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Functionality and Effect of Mother-to-Mother Support Groups in Improving Child Health and Nutrition in Northern Ghana

Micah A. Olad[1*], Sebit Mustafa[1], Frank Baiden[2], Rogers Kpankpari[3], Jeremiah Oladele[4]
[1]*School of Public Health, Texila American University, Guyana & Central University of Nicaragua*
[2]*Fred N. Binka School of Public Health, University of Health & Allied Sciences, Ghana*
[3]*Sagnarigu Municipal Health Directorate, Ghana Health Service*
[4]*Motherfood International- Tamale- Ghana*

Abstract

Maternal and child health have gain significant attentional globally, especially in sub-Sahara Africa where illness among newborns, complications in pregnancy, malnutrition, and maternal and neonatal deaths are higher comparable to countries in the global north. In light of this, the study explored the effect of mother support groups on primary health care and nutrition outcomes among children under five years. The mixed method research approach supported by pragmatic philosophy was to conduct a cross-sectional survey that gathered data from 484 mothers of children under five years. The study combined questionnaires, interviews and focused group discussions to gather data. The study showed that MTMSG translates into positive impact on nutritional practices among children under five years. Although some level of variabilities existed, yet the study demonstrated that, high consumption of grains meat and fish, fruits and vegetables, dairy and nuts/legumes were significantly influenced by MTMSG. Again, it was shown that, MTMSG translates into high maternal knowledge on child health issues which improves timely treatment of respiratory illnesses, malaria, diarrhea by a margin of 80%. Most importantly, the study showed that, nearly 70% of the issues discussed within MTMSG were centered on hygiene followed by nutrition within discussion rate of 32%. Discussions on both family planning and malaria were least with each scoring 21% and 14% discussion rates. In general, the study showed that, 65% of the respondents had received support suggesting that MTMSG provide progressive assistants to its members which enhance the tracking of health progress among children under five years.

Keywords: *Child Health, Immunization and Mortality, Malnutrition.*

Introduction

Recent reports from the World Health organisations suggest that nearly 70% of maternal and child deaths occur in developing countries. This suggests that, countries in the global south continue to face several challenges in their maternal and child health care delivery framework. For example, a report published by the World Health Organisation in 2019 showed that about 303,000 deaths among children under five years occurred in developing countries [1]. The report also showed that, 80,000 deaths among children under five years occurred in developed countries. This data clearly suggests a huge variation between cases recorded in developing and develop countries. It is imperative to noted that, while this significant disparity occurs, the World Health Organisation is progressively proposing

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****Corresponding Author: oladmicah@gmail.com***

frameworks and practices that countries in the global south can adopt as part of the maternal and child health care delivery framework to reduce the high prevalence of deaths among children under five years [2].

The global recorded maternal mortality rate which is commonly referred to as the number of deaths per every 100,000 live birth was 216 in 2015. While the global outlook looks quite impressive in terms of global collective efforts towards addressing maternal mortality rate, the data suggests a huge variation between countries in the global north and those in the global south. For instance, the MR for developed countries per the 2015 data was 12 while that of developing countries for the same period was 239. The narrative even projects a worse case for countries in sub-Sahara Africa where maternal mortality rate was reported as 546. For South Asia, maternal mortality rate was recorded at 176. Though, the MMR in South Asia is high, yet it can be said to relatively lower comparable to the context of sub-Sahara Africa [1].

Other reports also suggest that, the narratives on maternal and child health as well as reproductive health outcomes in least and middle-income economies are also alarming. It is reported that, nearly 4.4 million children including about 1.2 million newborn babies as well as 267,000 mothers dis in sub-Sahara Africa every year [3]. This statistic clearly portrays that 13,000 maternal and child deaths occur every day in sub-Sahara Africa [3]. It has been demonstrated in literature that illness among new born babies, pregnancy complications, malnutrition, childbirth complications and childhood infections are among the biggest challenges confronting maternal and child healthcare delivery in sub-Sahara Africa [4].

Successive governments in Ghana have made progress in terms of strengthening maternal and child healthcare delivery frameworks through policy interventions that seek to eliminate financial barriers restricting access to maternal and child healthcare. However, nutritional indicators have over the years remained stagnant portraying high incidence of malnutrition among children under five years; especially those in remote areas and urban slams. According to the 2017 Ghana Statistical Service report, infant mortality rate was 52 deaths per every 1000 live births [5]. This suggests that 1 in every 27 infants die before their first birthday in Ghana as at 2017. In fact, recent studies have cited malnutrition as one of the underlying causes of high infant mortality rate in Ghana [5]. Ghana's current population policy seeks to reduce mortality rates among children under five years from 60 to 10 death per 1000 live birth by the end of 2034 [6]. Despite this target, studies have shown that, Ghana is progressively struggling to achieve its maternal and child healthcare outcomes due to high neonatal related deaths which shows that one newborn baby dies every 15 minutes [7]. Surveys from the Ghana Health Service and Ghana Statistical Service have commonly attributed this unfortunate narrative to lack of access to quality maternal and child healthcare especially in rural Ghana, poor accessibility to healthcare facilities due to poor roods, pregnancy related complications, difficult labour, high preterm births, poor nutrition among pregnant women, nursing mothers and newborn babies and a host of other issues such as financial barriers due to poor implementation of the National Health Insurance Scheme [8]. From the narrative surrounding high maternal mortality rates and infant mortality rate in Ghana, it becomes imperative that a collaborative approach reflecting the nation's SDG 3 targets is implemented to improve nutrition and both maternal and child healthcare outcomes [9].

Mother to Mother Groups (MTMSGs) have become essential community-based initiative which is used to addressing maternal, child health and malnutrition challenges especially in rural areas in developing countries. These groups aim to enhance and promote practices

on maternal and child health through community engagement and empowerment. In Ghana, it is largely supported by different organizations such as International Non-Governmental Organisations to be able to enhance nutrition and health outcomes among children under five years and nursing mothers within their area of operations [10]. These MTMSG community-based initiatives as supported by the GHS who act as the implementation actor with financial support from the Ministry of Health and international donor partners and NGOs. The ultimate goal of MTSG is to improve maternal child health and nutritional outcomes among children under five years and nursing mothers [11].

Nutrition among children is globally relevant since it forms the foundation of long-term development and survival of children especially those under five years. Adequate and proper nutrition and dietary support in the first or initial 1,000 days of life supports optimal brain development, strengthens immunity, and reduces the risk of illnesses that contribute substantially to child morbidity and mortality worldwide. Reports from the WHO, World Bank and UNICEF suggest that, malnutrition in developing countries especially those in sub-Sahara Africa has been diminishing very slowly since 1990 in the Sub-Sahara African and Asian countries, yet, progressively increasing at an increasing rate in the context of South Asia [12]. According to the annual report of UNICEF UK, every 10 seconds a child dies of malnutrition somewhere on earth [13]. Out of those who survive beyond one year, nearly 45% of them suffer from malnutrition due to food insecurity and poor dietary practice which usually translate into stunting [13, 14]. Indeed, a collaborative report by the World Bank, WHO and UNICEF in 2013 showed that nearly 33 million children below age five died as a result of malnutrition. These statistics portray a worrying narrative where nearly 18,000 children died every day due to malnutrition related diseases.

From the global perspective, it is estimated that nearly 161 million children below age five are reported to be stunted [12]. Inherently, the global outlook confirms that nearly 25% of children below age are suffering from stunted growth with sub-Sahara Africa accounting for 90% of the global data or estimate. The report further confirms that, at least one in every four children under age five in sub-Sahara Africa is stunted. This raises serious child health concerns that must be addressed through community-based initiatives such as MTMSG.

Northern Ghana, 33% of children are stunted, 11% are underweight, and 6.3% are wasted as compared to the national averages of 19%, 11%, and 5% for stunting, underweight, and wasting, respectively [15]. Poor nutrition has implications for a child's development, since a lack of adequate calories and nutrients to sustain normal growth puts children at a greater risk of being vulnerable to diseases and has adverse effects on their physical, cognitive, and mental development. There has been a global effort to achieve food security and improved nutrition, particularly among rural households in developing countries [16]. Regardless of these actions, rural households continue to experience undernourishment due to high food insecurity. In fact, food insecurity has been cited in literature as one of the major social challenges that most developing countries including Ghana face [17, 18]. In the context of Ghana, the northern belt has been classified as one of the hotspots for malnourishment and food insecurity with nearly 60% of rural households in the Northern regions of Ghana facing daily nutritional challenges. In light of this challenge, the study was set out to ascertain the prevalence of undernourishment and malnutrition with children under age five been the target group. Although national and regional data on the prevalence of malnutrition are available, this study was meant provide more nuanced, community-level prevalence and identify the key socio-demographic factors associated with

malnutrition among children under five in the Sagnarigu Municipality of Northern Ghana.

The establishment of Mother-to-Mother support Group initially has to do with the formation of the group, by opening it to all breastfeeding mothers, pregnant women, and women in reproductive age group. The groups usually range from 20-30 members [19]. The women choose their leaders based on experience, age and respect by all for the selected person. Through the NGO, District Health Management Team, Sub-district and the health facility, capacity building trainings are usually provided to group members and lead mothers [20]. Some of the sessions include early initiation of breastfeeding (Golden hour), Exclusive Breastfeeding, difficulties in breastfeeding and complimentary feeding. In addition, other topics are handled in relation to the needs of the mothers [20]. These include family planning and reproductive health, disease prevention and management, and food demonstration sessions.

Goal and Objectives

- To examine effect of Mother Support Groups in improving primary health care and nutrition outcomes of children under five.

Specific Objectives

- To determine the contribution of Mother-to-Mother Support Groups (MTMSG) to improving the nutritional status of children
- To determine the contribution of MTMSG in reducing child mortality related to preventable diseases
- To describe the functionality of MTMSG under the primary health care in the study area.

Methods and Material

The study employed a purposeful mixed method approach for data collection. A cross-sectional household survey was conducted among mothers of children under five, while focus group discussions was conducted among MTMSG, CHWs, and CHMC. Key Informant Interviews were conducted among health personnel, Community Health Officers, and the Municipal Health Director.

The study also included mother and other care givers who are active participants in MTMSG. These category of participants were included in the study because they provide relevant insight and data that helped in the exploration of the effect of MTMSG on health and nutrition outcome among children under five years in the Northern region of Ghana.

Study Area

Sagnarigu Municipality was selected as the geographical context of the study since several NGOs and donor agencies have over the years implemented community-based MTMSGs towards improving maternal and child health outcomes. This enabled the study to determine the impact of MTMSG on nutrition and child health outcomes which forms the primary focus of the study. The Sagnarigu Municipality was carved out of the Tamale metropolis in 2012 and gained municipal status in 2018 [21]. The municipality has an estimated population of 341,728 with males and females accounting for 49.8% and 50.2% respectively [21]. The annual population growth rate of the Sagnarigu Municipality is estimated at 3% [21]. The economy of the Sagnarigu Municipality is largely dominated by the private sector which accounts for nearly 80% of the labour force. The dominant economic activities of the municipality include, agriculture and related small scale agro-processing, petty trading, artisanry, tourism and hospitality, education, health and transportation as well as other financial services. The Ghana Statistical Service report shows that the agriculture sector is the backbone of the local economy of the municipality accounting for nearly 70% of the workforce. Major crops cultivated in the municipality include; rice, maize, yam, cowpea and sorghum. The climatic pattern of the

municipality raises serious food security concerns since the municipality has only one rainfall season. The rainfall season spans between May to October followed by long draught period spanning between November and April. Excessive temperature and heat coupled with low rainfall lead to low crop yield with lead to food insecurity; hence underscoring the presence of community-based MTMSGs which are primarily funded by international NGOs and donor agencies.

Population and Sampling

Study Population

The study population consisted of mothers or caregivers of children under 5 years of age who formed part of the mother-to-mother support groups within the Sagnarigu Municipal. 30 MTMSGs were enrolled in the study, consisting of 5 MTMSG in each of the 6 sub-districts. In addition, all children under the age of five of these mothers were enrolled. A mother support group member is defined as any person above who at the time of the study was directly responsible for the care of an under five. Other members of the study population comprised the following:

1. Community Health Officers, from which 10 was selected.
2. Community Health Workers, from which 10 were selected.
3. Community Health Management Committee- 10 were selected
4. Health Staff in Managerial and in-charge positions: - 1 director, 1 district public health nurse, 2 sub-district health centres in charge from the Ghana Health Service
5. Public Health Nurses (2): 1 each from the Municipal Health Directorate and sub-district level respectively.
6. 484 questionnaires were administered on MTMSG.

Sampling Technique

Sampling is the technique of selecting a subset of cases of the total population to represent the entire population. Two different sampling actions were used. Stratified sampling was used to recruit participants for the questionnaire survey. This was based on the list of all MTMSGs received from the various sub-districts within the study area. The stratification process also included MTMSG members with children under the age of 5. Members with children more than this age were not considered as subjects for data collection, as they fell out of the delimitation of the study. Systematic random sampling was used to enroll health facilities under each subdistrict for the study. Purposive sampling was used under the qualitative section of the study to ensure key groups and individuals with relevant knowledge and expertise are enrolled to provide information for the study. The study also used focus-group discussion and in-depth interviews to gather data from some of the purposively sampled participants. For the survey, the enumerators went from house to house to interview relevant participants after obtaining their consent and assuring them that the data collected from them will only be used for the purpose of the research.

Sampling

A list of all mother-to-mother support groups within the Sagnerigu municipal health directorate was obtained from the Municipal Public Health Nurse and updated with the help of the six sub-district health center personnels. This was done to determine the number of MTMSGs within the catchment area. Stratified random sampling method was used to select 30 MTMSGs to enroll in the study. The list of MTMSGs was stratified according to the 6 Sub-districts within the municipal and 5 MTMSG selected from each of the strata (sub-district) using simple random sampling. Within the selected groups, where there was more than one

child under 5 years from one mother, both children were selected and enrolled.

Key informants were selected purposively which included health workers, district health director, public health nurse, sub-district health centers in-charges and community health officers.

Sample Size

A total of 384 mothers of children under 5 years were selected for the study.

Where, n = estimated sample size

p = sample proportion (the proportion of the sample that is assumed be accessing health and nutrition services within the Sagnarigu Municipality = 60% or 0.6). This is based on a similar study conducted in Uganda by Mukanga et al. The study by David O. Mukanga focuses on mother support groups in Uganda, particularly assessing their impact within the community in Kampala. It was published in the Maternal Child Health Journal in November 2006. The research highlights the significance of social support networks for mothers and their potential to improve maternal and child health outcomes.

d = the probability that the desired sample size will not be representative of the study population (5%)

z = level of confidence that the chosen sample will be representative of the population (95%) which is 1.96

Below is the sample size calculation;

n = 1.962 x 0.6 (1- 0.6)

0.052

n = 3.8416 x 0.6 x 0.4

0.0025

n = 0.9219

0.0025

n = 383.78

26% error = 99.8 therefore n= 383.78+ 99.7

n= 484

To account for possible non-response, attrition, and incomplete questionnaires, a contingency allowance of approximately 26% was added, resulting in a final sample size of 484 respondents. This made the total number, 484.

Data Collection

Data Collection Techniques and Tools

Sampling technique for this study was a stratified simple random technique. A structured questionnaire was used to collect quantitative data from caregivers from 30 MTMSGs within the Sagnerigu Municipal. Guiding questions were used to collect information during Focus Group Discussion and Key Informant interviews. Quantitative and qualitative data collection processes did not happen concurrently to strengthen validation and ensure reliability of data collected.

Administration of Questionnaires

- Households (HHs) data was collected using a quantitative survey technique and obtaining anthropometric measurements of children under five years. There is a preference to collect household survey data using digital means such as Kobo, to reduce errors and transcribing time.
- Strategies for non-responses Within a HH with Children Under Five years (CU5) consist of mothers or caregivers in the case a child is under the care of a grandparent or foster mother (grandparents, aunts, etc.) who are considered eligible for interviews.

Qualitative Data Collection

The qualitative part of this study complemented the survey. It sought to unearth important themes that may not be accessible quantitatively. Focus Group Discussions (FGDs) helped to determine the functionality of various community health systems, including MTMSGs. The MTMSG was further explored to understand some of the benefits of being part of a MTMSG and how mother's knowledge of nutrition translates into improved nutritional and health outcomes of their children.

Data Analysis

The quantitative data was entered using Epi info version 3.5.1 and analyzed using STATA version11.0 software. Uni variable data was presented using frequency tables, bi variable data will be presented using percentage tables, proportions, and graphs. Measures of central were generated for multivariate data. The various objectives of the study were analyzed accordingly as seen below:

Functionality of MTMSGs: The set of questions were administered and analyzed to determine wether the MTMSG is functional or not functional.

1. Functional MTMSG
   - Existing governance or leadership structure of the group
   - Evidence of regular meetings (at least once in a month)
   - Purpose of MTMSG known by members- and evidence on topics and resources used for health and nutrition related topics related to MNCH
2. Non-Functional MTMSG
   - Absence of governance or leadership structure of the group
   - No record of meetings or previous knowledge of meetings, frequency and attendance
   - Purpose of MTMSG is not known by members
   - No available resources or materials used in discussing health and nutrition topics related to MNCH

Contribution of MTMSGs to improving Nutritional Status and child mortality 5: Cross tabulation was done between the CU5 of Functional MTMSGs as against CU5 of none functional MTMSGs with varied Maternal and Child Health and nutrition indicators to determine the contribution of the functionality of MTMSG to improving nutrition and mortalities amongst mother/caregiver and CU5.

A well-functioning MTMSGs improves upon maternal and child health and nutrition outcomes or indicators. This is because, MTMSGs promotes essential nutrition actions and promotes good primary health care practices amongst women/caregivers and children (0-60 months).

Based on the results of the study and cross tabulation between CU5 of functional MTMSGs, the prevalence of malnutrition in the study , and thresholds as determined globally by the World Health Organization, and in Ghana by the Ministry of Health through Ghana Health Services, were evaluated to determine and attributed to the effect of mother to mother support groups- thus, leading to a contribution in reducing malnutrition level among children under the five in the area. Again, attribution and comparison were made on children under five years from non-functional to functional MTMSP; where it was assumed that children under five years with functional MTMSG will be healthier since their mothers would receive education on nutrition that would enhance health outcomes.

Management of Data

A thorough data management approach was used in the study to ensure internal consistency of the data. Thus, the data was crossed check and cleaned at the end of every data collection exercise. The cleaned data were further entered into Epi software for consistency check which ultimately reduce data entry errors.

Results and Discussion

Socio-demography of Research Participants.

Table 1. Socio-Demographic Characteristics

Variable	Frequencies	Percentages
Age of mother/caregiver (Completed years only)		
Total sample size= 484		

16 to 20	18	3.72%
21 to 25	91	18.80%
26 to 30	148	30.58%
31 to 35	126	26.03%
36 to 40	66	13.64%
41 to 45	22	4.55%
46 to 50	13	2.69%
51 to 60+	0	0.00%
Ethnicity		
Dagomba	471	97.31%
Kukomba	4	0.83%
Fulani	2	0.41%
Gonja	1	0.21%
Akan	0	0.00%
Ewe	0	0.00%
Others	6	1.24%
Occupation		
Trader/Vendor	218	45.04%
Agricultural worker (e.g. Farmer)	39	8.06%
Office worker (civil servant)	0	0.00%
Service worker (e.g. Hairdresser, seamstress)	134	27.69%
Education/research (Teacher)	3	0.62%
Healthcare (e.g. Nurse)	2	0.41%
Nothing	84	17.36%
Others	4	0.83%
Children Under Five		
Girls	231	48%
Boys	253	52%
Religion		
Christian	12	2.48%
Muslim	471	97.31%
Traditionalist	1	0.21%
Other	0	0.00%
Marital status		
Single	4	0.83%
Married	471	97.31%
Widowed	8	1.65%
Co-habiting	0	0.00%
Divorced	0	0.00%
Separated	1	0.21%
Educational status		
None	272	56.20%
Primary	67	13.84%
Household size		

1 to 5	48	9.92%
6 to 10	188	38.84%
11 to 15	111	22.93%
16 to 20	74	15.29%
26 to 30	30	6.20%
31 to 35	19	3.93%
36 to 40	5	1.03%
41 to 45	9	1.86%

Source (Field Survey, 2025)

The sociodemographic characteristics of the study participants (Table 1) indicate a predominantly young to middle-aged cohort, with 75.4% of mothers and caregivers aged between 21 and 35 years. The sample was largely homogeneous in ethnicity and religion, with 97.3% identifying as Dagomba and Muslim, reflecting the local demographic profile of Northern Ghana. Educational attainment is low, as over half of respondents (56.2%) have no formal education, and only 3.1% have completed tertiary education. Most participants are married (97.3%), and household sizes are generally large, with more than 85% of households comprising six or more members, indicative of extended family living arrangements common in the region. Occupationally, the community is dominated by informal economic activities: 45.0% are traders or vendors, 27.7% are engaged in service work such as hairdressing or seam stressing, and 17.4% are housewives with no personal income. This economic profile may limit access to formal healthcare financing and contribute to food security challenges. A particularly vulnerable subgroup of 11.2% of respondents with both no education and no income is at higher risk of child malnutrition. These sociodemographic factors suggest that health and nutrition practices are shaped by strong cultural and religious norms, large family structures, and limited formal education. They also highlight opportunities for targeted interventions, including community-based programs, engagement with religious and traditional leaders, literacy and education initiatives, and economic empowerment efforts aimed at improving nutrition and health outcomes, especially among the most at-risk populations. Recommended focus areas include developing culturally sensitive programs aligned with Islamic and Dagomba traditions, implementing peer-to-peer learning models that do not require formal literacy, integrating economic empowerment initiatives to address underlying poverty, and specifically targeting the most vulnerable subgroup of 54 respondents who lack both education and income.

Contribution of Mother-to-Mother Support Groups (MTMSG) to improve the nutritional status of children

Table 2. Contribution of MTMSG on Nutritional Status of Children

	Colostrum given	**Reason colostrum good**	**Reason colostrum not good**	**Child rate grains**	**Child ate fruits/Vegetable**	**Child ate meat/fish**	**Child ate legume/nut**	**Child ate diary**
Mean	1.029	1.764	1.357	1.029	1.267	1.283	1.283	1.563
Standard Error	0.008	0.025	0.133	0.008	0.020	0.020	0.020	0.023
Mode	1	2	1	1	1	1	1	2

Standard Deviation	1	2	1	1	1	1	1	2
Sample Variance	0.168	0.540	0.497	0.168	0.443	0.451	0.451	0.497
Kurtosis	0.028	0.292	0.247	0.028	0.196	0.203	0.203	0.247
Skewness	29.922	-0.27	-1.838	29.922	-0.881	-1.071	-1.071	-1.943
Range	5.639	-0.107	0.670	5.639	1.059	0.966	0.966	-0.255
Minimum	1	2	1	1	1	1	1	1
Maximum	1	1	1	1	1	1	1	1
Sum	2	3	2	2	2	2	2	2
Count	498	829	19	498	613	621	621	755
Largest (1)	484	470	14	484	484	484	484	483
Smallest (1)	2	3	2	2	2	2	2	2
Confidence Level (95%)	0.015	0.049	0.287	0.015	0.040	0.040	0.040	0.040

Source (Field Survey, 2025)

In table 2 MTMSG appears to contribute positively to children's nutritional practices. The data shows that the consumption of grains among children, colostrum feeding (20), consumption of fruits and vegetables, dairy, meat and fish as well as nuts and legumes varied significantly. This suggests that MTMSG impacted or influenced the adoption of recommended dietary and feeding practices. Standard errors are generally low, and modes and medians indicate that most caregivers follow at least some recommended practices.

However, skewness in several indicators, particularly colostrum-related measures, suggests that while many mothers adhere, a minority do not. highlighting opportunities to improve outreach and education through these groups. These results imply that MTMSG can effectively promote key nutrition behaviors, particularly early feeding and dietary diversity. This was also observed during focus group discussions with MTMSGs. They attested that they have experienced changes in the nutrition and growth of their children, considering the role they play as group members, and the health and nutrition education they receive. Below is what a group had to say:

> "*The knowledge we learn has help improved their nutritional status; Now our children grow well as a result of the skills learnt during group meetings; We also refer mothers with sick children to the health facility" MTMSG FGD Gorugu*

It is important to note however that, although there is a high rate of mother's contribution to the nutritional outcomes of their children, this does not reflect in the prevalence of malnutrition in the area, considering the children of mothers (respondents) who were anthropometrically measured. This brings the researcher to ask critical questions including actual awareness of parents and practices of good nutrition. This poses a good research area for further study. On discussions, it might also be good to correlate mothers' income, family size and level of education as parameters for poor or good nutritional outcomes of children. This is further analyzed on sub-topics other parts of this chapter (association and effects of Socio-demographic factors on child nutrition).

Contribution of MTMSG to Reducing Child Morbidity and Mortality

Table 3. Contribution of MTMSG to Reduce Child Mortalities

	ROTA 1 & 2	**Measel vaccination in the last 9 months**	**Yellow fever vaccination in the last 9 months**	**Source of vaccination**	**Ever sick of malaria**	**Cause of malaria**	**Sought treatment of malaria**	**Source of treatment**	**Diarrhea in the past 2 weeks**	**Took CRT/ORS**	**Took zinc for 10 days**	**Cough in the past 2 weeks**	**Difficulty or fast breathing during cough**	**Sought advice and treatment**	**Given any medicine**
Mean	1.039	1.140	1.174	1.829	1.312	2.329	1.043	1.726	1.822	1.651	1.617	1.780	1.631	1.217	1.198
Standard Error	0.009	0.016	0.017	0.017	0.022	0.034	0.009	0.059	0.017	0.052	0.050	0.019	0.047	0.040	0.039
Mode	1	1	1	2	1	2	1	1	2	2	2	2	2	1	1
Standard Deviation	1	1	1	2	1	2	1	1	2	2	2	2	2	1	1
Sample Variance	0.194	0.348	0.379	0.383	0.477	0.749	0.204	1.278	0.383	0.479	0.489	0.415	0.485	0.414	0.400
Kurtosis	0.038	0.121	0.144	0.147	0.228	0.042	1.633	0.146	0.230	0.239					
Skewness	20.741	2.076	0.995	1.064	-0.588	6.042	18.294	-0.528	0.865	-1.621	-1.799	-0.160	-1.724	-0.061	0.368
Range	4.760	2.027	1.729	-1.637	0.986	2.472	4.496	1.199	-1.692	-0.646	-0.489	-1.357	-0.556	1.393	1.539
Minimum	1	1	1	2	2	4	1	4	1	1	1	1	1	1	1
Maximum	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1
Sum	2	2	2	3	3	5	2	4	2	2	2	2	2	2	2
Count															
Largest (1)	484	484	484	484	484	484	484	467	484	86	94	482	106	106	106
Smallest (1)	2	2	2	3	3	5	2	4	2	2	2	2	2	2	2
Confidence Level (95%)	0.017	0.031	0.034	0.034	0.043	0.067	0.081	0.116	0.034	0.103	0.100	0.037	0.093	0.080	0.077

Source (Field Survey, 2025)

Results shown in Table 3 shows that data on vaccination coverage, illness management, and health-seeking behaviors indicates that MTMSG play a role in supporting preventive and curative child health interventions. The data shows that vaccination indicators (yellow fever, measles and ROTA) had moderate adherence. The data further shows that maternal knowledge and timely treatment of diarrhea, malaria and respiratory diseases were partial. Inferring from the mean and median values, it can be seen that, uptake of preventive care was moderate with corresponding standard deviations shows variability among respondents. High skewness in some variables reflects that while many caregivers follow recommended practices, a smaller group either lacks access or knowledge. Overall, MTMSG appear to enhance child survival by promoting vaccination, disease recognition, and appropriate treatment, but there remains room to increase consistency and coverage.

Qualitative findings from respondents also showed a total vaccination coverage of between 70-90% based on recall.

"Proportion of children in this area is approximately 70% who have been fully vaccinated" KII Public Health Nurse

Functionality of MTMSG under the Primary Health Care in Sagnarigu

Table 4. Functionality of MTMSG

Question	Response	Frequency	Percentage (%)
Heard About MTMSG	Yes	377	78%
	No	78	16%
	Can't recall	29	6%
Information source	Health professional	203	54%
	Family/friend	102	27%
	Other	68	18%
Information source name	Yes	95	43%
	No	125	57%
MTMSG membership	Yes	339	70%
	No	145	30%
MTMSG meeting frequency	Weekly	163	48%
	Bi-weekly	95	28%
	Monthly	74	22%
	Rarely	7	2%
MTMSG leadership structure	Chairperson	140	63%
	Secretary	130	58%
	Treasurer	110	50%
	Others	30	13%
MTMSG relation health orgs	Yes	255	64%
	No	144	36%
Other health info sources (where they receive health information/support)	Health center	150	54%
	Outreach	120	43%
	Other	10	3%
MTMSG discussion topics	Hygiene	200	70%
	Nutrition	90	32%
	Family planning	60	21%

	Malaria prevention	40	14%
	Other	20	7%
Monitoring support	Yes	180	65%
	No	95	35%

Source (Field Survey, 2025)

Discussion on Functionality of MTMSG in the study area

The table above assesses the functionality of mother support groups across the sub-districts in Sagnarigu municipality. Almost 80% of mothers (n-222/ 78%) had heard about mother-to-mother support groups, suggesting strong engagement and participation in the program, with a relatively small proportion (16%) indicating they have not heard of the program, and 6% unable to recall it. This suggests a high level of awareness within the community, likely influenced by word of mouth and professional channels.

Health professionals emerge as the most significant source of information about MTMSG, cited by over half of the respondents (54%). Family and friends also serve as a major informational resource (27%), while other sources account for 18%. This highlights the importance of trusted, personal networks and professional guidance in spreading awareness of the program.

MTMSG's meeting frequency is dominated by weekly gatherings (48%), followed by bi-weekly (28%) and monthly meetings (22%). Only a small minority (2%) reported attending rarely. This consistent attendance pattern underscores the community's commitment to the program. The leadership structure is predominantly comprised of a chairperson (63%), secretary (58%), and treasurer (50%), which reflects a traditional governance model for the organization. These roles are crucial in maintaining the operational success and stability of MTMSG.

The majority of respondents (64%) report that MTMSG maintains relationships with health organizations, indicating that external partnerships may play a significant role in the program's activities and outreach efforts. When it comes to other sources of health information, health centers (54%) and outreach programs (43%) are the primary avenues through which members access health-related support and knowledge. Data from the survey showed that hygiene accounted for 70% of the topics discussed with MTMSG. This was followed by nutrition, family and malaria with each scoring 32%, 21% and 14% respectively. These topics were generally helpful in improving nutrition and health outcomes among mothers and children under five years. Furthermore, 65% of respondents indicated that they receive monitoring support, demonstrating that MTMSG provides ongoing assistance to its members to track their health and progress. The findings from Sagnarigu Municipality mirror evidence from other low-resource settings where mother support or peer group interventions have improved knowledge, health behaviour, and community engagement. For example, in Laisamis Village, Kenya, participation in mother support groups was associated with better infant and young child nutrition outcomes, including reduced prevalence of severe acute malnutrition and improved child growth trajectories [18]. This aligns with the high levels of awareness, frequent participation, and focus on hygiene and nutrition observed in the MTMSGs evaluated in this study.

Similarly, a study in Bangladesh found that women's group interventions, including peer support and participatory learning, were linked to increased maternal knowledge, improved newborn care practices, and reductions in neonatal mortality [19]. The structured engagement and health discussion topics highlighted in the Sagnarigu MTMSGs reflect

the mechanisms through which these community group interventions can influence health behaviour and outcomes.

MTMSG demonstrates significant awareness and engagement within its community. Health professionals and personal networks are central to its information dissemination, while the organization maintains a strong leadership structure and regular meeting schedule. The program's focus on hygiene, nutrition, and other health-related topics is supported by partnerships with external health organizations and the provision of monitoring support. These factors collectively indicate that MTMSG plays a vital role in fostering health education and community engagement.

Conclusion

This study highlights the critical influence of sociodemographic factors on maternal and child nutrition and health practices in Northern Ghana. The population is characterised by young to middle-aged mothers and caregivers, high levels of marital stability, large household sizes, low educational attainment, and reliance on informal livelihoods. Overall, MTMSGs represent a viable and impactful community-based platform for promoting maternal and child health. Strengthening partnerships with health services, expanding coverage of nutrition-focused discussions, and sustaining monitoring mechanisms could further enhance their effectiveness and contribution to improved health outcomes in the municipality. Mother-to-Mother Support Groups (MTMSG) play a meaningful role in promoting recommended infant and young child feeding practices, particularly early feeding behaviours and dietary diversity. The observed mean values, along with low standard errors and supportive medians and modes, suggest that many caregivers have adopted at least some of the recommended nutrition practices

Ethical Considerations

The study was conducted according to research ethical standards such as Good Clinical Practice, the Declaration of Helsinki as well as the applicable local laws and regulations of Ghana. An ethical clearance was reviewed and approved by the Ethics Review Committee of the Ghana Health Service before primary data for the study was gathered. Moreover, an informed consent was obtained from participants. The risks and benefits of the study were extensively discussed with participants before their engagement in the data collection. The aims, objectives, duration and procedures of the study were also discussed with participants. Inherently, the study had minimal risks since it did not involve any clinical trials and experiments. Other ethical standards such as confidentiality, anonymity and privacy were also ensured during the data collection and interpretation of results.

Conflict of Interest

There was no conflict of interest in this study.

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Author Contributions:

- **Micah A. Olad:** Primary Researcher.
- **Frank Baiden:** Report Reviewer.
- **Sebit Mustafa:** Report Reviewer.
- **Rogers Kpankpari:** Data supervision.
- **Jeremiah Oladele:** Data supervision.

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