



ASSESSING PROGRAMME STRATEGIES IN MANAGING CHILD STUNTING AT THE HEALTH FACILITY LEVEL IN MATELILE COMMUNITY COUNCIL

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ABSTRACT: *Stunting is an important indicator for child growth and health facilities have played a pivotal role in contributing to the overall reduction in stunting rates. This qualitative study aimed at understanding interventions employed by health facilities to reduce under 5s stunting. Health facilities have reported an increase in stunting in Matelile Community Council. Although the study revealed available health strategies including nutrition education, health promotion and breastfeeding programs to curb the disproportionate rates of stunting, the challenges facing the implementation of such programmes included lack of funding and failure for caretakers to cooperate. The study recommended therefore that, increasing funding into nutrition related programs and training appropriate health personnel on stuntedness could go a long way to reduce stunting in under 5s.*

KEYWORDS: Programme strategies, child stunting, health facility.



INTRODUCTION

Stunting remains a major public health concern in many low and middle income countries as it increases the risk of illness, irreversible body damage and mortality in children (Hossain et al., 2017; WHO, 2014). Available evidence suggests that cognitive deficits, poor school performance, dropping out of school and poor adulthood with low economic productivity are attributes of stunting (Meerman et al., 2012). The immediate causes of stunting are growth retardation, inadequate nutrition after the recommended period of exclusive breastfeeding for the high demand of nutrients and frequent infections during early life (Forouzanfar et al., 2015).

According to UNICEF (2013), stunting reflects a failure to reach a minimal stature associated with current and future healthy development and is a key indicator of chronic undernutrition. Stunted children suffer from impaired growth with permanent consequences in their adult life, and face a high risk of morbidity and mortality (McDonald et al., 2013; Dewey & Begum, 2011; Black et al., 2008). The intervention strategies aimed at addressing stunting have focused on nutrition specific and nutrition sensitive interventions (Goudet et al., 2015; Comrie-Thomson, 2014; WHO, 2014).

The reduction in stunting in children under the age of 5 can be achieved through evidence based interventions such as scaling up nutrition based programmes so as to improve nutrition and prevent related diseases (Gouder et al., 2018). Nutrition interventions include implementation of among others breastfeeding programmes, nutrition supplement programmes for children and pregnant women (Gouder et al., 2018). According to Hossain et al. (2017) and WHO (2014), some of the nutrition specific programs include, but not limited to, health and nutrition awareness during preconception, pregnancy and lactation; maternal dietary or micronutrients supplementation; promotion of optimum breastfeeding; dietary supplementation; food diversification and micronutrient supplementation for children; and treatment of acute malnutrition. Documented strategies in the form of national policies and programmes have been suggested in literature. However, although policies and programmes exist on a global level, the implementation is poor and the content is not necessarily able to deal with the associated complexity, resulting in intended outcomes not being met.

Lesotho is one of the Southern African countries with a high burden of undernutrition. The Ministry of Social Development (2014) opines that 33% of the children were stunted, 13% were overweight and 3% were wasted. These statistics confirm the urgent need to implement successful stunting interventions in order to address the problem.

LITERATURE/THEORETICAL UNDERPINNING

In the study conducted by Nimpagaritse et al. (2019) on addressing malnutrition among children in routine care, how is the Integrated Management of Childhood Illnesses strategy implemented at health centre level in Burundi? The study indicated that individual health interventions shown to be effective in reducing child mortality include exclusive breastfeeding, improved vaccination coverage, oral rehydration therapy, treatment of pneumonia and early treatment of malaria in endemic areas (Nimpagaritse et al., 2019). The study also focused on Integrated Management of Childhood Illnesses (IMCI) which includes three major components being: improvement in the case management skills of Health Workers (HWs) through the provision of locally adapted guidelines on IMCI and activities to promote their use;



improvement in the overall health care system required for effective management of childhood illnesses; and improvement in family and community health care practices (Nimpagaritse et al., 2019). This study has found poor compliance by HWs to IMCI in Burundi. This indicates that a substantial proportion of children do not receive early and appropriate care, especially pertaining to malnutrition, hence children under the age of 5 become more vulnerable to stunting which in turn affects their growth and development. It implies that not only availability of interventions is paramount in reducing child's stunting, but also, challenges faced by HWs in their implementation play a major role in their effectiveness in improving nutrition status of under 5s.

Furthermore, in the study conducted by Mulat et al. (2019) on uptake of minimum acceptable diet among children aged 6–23 months in orthodox religion followers during fasting season in the rural area, Dembecha, North West Ethiopia, it was indicated that inappropriate feeding practices of infants and young children exposes them to under nutrition, increasing morbidity and mortality, and chronic stunting that will be continuing to next generations. It was recommended therefore that improving the quality and frequency of complementary feeding practice is possible to improve health, reducing morbidity and mortality of young children. It was also concluded that early initiation of breastfeeding, exclusive breastfeeding, implementing complementary feeding, consumption of diversified diet, adequate meal frequency, and consumption of iron fortified foods are core indicators for monitoring feeding practices of infants and children and are responsible for reduction in the prevalence of stunting in children under the age of 5 (Mulat et al., 2019; Nimpagaritse et al., 2019). It implied therefore that HWs are responsible for educating mothers of children under the age of 5 about proper feeding practices so as to protect the health of children. Also, it was important to find out if interventions related to food supplementation do exist within the health facilities so as to prevent stunting in under 5s.

On the other hand, Mohammed et al. (2018) found out that early introduction of complementary foods may increase infant morbidity and mortality as a result of reduced ingestion of protective factors present in breast milk and that upon the introduction of complementary foods, mothers may also produce less breast milk, which may deleteriously affect the infants' nutrient intake. Again, complementary foods may also increase infants' exposure to infectious pathogens if not properly handled and stored; however, initiating complementary feeding too late may also be harmful to children as children beyond the age of 6 months require complementary foods to meet energy and nutrient requirements for healthy growth (Mohammed et al., 2018). A facility-based cross-sectional study design was used. All mothers with children aged 6 to 24 months attending selected public health facilities during the data collection period were eligible for participation in the study. The current study also obtained information from health care providers in order to understand some of the programmes that are put in place to address stunting in under 5s in Matelile community.

It is generally recognized that, in practice, locally available foods do not meet requirements, especially for micronutrients, in most low-income countries and that this contributes to micronutrient deficiencies, growth faltering, and poorer child development during the first 2 years of life, with potential adverse consequences for child health and development and later adult health (Osendarp et al., 2016). In the same study conducted by Osendarp et al. (2016), it is indicated that adequate nutrition during infancy and early childhood is fundamental to the development of each child's full human potential. The World Health Organization (WHO) recommends that after the age of 6 months, breast-feeding should continue until 24 months of



age and beyond, whereas energy- and nutrient-dense complementary foods should be introduced to all infants with an emphasis on the use of suitable locally available foods. The findings of the observed intake studies indicated calcium, iron, and zinc as the nutrients of concern for children aged 6 to 11 months.

Dewey (2013) affirms that children less than age two have high nutrient needs to support growth and development, yet breast-fed infants typically consume relatively small amounts of foods other than breast milk. As a result, complementary foods need to be high in nutrient density. Iron and zinc are generally the most problematic nutrients during the period of complementary feeding, largely because their concentrations in human milk are low relative to needs (Dewey, 2013).

Moreover, in line with Mosha et al. (2018), inadequate dietary intake and poor weaning foods in young children, both of which are important causes of undernutrition, are still major problems in many countries; daily meals often lack the diversity needed for supplying essential nutrients for normal growth and prevention of diseases. Also, pregnant and lactating women are among the most vulnerable groups to suffer from undernutrition and micronutrient deficiencies because they have physiologically higher nutrient requirements that are often not met and women should have a sufficient diet, in terms of both quality and quantity before and after conception, to maintain replete nutrient stores that can sustain themselves and their children in order to reduce the risk of adverse maternal and newborn outcomes such as low birthweight, stillbirth, preterm, and impaired cognitive and motor development (Mosha et al., 2019). It is the role of health care providers in health facilities to educate caretakers about proper feeding practices and also to train community health workers, for they are responsible for monitoring health within the villages.

Exclusive breast feeding is recommended by different studies and agencies so as to reduce stunting. To ensure optimal child growth and development, the World Health Organization (WHO) recommends exclusive breastfeeding for all children up to 6 months of age, followed by introduction of nutritionally adequate and safe complementary foods at 6 months, while continuing breastfeeding until the child is at least 2 years old. In the study conducted by Brenner et al. (2011), it was found out that maternal knowledge and attitudes are important determinants of not only child health in general but also infant feeding practices in particular. Improving maternal knowledge and attitudes through nutrition counseling and education can lead to improved infant and young child feeding (IYCF) practices, and consequently, improved child growth and development, especially in settings with low maternal literacy (Bhutta et al., 2013). Even though delayed initiation of complementary feeding is prevalent in many parts of the world, few studies have tried to identify factors associated with this delay; few nutrition intervention programs have focused on how maternal attitudes can affect timing of complementary feeding initiation. The current study focused on challenges that are faced in the implementation of the programmes aimed at reducing stunting in children under the age of 5 and the recommendations for the improvement of interventions for the betterment of child health.

In the study conducted in Uganda by Lckes et al. (2017), it was stated that reductions in undernutrition among infants and young children can be made through programmatic health and nutrition interventions. Results from the study indicated that caregivers in Uganda who participated in a 10-week supplemental feeding and nutrition education program fed their children higher quality diets, and reported more comprehensive knowledge of healthful



practices than those with no such program exposure (Lckes et al., 2017). The study did emphasize the importance of nutrition interventions in the promotion of good child health, especially supplementary feeding programmes for children under the age of 5.

Different types of intervention are carried out in order to promote and improve health. Interventions to promote adequate complementary feeding practices in the first 2–3 years of life are the cornerstone of prevention and management of stunting especially in children under the age of 5 (Martinez et al., 2018). In the study conducted by Pradhan et al. (2016), some of the interventions that were discussed included food fortification, supplementation, and behavioral and regulatory interventions which have an impact on nutrition outcomes. The findings of the study indicated that interventions such as supplementary and therapeutic feeding programmes are very important during the critical periods especially after natural disasters, and that supplementary feeding programmes are particularly concerned with groups such as pregnant women, lactating mothers and moderately malnourished children to prevent further deterioration and mortality. On the other hand, therapeutic feeding programmes target severely malnourished children (Pradhan et al., 2016). The findings of the study are supported by the study conducted in Bangladesh. The study from Bangladesh used micronutrient powder as a food supplement. One dose comprised 1 g powder which contained one recommended nutrient intake which each of the vitamins and minerals contained (Rah et al., 2011). The findings of the study indicated that there was a lower prevalence of stunting among those who consumed at least 75% of the micronutrient powder sachet compared with those who consumed <75% of the sachet. The current study focused on available interventions that are in place to reduce child stunting.

Lckes et al. (2017) and Pradha et al. (2011) further indicate that India did put some interventions in place to promote good health. It included growth monitoring and promotion, targeted feeding, use of oral rehydration solution, immunisation, vitamin A supplementation, nutrition and health education focusing on exclusive breastfeeding up to 6 months of age, complementary feeding after 6 months of age, feeding care during illness, use of iodised salt, and immunization (Pradha et al., 2011; Singh, 2010). The intervention lasted for 6 months. There was a reduction in the prevalence of underweight children compared with baseline. The study concluded that the evidence is still limited on the effectiveness of nutrition interventions, and therefore integrated nutrition interventions using locally available health resources may yield the best results. The current study therefore focused on one of the objectives—on challenges in implementing the nutrition interventions.

Different countries do engage different strategies with the aim of reducing stunting. In line with Berhanu et al. (2018), Ethiopia set stunting reduction as one goal of the Growth and Transformation Plan (GTP) with national nutrition strategies, different nutrition specific and nutrition sensitive intervention activities with focus on improving Infant and Young Child Feeding (IYCF), management of severe acute malnutrition, and prevention and treatment of micronutrient deficiencies. The Government of Ethiopia developed the Productive Safety Net Program (PSNP) in 2004 to target chronically food insecure households aimed at enabling the rural poor facing chronic food insecurity to resist shocks, create assets, and become food self-sufficient. PSNP user families experienced improved food security, community level infrastructure development, increased asset creation and protection, increased utilization of education, and health services with positive short term nutritional benefit for children (Berhanu et al., 2018). The study concluded that, to some extent, the cases of stunting did reduce and child's health was improved and lives were saved.



Furthermore, adequate zinc intake is essential for the growth and neurobehavioral development of young children. When zinc rich food sources are not available on a routine diet, zinc deficiency develops over time and persists until changes are made in the diet (Ayana et al., 2018). Nutrient-rich and diverse diets are essential for children to meet their nutrient needs and support optimal growth and in the absence of direct measure, dietary zinc intake and stunting prevalence are good indicators of a population's risk of zinc deficiency. Because zinc is required for normal linear growth, an elevated prevalence of stunting can be considered as a suggestive evidence of an increased risk of zinc deficiency in a population (Ayana et al., 2018).

Iverson et al. (2012) conducted a study on assessing nutrition intervention programmes that addressed malnutrition among young children in South Africa between 1994 and 2010. It was clear that there are still substantial social differences and inequalities in healthcare that continue to impact on childhood nutritional status in South Africa. Different interventions are put in place to address the stunting. The intervention implemented in the study was Protein Energy Malnutrition (PEM) scheme. It was a targeted food supplementation programme as a way to combat malnutrition among children below 6 years and at risk pregnant and lactating women, and mainly operated through local clinics and health centers (Iversen et al., 2012). However, the challenges, such as shortage of appropriate staff to implement, monitor, and evaluate the scheme, were evident. It is important therefore to understand the challenges faced in the implementation of interventions to prevent child stunting.

Gebretsadikan and Troen (2016) conducted a study on progress and challenges in eliminating iodine deficiency in Ethiopia. Iodine is an essential micronutrient which is necessary for normal growth, development, and metabolism during pregnancy, infancy and throughout life (Gunnarsdottir & Dahl, 2012). It was concluded therefore that Eradicating Iodine Deficiency Disorders (IDD) requires concerted efforts including the close evaluation of intervention programs through regular, nation-wide monitoring of IDD and salt-iodization coverage. Salt iodization became mandatory in Ethiopia in 2011 and IDD is considered the most important preventable cause of brain damage worldwide (Gebretsadikan & Troen, 2016).

Another programme to address stunting was Nutrition Supplementation Programme (NSP) which aimed to correct undernutrition by providing nutrition supplements as well as nutrition education and counseling, promotion of exclusive breastfeeding according to WHO guidelines, growth monitoring and promotion, immunization as well as diagnosis and treatment of diseases (Iversen et al., 2012). On the other hand, Lipid-based nutrient supplements (LNS) can be an effective strategy for improving children's dietary adequacy and growth and are sometimes delivered as part of holistic supplemental feeding programs that also deliver nutrition education along with other intervention such as growth monitoring, deworming, and education on sanitation and hygiene (Lckes et al., 2017). It was important to understand available interventions in health facilities so as to prevent stunting in children under the age of 5.

In line with Shoeman et al. (2010), the major implementers of the programmes are the primary health care clinics (PHC). Nevertheless, there has been no systematic evaluation of how well clinics perform in terms of nutritional services to their target groups and hence, it is difficult to describe how well the various intervention programmes function. Furthermore, problems in infrastructure, basic resources and services in the primary health care facilities in the rural districts negatively affected the service delivery and well-being of rural people (Iversen et al., 2011; Andresen et al., 2009). Conversely, in the study conducted in Dutch, dietitians felt that they became involved too late, leading to decreased treatment effectiveness of nutrition



services; the interviewees desired a coherent and feasible allocation of responsibilities regarding undernutrition monitoring and treatment. This implies that the available guidelines on undernutrition management require more attention and facilitation (Ziylan et al., 2015). Therefore, the current study identified some of the challenges faced by health facilities in implementing nutrition programmes especially for children under the age of five so as to reduce cases of stunting in Matelile community.

In the study conducted by Han et al. (2015), it is concluded that maternal nutrition is a key factor determining the healthy growth and development of the foetus and has implications on the cardiometabolic health of the offspring in later life. To optimise the health of both mother and her offspring, many countries have dietary guidelines and recommendations developed specifically for pregnant women (Han et al., 2015). The findings of the study are in line with the findings of the study conducted by Weldehaweria et al. (2016) which show that lactating women who do not get enough energy and nutrients in their diets risk maternal depletion. In addition, maternal deficiencies of nutrients can affect the quality of breast milk which can adversely affect the nutritional status of the child and eventually compromise their overall growth and development (Jones et al., 2010). Lactating mothers with higher dietary diversity have children and families with higher dietary diversity (Arsenault et al., 2013). Hence, ensuring maternal dietary diversity to the acceptable level is very important in tackling stunting; thus, the current study found out if there were nutrition interventions targeting pregnant women in order to reduce the cases of stunting. The findings of the study are supported by the findings of the study conducted by Xue et al. (2017), which indicated that adequate B-vitamins concentrations in human milk are considered to be a prerequisite for healthy development of infants in early life and it was evident that lactation stage and supplement intake may influence B-vitamins concentrations of human milk in healthy Chinese mothers. It is the responsibility of healthcare providers to educate pregnant women on proper eating so that their unborn babies are healthy, aiming at reducing stunting.

According to the study conducted by Martinez et al. (2018), it is stated that in Guatemala, which has the highest rate of stunting in the Western Hemisphere, intensive public and private sector efforts—focused especially on the provision of micronutrients, complementary foods and counselling for caregivers—have reduced the national rate of stunting to around 50%. Nonetheless, improvements have been slower for the country's indigenous Maya population, where stunting often exceeds 70% and feeding indicators remain poor despite strong agricultural production (Martinez et al., 2018). Complementary feeding education interventions which, as in most low-income and middle-income countries, involve community health workers (CHWs) providing generic, and age-based complementary feeding recommendations, may be inefficient in promoting caregiver behaviour change (Martinez et al., 2018). It is important to involve CHW in promoting good health in children under the age of 5 for they live with the caretakers within the villages and if well trained, they can monitor children's health and encourage caretakers to use health services for the benefit of their children.

WHO (2018) maintains that actions to drive progress in reducing stunting include enacting policies to strengthen interventions to improve maternal nutrition and health, beginning with adolescent girls, and that contribute to the reduction of stunting. Enacting labour policies, including maternity protection in support of exclusive and continued breastfeeding and application of regulatory instruments to protect infant and young child nutrition, contributes to the reduction of stunting especially in under 5s (WHO, 2018).



Iversen et al. (2012) conducted a study in South Africa; the findings indicated that the policy together with the strategies to promote, protect and support breastfeeding do contribute to improved breastfeeding rates, and ultimately improve infant and child health in South Africa. The country developed Infant and Young Child Feeding policy whose purpose is to standardize and harmonize infant feeding messages, to guide healthcare providers on how to address threats and challenges to infant feeding, and to promote optimum infant feeding practices (Iversen et al., 2012). The country also developed preliminary Pediatric Food-Based Dietary Guidelines in order to make the public aware of proper feeding practices so as to reduce the extent of stunting in young South African children (Lambadarios et al., 2008). This contributed to the improvement of children's health and reduction in child stunting. It was important therefore to understand if there were policies designed to improve feeding practices in health facilities especially for children under the age of 5.

Ziylan et al. (2015) conducted a study in Dutch. The study focused on undernutrition management guidelines so as to address the essential steps regarding undernutrition monitoring and treatment for different care settings. The guidelines aimed to achieve the necessary levels of awareness regarding undernutrition management. However, both the application of the monitoring guidelines and the results of the provided treatments remain unsatisfactory. Dissatisfaction was caused by impeding factors such as lack of priority among general practitioners and limited undernutrition knowledge among healthcare providers (Ziyla et al., 2015). It was therefore important to understand the reasons for the inadequate undernutrition management in primary care setting as a challenge faced especially in the presence of different interventions in the facilities.

Lesotho's National Health Strategic Plan (NHSP) extends the contents of the policy and explains in more detail on how the objectives in the National Health Policy (NHP) are implemented. The National Health Policy (NHP 2016) and the National Health Strategic Plan (NHSP 2017-22) is aimed at developing an effective health system that addresses determinants of health including social, economic, environmental and cultural factors which influence health. Social and community networks, including families and households, have a considerable role to play in the health of individuals. It is often through local structures that services are delivered or that individuals and communities get information about health and health services and get the support they need to take an active role in improving their own health (NHSP, 2017–22).

A framework has been provided in the NHP (2016) to guide implementation, with responsibility for policy oversight, coordination and responsibility. Community involvement is considered as one of the ways to promote success of policy implementation at grassroot level. Services are designed and delivered taking into consideration individual and community needs. Communities are actively encouraged and supported to participate in decision-making and planning for health services. Through empowering communities to assume ownership of community projects, communities then become managers of sustainable primary health care programmes in their own areas. One of the objectives include, to ensure a well-trained and motivated health workforce to deliver effective health services through improved training opportunities for effective career development and continuing education, and strengthen the capacity of existing health institutions to organise training programmes according to national needs and also to develop an appropriate manpower plan to maintain adequate human resource supply for health. The other objective stipulated in NHSP is to ensure an equitable, efficient and sustainable health financing system that protects people from financial catastrophe and



impoverishment as a result of using health services, through review user-fee policy regularly to assess affordability, criteria for exemption and access to treatment of diseases, through strengthening decentralized financial planning, management and accountability systems, strengthening financial management systems in the health sector, developing strategies to mobilize resources from within and outside the country, and developing appropriate financing mechanisms to engage local health non-governmental organisations (NGOs) for Government of Lesotho (GoL) subvention (NHSP, 2017–2022; NHP, 2016).

METHODOLOGY

This study adopted a qualitative design so as to understand the nature and magnitude of stunting in under 5s in Matelile to explore the strategies for management as well as challenges at health facility level. An interviewer-administered questionnaire was used to collect data from health care providers in order to understand interventions that are in place within the facilities. The study was conducted in Matelile Community Council, in Mafeteng District in Lesotho.

All the four (4) nurses in charge were interviewed in the study from the four health facilities under investigation. Six stunted children identified from each health facility were followed up; it had to be children from areas that are not hard and within 5 km to a health facility as per WHO standards on accessibility, for they most frequently utilize the health facility and a total of twenty-four (24) caretakers were interviewed, being the sample size at which saturation point was reached. A total of twelve (12) villages were identified where there were cases of stunting. The in-charge nurses in four health facilities were purposely selected to provide information on intervention strategies in place to address stunting in under 5s and challenges faced in the implementation of those strategies, for they are overseers in the health facilities.

The semi-structured questionnaire was developed to collect information about available interventions and challenges faced in the implementation of such interventions at health facility level, and the questionnaire was administered to the nurses in charge of the health facilities. Questions included in the questionnaire included some on available interventions, availability of funding to manage stunting.

Data from in-charge nurses, on how intervention strategies for child nutrition can be improved, was collected qualitatively using an interview guide. Data from audios was then transcribed by the researcher and coded for easy manual analysis. Thematic analysis was used. A deductive way of approaching thematic data was used, in which coding and theme development were directed by existing concepts or ideas. The researcher familiarized herself with transcribed data, then, codes relevant to the research objective were identified, all codes and relevant data extracts were gathered so that themes could be created for easy analysis. Ms. Excel was used for the analysis of the transcribed data.



RESULTS/FINDINGS

The health sector policy of Lesotho has an objective to reduce childhood and maternal malnutrition (wasting and stunting) and to reduce micronutrient deficiencies. It is in the health facilities where different programmes to achieve the objectives are implemented. Facilities in Matelile Community Council have adopted different program interventions to protect under 5s from stunting. Most facilities do not have nutrition departments; it is the duty of nurses to manage stunting in under 5s.

There are no nutritionists at health facility level. Nurses are trained by a district nutritionist on nutrition information to be provided to pregnant women, and caretakers of children under the age of 5 are given such information (Nurse in charge, Matelile and Emmaus Health Facilities, 2020).

We do train community health workers to be able to identify malnourished children in their respective villages, and also to be able to advise caretakers on proper feeding practices (Nurse in charge, Ribaneng Health Facility, 2020).

There were different programs adopted at the health facility level to manage stunting in children under the age of 5. Figure 1 below summarises the interventions used in the health facilities in Matelile community council so as to address the stunting in under 5s.

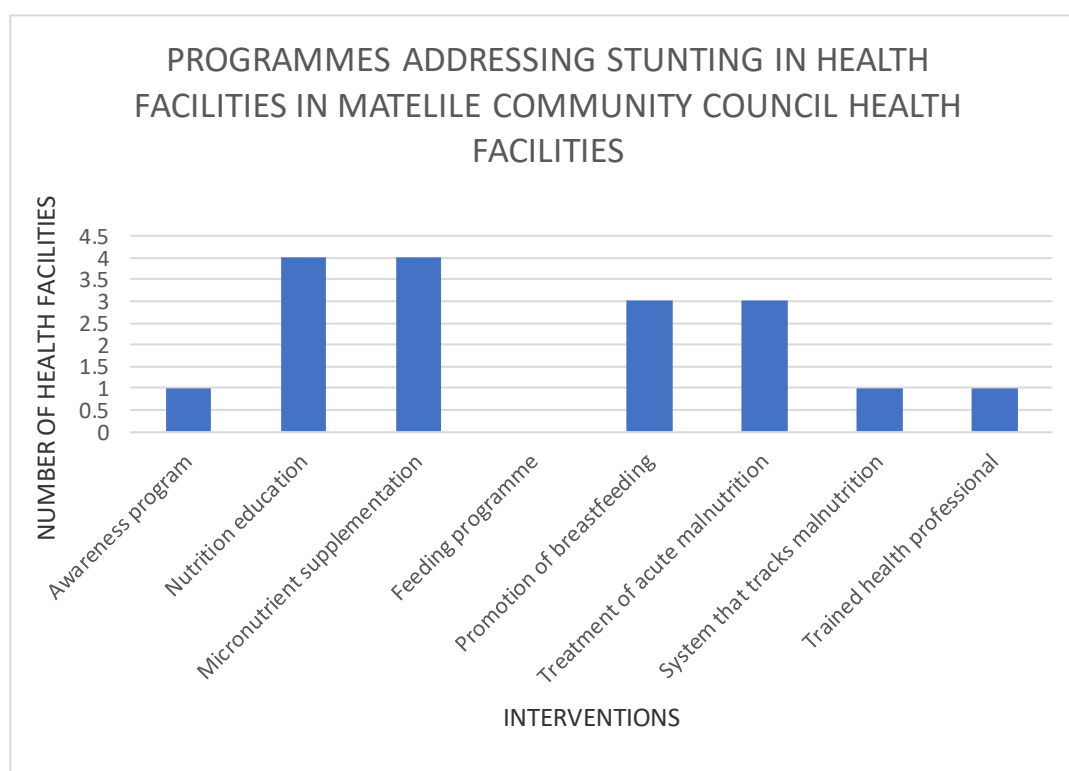


Figure 1: The graph showing programmes addressing stunting in Matelile community council health facilities



The bar chart above indicates that all health facilities provided supplements for the under 5s who were malnourished, to help them recover and stay healthy so as to protect them from adverse effects related to food unavailability in the family. Below were some responses from caretakers of stunted children in different villages:

My child gets sick most often and that affects her growth; her weight is too low; the clinic gives her Super mix. I even stopped breastfeeding her because she was refusing to eat the supplement (Caretaker village H, 2020).

The child's birth weight was low; she even fell sick and was put on intravenous fluids and now it is hard for her to grow well; the clinic even provided her with Super mix (Caretaker village H, 2020).

We no longer get good yields from the fields and that affects food availability in the family; children do receive supplements from the facilities and mostly from poor families which struggle to find food for their children under the age of 5 (Caretaker village F, 2020).

On the types of supplements that were normally offered, plumpy nut and unimix were found out to be the most offered supplements from the health facilities. All the health facilities offered plumpy nut and 75% of the health facilities indicated that they offer unimix in the health facilities so as to manage stunting. There were however no health facilities offering ITP (F75/F100). The graph below indicates a summary of supplements used in health facilities.

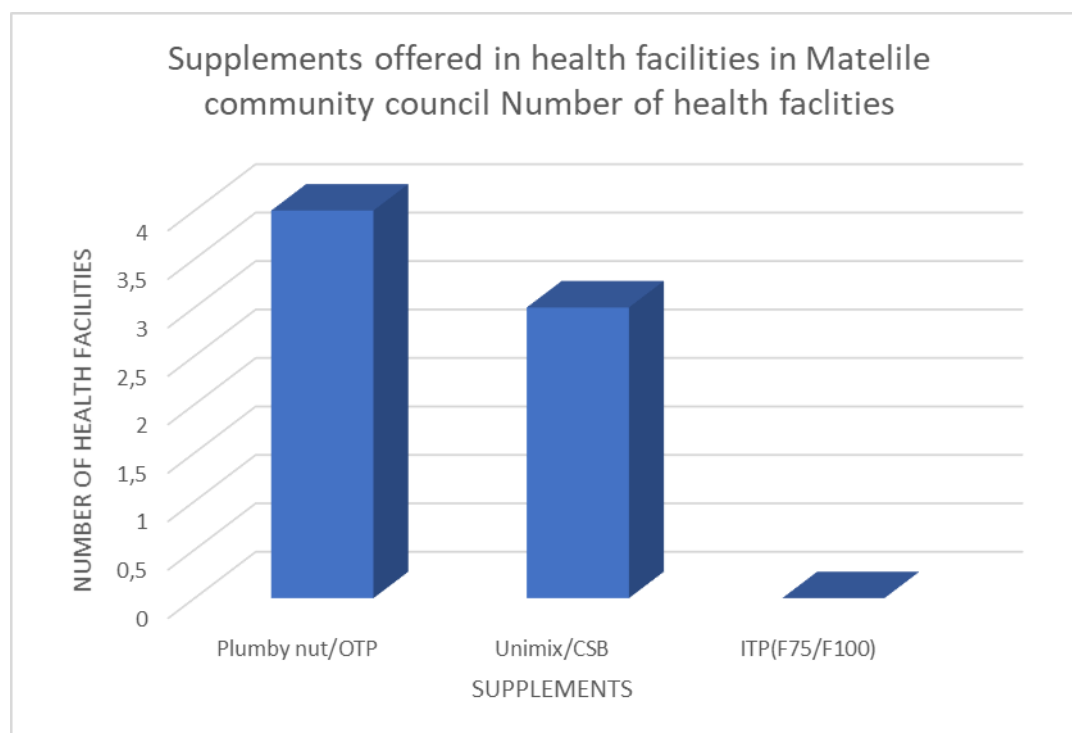


Figure 2: The bar graph indicating supplements offered in health facilities in Matelile community council health facilities



The Ministry of Health, through health policy, aims to provide facility based nutritional care and support to vulnerable children and women so as to reduce childhood stunting. So, the programme is implemented with the help of community health workers (CHWs). From the current study findings, all the health facilities in the Matelile community council used nutrition education to address stunting in children under the age of 5.

Nurses do educate especially pregnant women when they come for check ups on child's nutrition (Nurse in charge, Malealea health facility, 2020).

We are trained to weigh children under the age of 5 so that we can advise the caretakers to take them to health facilities in case they are malnourished (CHW 3, 5 and 6, 2019).

Moreover, it is in the health sector policy where it is clearly stated that promotion of breastfeeding has to be implemented to promote the child's health. Therefore, promotion of breastfeeding and treatment of acute malnutrition also were used by most of the facilities to address stunting. The in-charge nurses from the four health facilities indicated that pregnant and lactating women were always trained on breastfeeding in the health facilities so as to promote proper growth of children under the age of 5.

However, most mothers did not breastfeed their children for different reasons, ranging from health reasons to work reasons. It became even worse for families that did not have alternative means to provide food constantly to the families as that compromised food availability for children under the age of 5.

The child was only breastfed for 3 months because his mother had to go back to school (Caretaker village I, 2020).

My child was sick; he no longer wanted to be breastfed and health workers advised me to stop breastfeeding him at 4 months (Caretaker village G, 2020).

Health workers told me to breastfeed my child for only 6 months because of my HIV status (Caretakers village A, D and I, 2020).

I breastfed the child for 18 months for I was mourning for the deceased (Caretaker village G, 2018).

I breastfed my child for only 10 months because she could not eat other foods (Caretaker village G, 2020). In Village A (2020), the mother was sick; she had bubbles and could not breastfeed for more than a year and in another case, the mother passed away and the child did not breastfeed at all.

However, some children were breastfed for 18–24 months, especially if a caretaker was not working and always with a child. It was found out that breastfeeding alone could not contribute to a healthy child as there were children who were breastfed for 24 months and yet they were receiving food supplements from the facility.

I breastfed my two children (one 2 years, and the other 5 years), for 2 years because I am not working, I am always with them. However, they receive food supplements from the health facility due to their poor growth, and it is very hard to get food for them; mostly I struggle even to get food for them; even when they are hungry, there is nothing to give to them (Caretaker village H, 2020).



In many families, income determined food availability and breast feeding practices for some families. Those from poor families which struggled to get food failed to breast feed especially due to struggle to get food for the caretakers. The caretakers of these children were below 23 years of age and only completed primary level.

I had to stop breastfeeding my child at 18 months because by then, there had been poor harvest and we struggled to get food; I was reducing drastically in weight (Caretakers village E and F, 2020).

On the other hand, only 25% of health facilities used an awareness program—the system that tracks malnourished children and depends on trained health professionals to manage the cases of stunting in the health facilities. Facility however had no schedule in place for conducting awareness programmes for preventing stunting in under 5s. There are no feeding programmes in the health facilities to feed stunted children.

There were however challenges faced in implementing programmes aimed at preventing stunting in children under the age of 5 in the community council.

DISCUSSION

There were quite a number of programmes adopted in the health facilities in Matelile Community Council to address stunting in children under the age of 5. Nutrition education and micronutrient supplementation were used in all health facilities. In the study conducted in Uganda by Lckes et al. (2017), it was stated that reductions in undernutrition among infants and young children can be made through programmatic health and nutrition interventions. Results from the study indicated that caregivers in Uganda who participated in a 10-week supplemental feeding and nutrition education program fed their children higher quality diets, and reported more comprehensive knowledge of healthful practices than those with no such program exposure (Lckes et al. 2017).

Study findings indicated that cooperation by caretakers had a major impact on the health of a child. In the study conducted by Brenner et al. (2011), it was found out that maternal knowledge and attitudes are important determinants of not only child health in general but also infant feeding practices in particular. Improving maternal knowledge and attitudes through nutrition counseling and education can lead to improved Infant and Young Child Feeding (IYCF) practices, and consequently, improved child growth and development, especially in settings with low maternal literacy (Bhutta et al., 2013). The current study therefore realized the importance of nutrition education in reducing stunting in under 5s.

Micronutrient supplementation also plays a major role in improving child's health. The current study showed that there are two major supplements given in health facilities; they include unimix and plumpy nut. The challenge was however that, health facilities are often on stock-outs due to lack of funds in health facilities. Different studies have been conducted on importance of micronutrients supplements in reducing stunting. In the study conducted by Iversen et al. (2012), there was a programme which addressed that stunting was a Nutrition Supplementation Programme (NSP) which aimed to correct undernutrition by providing nutrition supplements as well as nutrition education and counseling, promotion of exclusive breastfeeding according to WHO guidelines, growth monitoring and promotion, immunization



as well as diagnosis and treatment of diseases (Iversen et al., 2012). Also, Lipid-based Nutrient Supplements (LNS) can be an effective strategy for improving children's dietary adequacy and growth and are sometimes delivered as part of holistic supplemental feeding programs that also deliver nutrition education along with other interventions such as growth monitoring, deworming, and education on sanitation and hygiene (Lckes et al., 2017).

Furthermore, in the study conducted by Martinez et al. (2018), it is stated that in Guatemala, which has the highest rate of stunting in the Western Hemisphere, intensive public and private sector efforts, focused especially on the provision of micronutrients, complementary foods and counselling for caregivers, have reduced the national rate of stunting by around 50%. On the other hand, in the study conducted by Mulat et al. (2019) on uptake of minimum acceptable diet among children aged 6–23 months in orthodox religion followers during fasting season in rural area, Dembecha, North West Ethiopia, it was indicated that inappropriate feeding practices of infants and young children exposes the children to under nutrition, increasing morbidity and mortality, and chronic stunting that will continue to the next generations.

The study also found out that the health facilities were promoting breastfeeding. Most of the facilities indicated the importance of breastfeeding. Although the study found out that there were no specific programme campaigns for pregnant and lactating women, the study found out that pregnant and lactating women were always given information on breastfeeding in the health facilities. In the study conducted by Nimpagaritse et al. (2019) on addressing malnutrition among children in routine care—How Is the Integrated Management of Childhood Illnesses Strategy Implemented at Health Centre Level in Burundi?—the study indicated that individual health interventions shown to be effective in reducing child mortality include exclusive breastfeeding (Nimpagaritse et al., 2019).

It was also concluded that early initiation of breastfeeding, exclusive breastfeeding, implementing complementary feeding, consumption of diversified diet, adequate meal frequency, and consumption of iron fortified foods were core indicators for monitoring feeding practices of infants and children, and are responsible for reduction in the prevalence of stunting in children under the age of 5 (Mulat et al., 2019; Nimpagaritse et al., 2019).

IMPLICATION TO RESEARCH AND PRACTICE

The Ministry of Health must capacitate the health facilities with both human and financial resources so that the facilities can easily implement strategies to prevent child stunting. Moreover, village health workers can help in improving child nutrition status for they live with the children in the villages and can easily monitor their nutrients uptake.

CONCLUSION

The health facilities have implemented different strategies to prevent child stunting such as nutrition education and micronutrient supplementation which were used in all health facilities. However, due to challenges such as lack of funding and lack of trained personnel, many children under the age of 5 are still stunted. Factors favoring stunting were evident in the communities, ranging from among others poor agricultural production leading to altered



feeding practices, water scarcity, and poor access to the health facilities, many of which were to a great extent affected by climatic variables, especially rainfall and high temperatures.

FUTURE RESEARCH

Further research should conduct quantitative studies that explore the breadth of stunting and test and confirm hypotheses for successful implementation of the identified strategies. Besides, the future research should focus on other forms of malnutrition and interventions that can be implemented to combat them. Moreover, more emphasis should be put on evaluating the effectiveness of policies to address stunting and on the implementation of policies and interventions in addressing stunting in under 5s.

REFERENCES

- Arsenault, J.E., et al. 2013. Very low adequacy of micronutrient intakes by young children and women in rural Bangladesh is primarily explained by low food intake and limited diversity. *Journal of Nutrition*, 143(2), pp.197–203
- Ayana, G., et al. 2018. Dietary zinc intake and its determinants among Ethiopian children 6–35 months of age. *BMC Nutrition*, 4(30), pp.1-6, <https://doi.org/10.1186/s40795-018-0237-8>
- Berhanu, G., et al. 2018. Prevalence of stunting and associated factors among preschool children: A community based comparative cross sectional study in Ethiopia. *BMC Nutrition*, 4(28), pp.1-15, <https://doi.org/10.1186/s40795-018-0236-9>
- Bhutta, Z.A, et al., 2013. Evidence-based interventions for improvement of maternal and child nutrition: what can be done and at what cost? *Lancet Nutrition Interventions Review Group*, 382(9890), pp.452–77. [http://dx.doi.org/10.1016/S0140-6736\(13\)60996-4](http://dx.doi.org/10.1016/S0140-6736(13)60996-4)
- Black, R.E., et al. 2008. Maternal and child undernutrition: global and regional exposures and health consequences. *Lancet* 371(9608), pp243–60
- Comrie-Thomson, L., et al., 2014. Addressing child undernutrition: evidence review. Australia age and preterm birth in low- and middle-income countries. *Int J Epidemiol.*, 42(5), pp. 1340–55. <http://dx.doi.org/10.1093/ije/dyt109>
- Dewey, K.G. (2013). The Challenge of Meeting Nutrient Needs of Infants and Young Children during the Period of Complementary Feeding: An Evolutionary Perspective. *The Journal of Nutrition Issues and Opinions*, 143, pp.2050–2054
- Dewey, K.G. and Begum, K. 2011. Long-term consequences of stunting in early life. *Maternal and Child Nutrition* 7, pp5-18
- Forouzanfar, et al., 2015. “Global, Regional, and National Comparative Risk Assessment of 79 Behavioural, Environmental and Occupational, and Metabolic Risks or Clusters of Risks in 188 Countries, 1990–2013: A Systematic Analysis for the Global Burden of Disease Study 2013.” *Lancet*, 386(10010), pp. 2287–2323, doi:10.1016/S0140-6736(15)00128-2
- Gebretsadikan, T.M. and Troen, A.M. 2016. Progress and challenges in eliminating iodine deficiency in Ethiopia: a systematic review. *BMC Nutrition*, 2(12). Pp. 1-12, DOI 10.1186/s40795-016-0051-0



- Gouder, S.M. 2018. Nutritional intervention for preventing stunting in children (0-5years) living in urban slums in low and middle-income countries(LMIC). *Cochrane database of systems review*, 2018(8), pp.1-54. DOI:10.1002/14651858.CD011695
- Goudet, S.M., et al. 2015. Nutritional intervention for preventing stunting in children (0 to 5 years) living in urban slums in low and middle-income countries (LMIC). *Cochrane Library*.
- Gunnarsdottir, I. and Dahl, L. 2012. Iodine intake in human nutrition: a systematic literature review. *Food & Nutrition Research*. 56(19731)
- Han, C.Y., et al. 2015. A healthy eating index to measure diet quality in pregnant women in Singapore: a cross-sectional study. *BMC Nutrition*, 1(39), pp. DOI 10.1186/s40795-015-0029-3
- Hussain, A.M., Dandona, L. and Schellenberg, D. 2013. Public health system readiness to treat malaria in Odisha State of India. *Malaria Journal*, 12(351), pp. 1-11. <http://www.malariajournal.com/content/12/1/351>
- Iversen, P.O. et al. 2012. Assessing nutrition intervention programmes that addressed malnutrition among young children in South Africa between 1994-2010. *African journal of food, agriculture, nutrition and development*, 12(2), pp.5928-5945
- Labadarios, D., et al. 2008. Executive summary of the National Food consumption Survey Fortification Baseline (NFCS-FB-I) South Africa, 2005. *S. Afr. J. Clin. Nutr.*, 21, pp. 245-300
- Lckes S.B., et al. 2017. Maternal participation in a nutrition education program in Uganda is associated with improved infant and young child feeding practices and feeding knowledge: a post-program comparison study. *BMC Nutrition* 3(32), pp.1-10, DOI10.1186/s40795-017-0140-8
- Martinez, B., et al. 2018. Complementary feeding intervention on stunted Guatemalan children: a randomised controlled trial. *BMJ Paediatrics Open* 2:e000213. doi:10.1136/bmjpo-2017-000213
- McDonald, C.M., et al. 2013. The effect of multiple anthropometric deficits on child mortality: meta-analysis of individual data in 10 prospective studies from developing countries. *American Journal of Clinical Nutrition* 97(4), pp.896-901
- Meerman, J., Carisma, B. and Thompson, B., 2012. Global, regional and sub-regional trends In undernourishment and malnutrition. Rome: Nutrition Division
- Ministry of Health and Social Welfare, 2014. Lesotho PHC Revitalization Services Availability And Readiness Assessment Integrated Supervision Report. www.health.gov.ls
- Mosha, D., et al. 2018. The impact of integrated nutrition-sensitive interventions on nutrition and health of children and women in rural Tanzania: study protocol for a cluster-randomized controlled trial. *BMC Nutrition*, 4(29), pp.1-8, <https://doi.org/10.1186/s40795-018-0238-7>
- Mulat, E., et al. 2019. Uptake of minimum acceptable diet among children aged 6-23 months in orthodox religion followers during fasting season in rural area, DEMBECHA, north West Ethiopia. *BMC Nutrition*, 5(18), pp.1-10, <https://doi.org/10.1186/s40795-019-0274-y>
- Nimpagaritse, M., et al. 2019. Addressing malnutrition among children in routine care: how is the Integrated Management of Childhood Illnesses strategy implemented at health centre level in Burundi? *BMC Nutrition*, 5(22), pp.1-12, <https://doi.org/10.1186/s40795-019-0282-y>



- Osendarp, S.J.M., et al. 2016. Complementary Feeding Diets Made of Local Foods Can Be Optimized, but Additional Interventions Will Be Needed to Meet Iron and Zinc Requirements in 6- to 23-Month-Old Children in Low- and Middle-Income Countries. *Food and Nutrition Bulletin*, 37(4), pp 544-570, DOI: 10.1177/0379572116655239
- Pradhan, P.M.S., et al. 2016. Nutrition interventions for children aged less than 5 years following natural disasters: a systematic review. *BMJ Open*, 6, pp. e011238. doi: 10.1136/bmjopen-2016-011238
- Rah, J. H, et al. 2011. Provision of micronutrient powder in response to the Cyclone Sidr emergency in Bangladesh: cross-sectional assessment at the end of the intervention. *Food NutrBull* 32, pp.277–85
- Shoeman, S., 2010. Primary health care facility infrastructure and services and the nutritional status of children 0-71 months old and their caregivers attending these facilities in four rural districts in the Eastern Cape and KwaZulu-Natal provinces, South Africa. *S. Afr. J. Clin. Nutr.* 23, pp. 21-22
- UNICEF. 2013. Improving Child Nutrition. The achievable imperative for global progress. UNICEF
- Weldehaweria et al. Dietary diversity and related factors among lactating women visiting public health facilities in Aksum town, Tigray, Northern Ethiopia. *BMC Nutrition*, 2(38), pp.1-9, DOI 10.1186/s40795-016-0077-3
- World Health Organisation. 2018. Nutrition land scape information system: country profile indicators interpretation guidelines. Geneva: Switzerland
- Xue Y., et al. 2017. Regional, socioeconomic, and dietary factors influencing B-vitamins in human milk of urban Chinese lactating women at different lactation stages. *BMC Nutrition* 3(22), DOI 10.1186/s40795-017-0139-1
- Ziylan, C., et al. 2015. Dutch nutrition and care professionals' experiences with undernutrition awareness, monitoring, and treatment among community-dwelling older adults: a qualitative study. *BMC Nutrition* 1(38), pp. 1-11, DOI 10.1186/s40795-015-0034-6