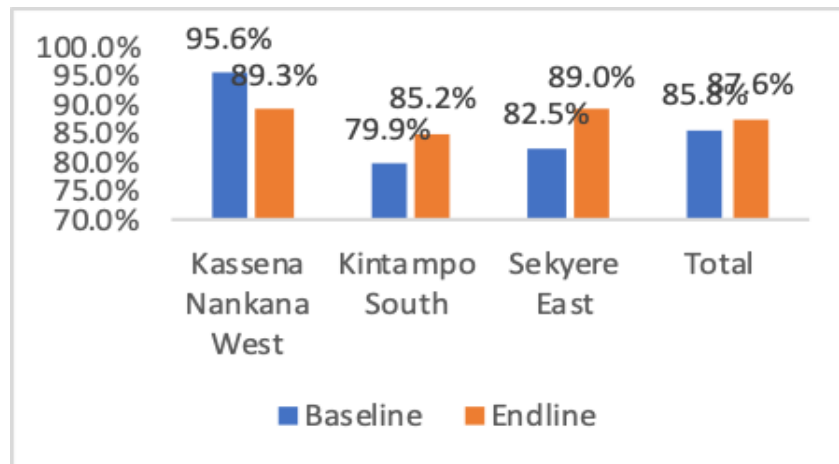


Figure1. Early Initiation of Breastfeeding

Exclusive Breastfeeding

Exclusive breastfeeding (EBF) is one of the key interventions for promoting the development of children within the first 1000 of days of life (from conception to first 2 years of life). The evaluation findings show that there has been significant improvement in exclusive breastfeeding rates in all the districts. The evaluation findings shows that there has been significant improvement in exclusive breastfeeding rates in all the districts. In the Kassena Nankana West district, 90.1% of mothers practiced exclusive breastfeeding at baseline compare to 97.7% at evaluation. In the Kintampo South, 62.2% of mothers practiced exclusive breastfeeding at baseline compare to 91.5% at evaluation whereas in the Sekyere East district it was 44.0% at baseline compare to 73.5% at evaluation. The overall EBF rate (94.7%) observed at evaluation across all beneficiary districts was significantly higher than the 53.1% reported in the 2022 GDHS. Shown below; Figure 2

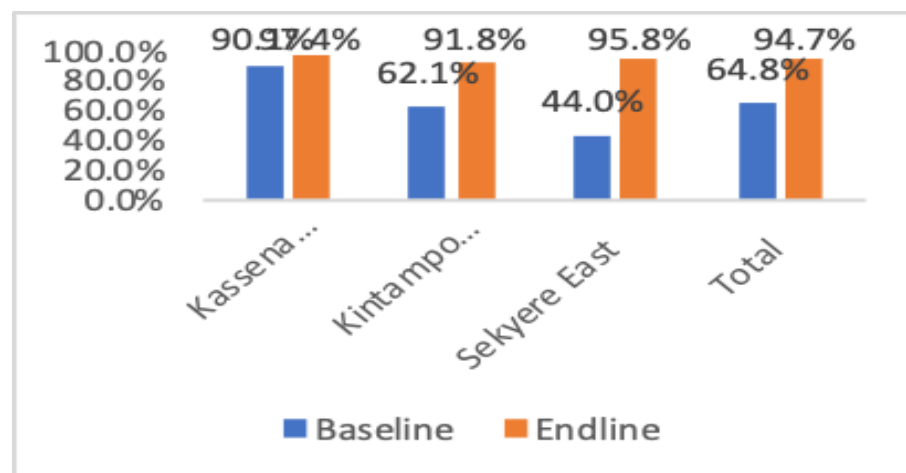


Figure 2. Exclusive Breastfeeding rates

The quotes below from the FGD with beneficiaries reflects the project contribution to improving IYFC practices and exclusive breastfeeding in particular. “Through ‘mother to mother’ support program, they trained us on how to breast feed the child from time of birth to six months and after six months the foods we can use to feed the child”. Beneficiary, KSD.

“We were buying lactogen for our children but now we do not spend on it through World Vision” Beneficiary, KNW

Timely Introduction of Complementary Feeding

Timely introduction of the complementary food (at 6 months) is critical to ensuring that children meet adequate nutritional status. As shown in Table 4, it was observed that the project had contributed to significant improvement in the timely introduction of complementary food. Table 4 Age of complementary food introduction.

Table 4. Age of complementary food introduction

Age range	Kassena West	Nankana West	Kintampo South		Sekyere East		Total	
	Baseline (N=423) (%)	Endline (N=387) (%)	Baseline (N=477) (%)	Endline (N=387) (%)	Baseline (N=448) (%)	Endline (N=330) (%)	Baseline (N=1348) (%)	Endline (N=975) (%)
<6months	6.6%	8.5%	21.6%	8.5%	35.5%	26.5%	21.5%	13.0%
6months*	57.7%	80.6%	63.3%	80.6%	57.6%	68.4%	56.6%	75.0%
7-12 months	35.7%	10.8%	15.1%	10.8%	6.9%	5.1%	18.8%	12.0%

*Timely introduction

"We did not know that we can use egg for the child's porridge until World Vision came in with their training on how to feed the child through 'mother to mother' support program." Beneficiary, KS

"They taught us how to prepare soup with the orange flesh sweet potato leaves." Beneficiary, SED.

Minimum dietary diversity (MDD)

Minimum dietary diversity (MDD) thus consumption of food prepare from at least four groups including breast milk). The results (Figure 3) show significant improvement in minimum dietary diversity. The project contributed to increasing the efforts of caregivers to give their children the recommended number of meals in a day based on their age in all the districts. Whilst the increase in Kintampo South (73.6% to 75.5%) was marginal, increase in the other district and for the whole project was significant.

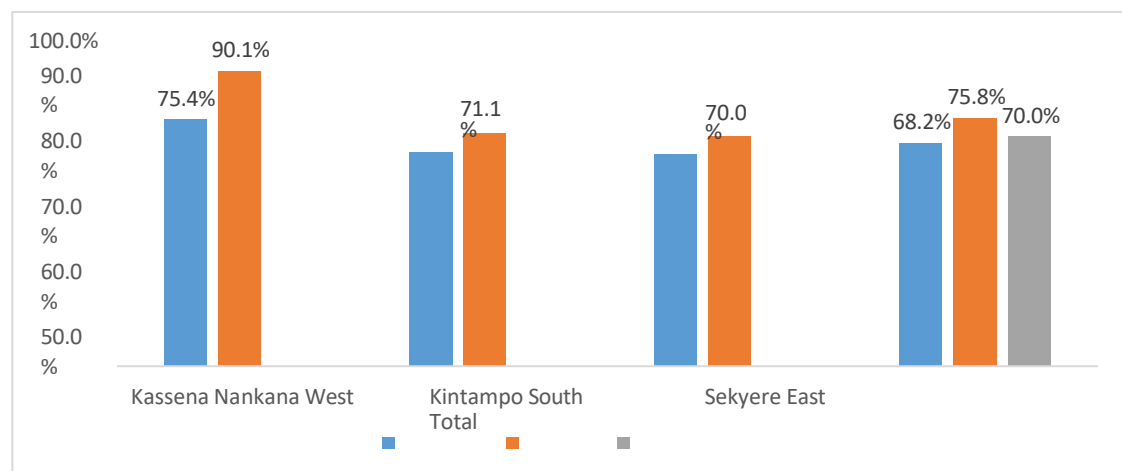


Figure 3: Percentage of children (6-23 months) who met the minimum meal frequency
Minimum Dietary Diversity

With regards to MDD, it was observed that in the Kassena Nankana West 75.4% of the children met the MDD at baseline as compared to 90.1% at endline. In the Kintampo South, it was 65.2% at baseline compared to 71.1% at endline and in Sekyere it was 64.5% and 90.0% respectively (Figure 3). At the project level the proportion of children who meet the MDD increased from 68.2% to 75.8%. This shows that, the project efforts at increasing the production of nutrient rich agriculture commodities.

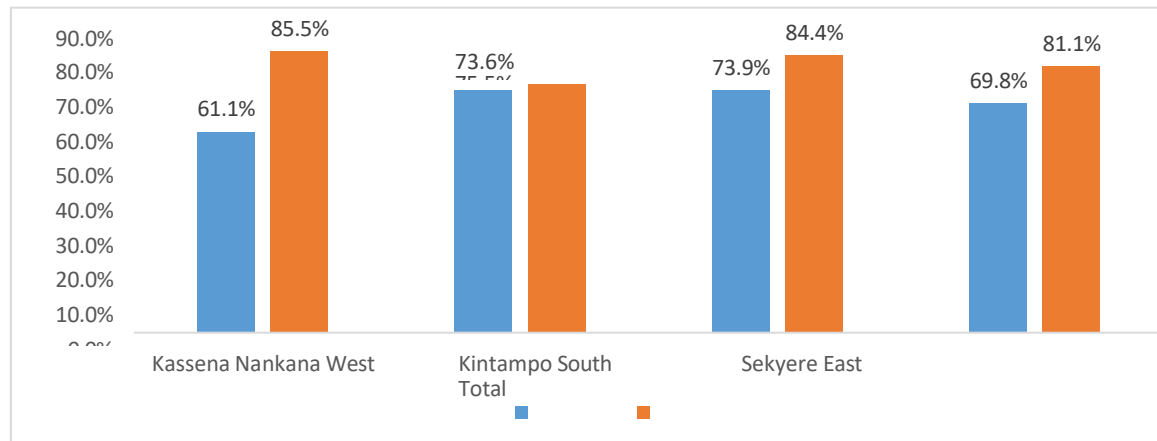


Figure 4: Percentage of children who met the minimum dietary diversity

In the FGDs with the beneficiaries they indicated that they had learned how to integrate OFSP and eggs into the diet of their children. This is another way the project contributed increasing child dietary diversity. Below are some quotes from some of the FGDs that further explain this finding.

"We did not know that we can use egg for the child's porridge until World Vision came in with their training on how to feed the child through 'mother to mother' support program." Beneficiary, Kintampo South

"They taught us how to prepare soup with the orange flesh sweet potato leaves." Beneficiary, Sekyere East

4. DISCUSSION

The main aim of this paper is to assess the infant and young child feeding practices of children less than two years in rural Ghana which was promoted on the IFP. After data analysis three main themes were adopted that demonstrate appropriate infant and young child feed practices in rural Ghana. These include; breastfeeding practice, complementary feeding practice, and changes in dietary diversity of children.

In previous studies, individual and intensive interventions such as home visits have suggested their effectiveness [17, 18]. In our study, at a total of 33 health/nutritional education sessions were conducted by healthcare professionals and 15 sessions by trained mother to mother support group, both of which were delivered to groups in community rather than individuals. On the other hand, the improvement in infant and young child feeding practices observed in this study is assumed to indicate a certain level of effectiveness of the IFP intervention. This is supported by reports from various regions worldwide on the positive impact of community-based nutritional education and cooking demonstrations on addressing child malnutrition, especially in rural communities [17–19]. From this perspective, our research has yielded a significant outcome, demonstrating how using community structures to deliver nutritional education interventions can enhance infant and young child feeding practices in rural settings. Finding shows that, almost all mothers who participated in the study breastfed their children under two-year-old which was consistent with a similar study in Nepal by [9]. Majority of them initiated breastfeeding within one hour of delivery. The percentage of mothers who initiated early breastfeeding within one hour and practiced exclusive breastfeeding is higher (87.6% and 94.7%) than the national of 58% and 41% respectively by [3]. The rate is higher when compared with a study in Nepal which reported 69.2% and 47.6% of participants-initiated breastfeeding immediately within an hour of childbirth and exclusively breastfed their children respectively [9]. This higher rate may be attributed to the community level nutrition education and practical demonstration on position and attachment by male champions, community health workers and mother to mother support groups which was promoted on the project.

These groups were trained to provide support and tailored nutrition education for mothers as quoted by a beneficiary “Through ‘mother to mother’ support program, they trained us on how to breast feed the child from time of birth to six months and after six months the foods we can use to feed the child”. Beneficiary, KSD. This is consistent with a randomized control trial from a rural Ethiopia by [20] where “Peer-led education and support intervention significantly increased EI of breastfeeding by 26%, and EBF by 15%, compared to routine healthcare service”. Breastfeeding contributes to achieving SDG 1 – No poverty, 2- end hunger, achieve food security and improved nutrition and promote sustainable agriculture and 3- ensure healthy lives and promote well-being for all at all ages). For instance, Breast milk provides all the essential nutrients an infant need for the first six months of life, ensuring adequate nourishment by providing anti-bodies that helps protect the child against illness and preventing malnutrition. It also reduces the demand for formula production, which has a higher environmental footprint, thus promoting sustainable agricultural practices. Again, the expenses associated with breast milk substitutes place a heavy financial burden on families and society. By adopting optimal breastfeeding practices, healthcare costs can be reduced by around USD 300 billion [21]. This economic advantage is due to the exceptional nutrients in mother's milk, which support infant development and reduce the risk of malnutrition [22].

Further to breastfeeding practice is timely introduction of complementary feeding practice. Timely introduction of complementary feeding from the study, 75% was higher than findings from rural Soro district, Ethiopia (34.3%), India (55%), Nepal (70%) and Bangladesh (71%) by [23]. The high rate in this current study may be attributed to the mother to mother support groups [MTMSG] constant group meetings to discuss and share information on complementary feeding coupled with practical food demonstration that was promoted on the project in communities as indicated;

“We did not know that we can use egg for the child’s porridge until World Vision came in with their training on how to feed the child through ‘mother to mother’ support group.” Beneficiary, Kintampo South

"They taught us how to prepare soup with the orange flesh sweet potato leaves." Beneficiary, Sekyere East.

This is consistent with study by [24] who indicated counselling about complementary feeding was associated with timely initiation of complementary feeding and similar with studies in Nepal and Bangladesh [25, 26]. In addition, [21] indicated that mothers are able to improve feeding techniques when they receive timely support. However, in another studies knowledge gap was associated with delay initiation of complementary feeding in rural Ethiopia [27].

The Changes in Minimum Dietary Diversity of Children

The changes in MDD of children improved significantly in districts, increasing from 75.4% at baseline as to 90.1% at endline 65.2% at baseline 71.1% at endline and 64.5% and 90.0% in KNW, KS, and SE respectively. At the project level the proportion of children who meet the MDD increased from 68.2% to 75.8%. In this study, approaches to ensure dietary diversity was through agricultural integration [28] and community level nutrition education by mother-to- mother support groups, male champions, and mother to mother facilitators coupled with food demonstration. It was reported in Cambodia that the integration of agriculture and nutrition education led to improved consumption of “Other Vegetables and Fruits” [29].

Limitation

The study utilized a mixed methods approach, allowing for an examination of the IFP project through both qualitative and quantitative lenses. This triangulation of various perspectives enhances the robustness of the evidence. However, it's crucial to note that the study's design does not establish causality. Specifically, the intervention effects were not compared to a control group, nor were the measured effects adjusted for potential confounding variables.

CONCLUSION

In conclusion, enhancing Infant and Young Child Feeding Practices of Children under two years in rural Ghana through leveraging on community structures was successful. It was evident that community level structures like mother-to-mother support group facilitators, mother to mother support groups, and male

champions were effective to improving infant and young child feeding in rural Ghana where a significant improvement on exclusive breastfeeding was recoded. Local level approaches like community level nutrition education through group meetings, church gathering, and community information center coupled with practical food demonstration through the integration of agriculture yielded maximum result where there was significant improvement in minimum dietary diversity of children. We recommend that trained mother to support groups and male champions be well integrated to ensure gender mainstreaming nutrition intervention that focus on infant and young child feeding in rural communities.

Competing interests

The author declares no competing interests.

Ethics approval and consent to participate

The study received ethics permission from the Navrongo Health Research Centre's Institutional Review Board, Navrongo - Ghana. Verbal informed consent was obtained from the respondents and they were assured that the information they would provide would be kept confidential and used only for the purposes of the study.

Consent for publication

Not applicable

Author contributions Writing - original draft: PB, AD; review & editing: PB, AD, JB, IA. All authors read and approved the final draft and final version for publication

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Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request

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