

PREVALENCE OF STUNTING IN FOOD SECURE RUSITU VALLEY, CHIMANIMANI, ZIMBABWE: A SOCIAL ECOLOGICAL APPROACH

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Abstract

The paper explores the conditions characterising stunting prevalence in food secure Rusitu Valley in Chimanimani, Zimbabwe. Despite various studies undertaken on stunting in food insecure regions of Africa and Asia, little has been theorised on its determinants in the food secure areas of Chimanimani in Zimbabwe. A mixed-methods approach was used in data collection. Descriptive statistics and thematic content analysis were used on quantitative and qualitative data, respectively. Informed by the social ecological model, findings revealed that despite food security in the study area, nutrition insecurity existed. During 2014–2019, stunting among under five years was shown to be

most prevalent in Ward 21b with a total of 272 patients and Ward 21a (208 patients), followed by Ward 22 (125), Ward 23 (113), Ward 16 (97), and the least in Ward 13 (62). In spite of their knowledge on stunting, 97% of the caregivers have not exclusively breastfed before complementary feeds, while only 3% purportedly practised it. Of the respondents, 40% revealed their children have once suffered from diarrhoea in the past 3 months, while 60% stated their children did not have diarrhoea in the last 3 months. While knowledge on infant and young child feeding are lacking at individual caregiver level and at inter-personal, community and organisational level, institutional constraints, disease prevalence, socio-economic barriers and maternal nutrition deficiency contribute to stunting prevalence. These exacerbate challenges in accessing various forms of capital assets. The study recommends strengthening collaborative health promotion activities, capacity building of organisations and community health structures on nutrition monitoring, and food security in households in need.

Key words: Stunting, stunting prevalence, food security, malnutrition, nutrition security.

INTRODUCTION

Stunting is “a chief public health challenge worsening the wellbeing of the public precipitating death and ill health for the duration of infancy. It has contributed to 45% of child deaths below five years globally” (WHO, 2017). This highlights the level of attention and urgency that governments and supporting non-state actors need to apply to stunting. “Stunting is a sign of prolonged malnourishment due to persistent insufficient nutrition and intermittent protracted ill-health” (Multiple Indicator Cluster Survey, 2014). This health problem is signified by a low height-for-age, which is children whose height-for-age is less than minus two standard deviations below the median of the reference population. Underlying under-nutrition causes the death of about a third of those who die below the age of five (Blacket al., 2013). A poor diet without adequate nutrients can result in under-nutrition because of infectious diseases such as diarrhoea. These circumstances are most noticeable during the early childhood.

A substantial fraction of persons suffer from moderate or severe under nutrition in their infancy, particularly in less developed nations, and Zimbabwe is not an exception. One in four children in Zimbabwe is stunted (European Commission, 2017). The “stunting prevalence is the straight measure that mirrors persistent protracted under nutrition, direct evolution failure and multidimensional public challenge, a long-lasting reaction to the lengthy shortage of food and or disease presence” (Bhutta et al, 2013).

The 2018 National Nutrition Survey Report (Food and Nutrition Council, 2018) reported the following:

From 1990–2010, African continent was the most affected region with increased number of children below five years with stunting. In Africa south of the Sahara, annual reports from UNICEF constantly show around 30–40% stunting prevalence which varies per nation or area or built-up environments as opposed to depressed rural regions.

The 2018 National Nutrition Survey Report (Food and Nutrition Council, 2018) also revealed that stunting prevalence in Zimbabwe among children below five years of age is still high (26.2%), while the malnourished (13.8%) and wasting (5.9%) categories are shrinking. In Manicaland province, stunting prevalence is at 31.2%, and the province remains a stunting hotspot (ZIMVAC, 2018). Chimanimani district of Manicaland is among districts that only have 14% food insecure residents (ZIMVAC, 2018). The prevalence of stunting may well have been exacerbated by Cyclone Idai that has ripped away most of the people's livelihoods and food reserves. Food aid donated by well-wishers and the World Food Programme was the leading source of nourishment for affected families. However, no scholarly effort has been made to diagnose the determinants or conditions characterising stunting growth and prevalence in the south eastern district of the Manicaland province using the social ecological model.

Chimanimani district has a population of 30 925 under-fives (Ministry of Health and Child Care Zimbabwe, 2019), and stunting prevalence is at 35.8%, compared to the WHO standard of 20% (ZIMVAC, 2018). Most cases are found in Chimanimani East, but Rusitu area that is in Zimbabwe's ecological Region 1 (high rainfall area) has high food security. Despite various interventions to ensure food security with sufficient water and hygiene to avert stunting, stunting prevalence persisted from 2006 to 2018. In 2006, stunting prevalence was at 29%, and it increased to 34% in 2010 (Zimbabwe National Statistics Agency, 2010), to 35.5% in 2014 and to 35.8% in 2018 (Food and Nutrition Council, 2018). Despite studies by Aguayo et al. (2016) and Yisak and Gobena (2015) little has been theorised on the use of the social ecological model to assess the conditions characterising stunting in food secure eastern highlands of Zimbabwe. Therefore, this study seeks to explore the conditions characterising the prevalence of stunting in food secure Rusitu Valley in Chimanimani district of Zimbabwe.

Social Ecological Model

The model is used to comprehend the multidimensional and shared impact of personal and external elements that affect and govern health

outcomes. The model recognises that intended and unintended health effects are determined more by broader environmental, political and socio-economic environments than personal behaviour (Center for Diseases Control and Prevention, 2014). The social ecological model has five nested levels hierarchically arranged as shown in Figure 1.

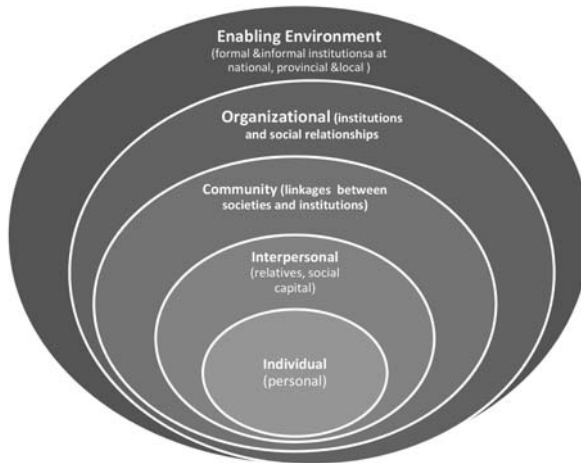


Figure 1: Social ecological model adapted from the Center for Diseases Control and Prevention (2014)

The Center for Diseases Control and Prevention's (2014) model is a significant strategy in the management of public health to identify predisposing factors at all levels and different intermediations are applied in the model. The model symbolises a collective system, as shown in Figure 1, and in each level there are equivalent lines of attack to achieve interactive and societal adjustment that brings about better health outcomes. Each level in the model has a significant influence on health outcomes in the society. Hence, the prevalence of stunting is determined by different levels. A healthy society outcome starts with the individual. The individual capacity is determined by the human capital base. The human capital base brings knowledge and empowerment, which has a significant influence on people's health. Human capability determines attitude. Not all human beings in a society are knowledgeable about certain health issues. Different people have different levels of understanding realities about health environments. It is the human capital, again, that determines behaviour. Knowledgeable people's behaviour leads to less risk of experiencing health challenges than those less knowledgeable. But one should note that individual capacity and

capability is at the core of the environment if we want to protect the society. An empowered, capacitated individual has the capacity to influence their family; the capacitated family has the power and muscle to influence the community; and an empowered community has the political muscle to influence existing institutions in the society. Laws are made by the society and not by the state; therefore, societies have the power to transform the state, national and local laws to enable the environment to prosper. So the social ecological model explains the significance of individuals, communities and social institutions before the state comes in the prevention and control of health challenges, including stunting. In this paper, we illustrate how these factors influence and determine health outcomes, particularly looking at stunting occurrences in the area of study.

Stunting Prevalence

Globally, stunting occurrence differs substantially, depending on economies. The World Bank (2018) revealed that “globally 72% of the undernourished children are found in Africa and South-Central Asia”. Using height for age as a measurement for stunting, The World Bank Report (2018) further reported that about 182 million children below five years of age are stunted, demonstrating that 32.5% of all pre-school children in less developed nations, where children are underfed, are stunted. Regarding the degeneration in stunting prevalence, the World Bank alluded that Africa has more stunted children than Asia and Latin America, and Africa is the sole region with a growing number of stunted children because of high food insecurity and poverty levels. This demonstrates that there is a relationship between stunting and under nutrition, a poverty-food insecurity nexus.

In Zimbabwe, despite some interventions to deal with child stunting, millions of children continue to suffer from chronic malnutrition (Demographic Health Survey, 2019). In 1994 the rate of stunting in Zimbabwe was 21% and it increased to 26% in 1999. According to the 2005–2006 Zimbabwe Household Health Survey (2010), the rate further increased to 29% and 32% during 2010–2011. This meant the stunting rate was above the national target of less than 10% (Zimbabwe Household Health Survey, 2010). One out of three children in Zimbabwe suffers from protracted malnourishment, as revealed by United Nations Children’s Fund (2017) and the nation’s public health experts. Similarly, the rights of the vulnerable groups’ status established that malnourishment could give rise to a number of deaths a year in the nation. Zimbabwe experiences an increasing level of protracted malnourishment that is aggravated by food insecurity and worsening poverty. The high prevalence rate (30–39%) of stunting in Zim-

babwe are mainly found in areas around Manicaland province in the high veld of Zimbabwe, while medium prevalence (20–29%) dominates the whole country and low prevalence (< 20%) is found in the Gwanda and Zvishavane areas. So among the Southern African countries, Zimbabwe is labelled the worst affected, and within Zimbabwe the eastern highlands is the worst affected.

Food Security Status versus Chronic Malnutrition

Globally, food insecurity has been a major force behind chronic malnutrition and high rates of diarrhoea among children. Despite the general worldwide reduction in food insecurity, Zimbabwe has had several incidents of severe food insecurity causing loss of life (ZIMVAC, 2018). Lartey et al. (2018) made the following statement:

African nations have jointly the lowest in the attainment of the SDGs and presently close to one third of its inhabitants lives in protracted starvation. In particular the Sahel and Horn of Africa regions, West and East Africa are undergoing the worst hunger and starvation resulting in malnutrition.

In other studies, poverty, natural disasters and political problems have been found to be associated with stunting. However, stunting incidences have been attributed to food insecurity, particularly in resource poor settings where access to food is difficult (Lartey et al., 2018). Although food insecurity is associated with the prevalence of stunting, Zimbabwe's eastern highlands have a high prevalence of stunting despite high food security (ZIMVAC, 2018). However, Zimbabwe has made some strides in achieving the Sustainable Development Goals (SDGs) 1, 2, 3, 4 and 10 of averting poverty, zero famine, inequality and poor health support, respectively. These attempts in one way or another will lessen the frequency and occurrence of malnutrition and other ailments like stunting in the country. Yet a number of risk factors has contributed to the prevalence of stunting in the country.

Factors Influencing Persistent Prevalence of Stunting

Malnutrition is triggered by poor nutritive consumption and exacerbated by diseases such as malaria and diarrhoea. These circumstances are most noticeable during early childhood. Stunting happens between 3 and 24 months of age (Victora et al., 2010) because often inadequate and poor-quality food is consumed by the child. Bhutta et al. (2013) made the following statement:

Exclusive breastfeeding is recommended for the first 6 months of life but is uncommonly practised; globally, only about 30% of infants aged 1–5 months are exclusively breastfed. ... The early introduction of fluids will reduce the production and ingestion of

breast milk and substitute foods of lesser nutritional quality that also have a high risk of microbial contamination. In most of the affected regions, more than 60% of children aged 6–23 months are breastfed.

Supplementary foods that are “presented too often have insufficient nutrient compactness, calories, protein, essential fats, and micronutrients, and may contain infectious bacteria and/or toxins. Further, deficiency of the micronutrient Zinc has been consistently associated with stunting, and increased linear growth in infants has been demonstrated with provision of daily Zinc supplements” (Bhutta et al., 2013). Poor diet is attributed to lack of access to information, lack of social networks and geographical inaccessibility of certain regions. With the economic challenges affecting the Zimbabwean people, poverty and incessant natural disasters are causing families to have poor diet.

Environmental health conditions

Environmental conditions have an impact on health status. Poor water, sanitation and hygiene (WASH) are “circumstances attributed to child stunting” (Zerah, 2000). As such, the domestic situation in which children grow is associated with their dietary standing. For instance, Zerah’s (2000) studies in Peru “inferred an affirmative relationship between better-quality water sources and child progression, indicating that this consequence was greater when interventions combined with better-quality hygiene facilities”. Inadequate WASH can have an impact on a child nutritional status as it may lead to repeated episodes of diarrhoea, soil pass on impurities and environmental enteric dysfunction. According to Zerah (2000), “diseases such as malaria or severe breathing challenges habitually linked to unsatisfactory water and sanitation environments and worsened by poor sanitation are risks relating WASH and malnutrition. But with reference to stunting, evidence is inadequate”.

Socio-economic factors

Chazireni and Tembo (2018) reveal that the distribution of wealth has been found to be associated with chronic malnutrition in those groups who have limited access. Usually the marginalised groups have limited income that is not enough to purchase a variety of food. A study by Save the Children (2019) in Bangladesh, Ethiopia, Myanmar and Tanzania has shown that community members who did not have enough money to afford a nutritious diet, let alone other necessities such as clothes and health access were likely to be malnourished. Saito et al. (1997) make similar inferences on youngsters whose fathers were not formally employed, saying that they were 2.28 times more likely to develop malnourishment compared to government workers earning

minimum wages regularly and other trades who are formally employed. The possible explanation is that poverty among the informally employed with limited disposable income meant their families could not afford nutritious food.

Zimbabwe's Policies on Nutrition

It is undebatable that addressing prolonged malnourishment brings substantial socio-economic benefits as it lessens sickness and death, develops desirable educational outcomes, improves worker's production and raises incomes. Enhanced nourishment will contribute towards attaining SDGs2 and 3. SDG 2 seeks to "end hunger, achieve food security and improved nutrition and promote sustainable agriculture", while SDG3 seeks to "ensure healthy lives and promote wellbeing for all at all ages"(UN, 2017). In 2015, the Zimbabwe government implemented the Zimbabwe Agenda for Social Economic Transformation (ZIMASSET) policy where Food Security and Nutrition Cluster was the main guiding framework aimed at reducing stunting. It identified food production as a key to solve nutrition status issues. The Food and Nutrition Security Policy also stressed the "commitment to ensure nutrition security for all through the implementation of evidence based nutrition interventions that are integrated within the broad public health framework including health services, water and sanitation and primary health care"(Food and Nutrition Council, 2018). The new dispensation that was declared after the November 2017 coup and general elections of 2018 by the new government came up with the Transitional Stabilization Program that by and large aims to achieve 'quick wins' in the economy, and ultimately, on health outcomes. In spite of all these efforts, there is persistent prevalence of stunting in the eastern highlands of Zimbabwe and little has been theorised on the conditions characterising stunting prevalence in food secure Rusitu Valley in Chimanimani Zimbabwe.

RESEARCH METHODS

Study area

The research was done in Rusitu Valley in the Chimanimani district in the southern part of Zimbabwe's eastern highlands. Chimanimani is compartmentalised into 23 wards. Chimanimani East, the Rusitu area is in Region 1 and receives high rainfall of up to 1 400 mm per year, while Chimanimani West are in Regions 3, 4, and 5 that receive 800 mm, 450 mm and 300 mm per year, respectively. The eastern wards in Rusitu are food secure. The Rusitu area is suitable for agriculture production, including cash crops such as fruit trees, such as bananas, oranges, naartjies, pineapples, lemons. The main socio-economic ac-

tivities in the area are crop farming, selling food produce, artisanal mining and cross border trading.

Research design

The case study design was used as it enabled the researchers to explore an issue using the Rusitu Valley as a specific illustration (Cresswell, 2013). It was considered ideal because of its capacity to address the how and why questions of a contemporary challenge (Gray, 2014). The design enabled the researchers to explore the conditions characterising stunting prevalence in food secure Rusitu Valley in Chimanimani Zimbabwe using the social ecological approach. Not much has been theorised on the conditions characterising the persistent prevalence of stunting in food secure areas, and therefore, a case study design was well suited because according to Cresswell (2013), "a case study is a very valuable study plan, too when little evidence is known about a subject or occurrence".

Sampling

From the population of 600 mothers and 70 health committee representatives recorded under Chimanimani district (Rusitu area) collated from five wards, the study used the rule of thumb, which is 10% of the total, to come up with a sample size of 67. Using random numbers, a total of five wards were selected from 23 wards. These were 13, 16, 21(a & b), 22 and 23. The study purposively sampled a total of 67 participants. These comprised 60 mothers with children under five, one District Nutritionist, one District Nursing Officer, one Health Promotion Officer and four Village Health Workers. Twelve purposively selected house holds in each of the five wards participated in the study.

Instrumentation

A quantitative household questionnaire was administered to selected mothers with children below five years, and "responses to individual questions (items) on structured questions were aggregated into a composite scale" (Gray, 2014). The questionnaire was chosen for it catered for a number of caregivers and guaranteed their anonymity. The validity of the tool was ensured by adapting the tool from the World Food Program that tried and tested the tool. Moreover, a pre-test for the tool was undertaken in part of Ward 16 in the study area. The researchers reviewed relevant documents to gain an understanding of the context. Documents reviewed included national policies, survey documents (such as reports by ZIMVAC) and district health reports. This gave the researchers an idea of what is on the ground regarding issues of chronic malnutrition in the district, particularly in Rusitu Valley. Qualitative data was gathered using key informant interviews with a selected, knowl-

edgeable nutritionist, District Nursing Officer, Health Promotion Officer and Village Health Workers. In addition, from each ward a focus group discussion was conducted with community members to explore community attitudes and perception on stunting. Focus groups allowed “thorough investigation of multifaceted matters than survey enquiry, because when respondents receive others discourse, it often prompts reactions or ideas that they were not in their mind before” (Bhattacharjee, 2012).

Data analysis

Data analysis was done using thematic analysis for qualitative data and descriptive statistics for quantitative data, respectively. Narratives from focus group discussions, documents and interviews were thematically analysed into recognisable patterns and emerging links, and the numerical data gathered from questionnaires were summarised and organised according to a frequency distribution table that revealed meaningful patterns (Blesset al., 2013).

Ethical considerations

The researchers ensured that the study was done “with respect and protect the rights, confidentiality and welfare of the people and communities involved and to ensure that the data is technically accurate and reliable, is conducted in a transparent and impartial manner and contributes to programme scholarship and accountability” (Cresswell, 2013). The researchers were guided by the principles of voluntary participation where involvement in the study was deliberate and participants had the liberty to pull out at any time. They were not harmed, their information was kept confidential, and they were treated with honesty.

RESULTS AND DISCUSSIONS

Stunting prevalence in Rusitu Valley by ward

Data analysis from various reports illustrated that during the years 2014 to 2019, stunting is shown to be most prevalent in Ward 21 and 21a with a total of 272 patients (61, 24, 39, 57, 45 and 46) and 208 patients (76, 30, 20, 19 and 49), respectively. These are followed by Ward 22 with 125 patients (8, 4, 14, 27, 35, and 37) and Ward 23 with 113 patients (25, 10, 8, 37, 16 and 17). The least number of patients were recorded in Ward 16 with a total of 97 (1, 2, 30, 27, 20 and 17) and Ward 13 with 62 patients (16, 6, 2, 10, 16 and 12). This numbers are illustrated in Figure 2. The fact that no year had a zero record on stunting depicts the persistent prevalence of the disease in the district. This shows that despite some interventions that were imple-

mented to deal with child stunting, children continue to suffer from chronic malnutrition (ZIMVAC, 2018; Zimbabwe National Statistics Agency, 2019).

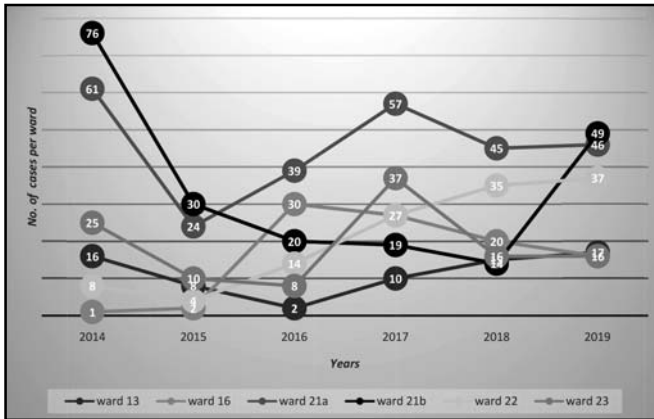


Figure 2: Stunting prevalence per health centre in Rusitu, Chimanimani, from 2014–2019

Factors influencing persistent prevalence of stunting in food secure areas

Individual (personal behaviour): Infant and young child feeding practices

Figure 3 illustrates that 97% mothers did not practise exclusive breast feeding in the first six months. Despite the fact that the mothers are not employed full time but engaged in farming and vending, they have limited time to exclusively breastfeed their children.

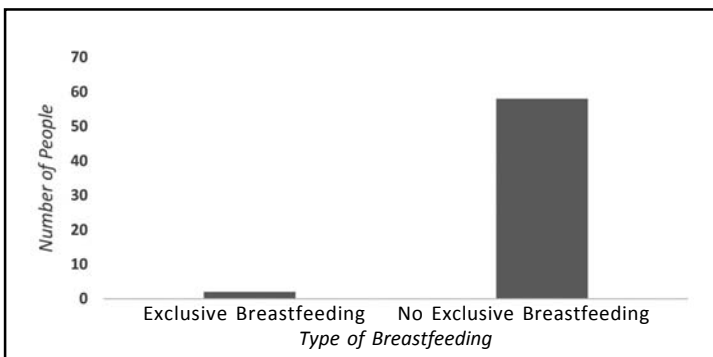


Figure 3: Breastfeeding practice

Focus group discussions echoed that mothers know about exclusive breastfeeding but the practice part is lacking. The following direct quote by a middle-aged mother reflects this:

These mothers know that a child is exclusively breastfed for the first six months before introducing complementary feeds, but they just don't do it (Middle-aged mother in Ward 21).

The District Nutritionist and District Nursing Officer confirmed that mothers are aware of exclusive breastfeeding but that practice is minimal. They reiterated that due to the abundance of fruits in the valley, children's diet consists mostly of fruits (naartjies, oranges, bananas and avocado pears) rather than breastfeeding, thereby compromising the standard feeding practices for children, with consequences for their health. Butta et al. (2013) reiterated that less nutritional quality food such as fruit, has a high risk of microbial contamination, an issue that would result in the persistent prevalence of stunting in the valley. This poor dietary intake compromises children's health among Chimanimani households. Caregivers' societal links and social support arrangements have an impact on personal behaviour, including the environment and traditions. During interviews, key informants stated that they did not breastfeed exclusively because caring for their children demands attention and this limits their productive time, especially to produce food in their vegetable gardens and orchards and generate revenue from vending. They also elaborated that they wean off their children as early as 3 months. This scenario suggests that the practice is highly likely to continue as long as the need to generate household income to access necessities persists. Indeed, this human capital base (knowledge and attitude) has the capacity to influence the family, community and organisational levels to continue with the practice. As such, educating mothers on the dangers of malnutrition for under 5 year olds and the effects of stunting should be prioritised at household level.

Maternal Nutrition Status

Interviews with the District Nursing Officer revealed that malnourished mothers are more likely to have children with stunted growth. Maternal deficiency means infant deficiency, especially with vitamin A, the body reserves of which are low at birth. The District Nursing Officer echoed that maternal deficiency is a risk factor for foetal growth restriction, culminating in low birth weight. Low birth weight means more depletion of already low stores of key growth nutrients. The condition of the child is highly likely to be negatively affected when it suckles from a mother with poor maternal nutrition status. This is in line with Lartey et al. (2018) who posits that the nutrition status of the

mother by and large contributes to the low birth weight and stunted growth of the children. Varied deficiency levels in maternal nutrition status among mothers in Rusitu imply varied stunting challenges among children. Intake and utilisation of nutritious food by mothers is also determined by the availability and access to adequate quality food. Access to adequate quality food is determined by individual capacity and capability. Access to natural, social, financial and human capital is critical to reduce stunting in the study area.

Interpersonal relations and social capital

Socio-economic factors

Social and economic factors contribute to the persistent prevalence of stunting in the eastern highlands of Zimbabwe. Results show that household income sources vary, and household incomes have a bearing on nutritional status. Most households survive by crop farming and vending, and there is very few households who survive from formal employment and remittances, as shown in Figure 3.

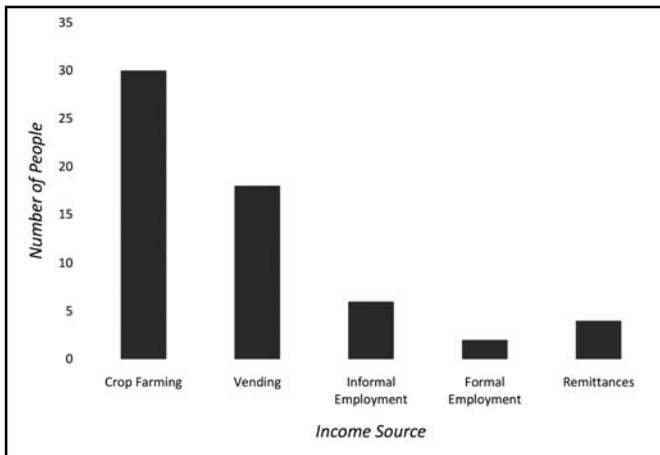


Figure 4: Main sources of income by household heads

The income from crop farming and vending allow households to fulfil their basic needs and buy necessities only, but is inadequate to buy supplementary foods required for improved nutrition. Focus group discussions revealed that income realised from vending and crop farming is normally prioritised towards business expansion, purchasing farming inputs and other basic necessities such as groceries at the expense of a balanced diet. Variations in the economic and social status of households in Rusitu Valley results in variations in the capacity of households to cope with stunting as a public health challenge.

Social capital is an interpersonal relationship, and it influences the spread of knowledge, capability and access to information to avert stunting. In Chimanimani, integration, networks and reciprocity among mothers is critical to avoid stunting. However, capability to avert stunting starts with an individual. The minimal practice of breast feeding and the reliance on complementary food due to an inadequate asset base to maintain a balanced diet was an idea disseminated among friends and relatives. Focus group discussions revealed that the kind of social capital common in Chimanimani mothers was bonding capital, which is associated with persons or mothers with similar demographic, social and ethical status. It was an association of related persons with limited knowledge of breastfeeding. The district has limited bridging social capital, which is characterised by a community of knowledgeable persons of dissimilar race, social economic status and culture integrating together. This involves the interaction of nutritionists, nurses, village health committee members and village mothers. So, the lack of bridging capital compromised efforts to avert stunting in Rusitu Valley.

Community (links between societies and institutions)

Community belief systems and disease prevalence

The document review revealed that malaria, diarrhoea, pneumonia and acute respiratory infections are the most prevalent health challenges affecting people in Rusitu Valley. Interviews with knowledgeable nutritionists, District Nursing Officers, Health Promotion Officers and Village Health Workers revealed that children's exposure to these diseases weaken their immune system, leading to stunted growth.

In the household questionnaires, 40% reported that their children have suffered from diarrhoea in the past 3 months, while 60% reported their children did not. However, the focus group discussions reported that diarrhoea among the children is common in the study area and some cases may go unreported as locals use local remedies to treat diarrhoea in children. This implies that among the 60% who said they have not experienced it, some may have used local remedies to prevent and treat it. Their sentiments were that diarrhoea is part of the changing stages in a child's growth, like teething, just after weaning or temperature shifts due to seasonal changes. Such sentiments are demonstrated by the following direct quotes:

Diarrhoea is part of changing stages in a child's growth, like teething, just after weaning, it is just but a wave passing.

It is the season changing that a child can develop diarrhoea. (Caregiver 2)

Thus, households see diarrhoea as a natural process that happens and not a challenge and disease that warrant attention. Under such circumstances, the uptake of information and participation in health initiatives is minimised in the study area. However, district health experts stressed that diarrhoea is a risk factor that can lead to stunting. Protracted diarrhoea is one of the gastrointestinal conditions that compromise children's nutritional standing. Diarrhoea among children increases during the rainy season and can persist throughout summer. Therefore, the district health expert believes that what mothers see as a normal process is detrimental to children's health. However, other diseases such as malaria and acute respiratory infections that are also prevalent in the study area may also impact stunting as they affect the children's appetite. This corroborates with Yisak and Gobena (2015) who indicate that higher prevalence of infectious diseases like malaria and diarrhoea contribute to the occurrence of stunting. Rusinga and Moyo (2017) illustrate the link between chronic undernutrition and severe episodes malaria on stunting and children's immunity. Dominguez (2017) states that "there is an increased risk of stunting for every malaria episode in an endemic area". In this instance, Rusitu Valley is a malaria endemic area, which may exacerbate the prevalence of stunting. Notably, various diseases that affect immunity and appetite levels disturb the feeding habits of a child, thereby worsening the prevalence of stunting. Therefore, the perception by mothers and the use of different approaches to address would result in different levels of resilience among children. Differences in uptake of conventional medicines would again result in increased levels of controlling stunting in the valley.

Institutions and Social Relationships

Religious belief systems

Apart from the aforementioned income sources, socio-cultural values determine the kind and frequency of food eaten by children in the study area. It was noted that respondents were from diverse religious groups and denominations. One local pastor expressed that both adults and children fast and it has a great impact on their health. These are religious belief systems that lead to various forms of dietary deprivation in children, which could result in stunting, irrespective of availability of food.

Enabling Environment

In an interview, the nutritionist revealed that despite the intake and use of quality food by children through nutrition programmes in Chimanimani district, the vulnerability of children to stunting in Rusitu

is as a result of external shocks, stress and the seasonality of local food availability in the eastern highlands. However, access to different forms of capital like physical, social, financial, natural and human varies with individuals, community, organisations and enabling environments in the family, village or ward. Notably, there are policies and programmes in place but there are formal and informal rules that prevent the intake and use of available adequate quality food in the study area. Cultural ethos varies with individuals, communities, organisations and institutional enabling environments that create strategies for positive health outcomes.

As noted by district officials, the current political environment in Zimbabwe was enabling. However, the national health policies are not consistently implemented. They reiterated that there is a lot of policy inconsistencies associated with the policy making processes in the country, and they see policies being enacted without the requisite institutional and financial support failing to produce results. They suggested that policies are made by the ruling party members (ZANU PF) for their benefit and not for the welfare of the ordinary citizen. Notwithstanding the implementation of such policies as ZIMASSET and the Transitional Stabilization Program, achievements were noted only by the party members at the detriment to ordinary Zimbabweans. Respondents indicated that initiatives that address food security, including stunting, were hurriedly implemented without carrying out any feasibility studies. Apparently, they lack consistent processes and post-evaluations to measure the impact. In order to eradicate stunting, the Government of Zimbabwe should reinforce and capacitate individuals, communities and social institutions to participate in health programmes effectively and efficiently.

Social ecological model and stunting prevalence

An analysis of the model revealed that individual mothers' knowledge and attitude on stunting prevalence differed. The economic status of an individual determines the capacity and capability to control and prevent stunting in a community. Knowledge and the practice on recommended breastfeeding influence the prevalence of stunting in Rusitu Valley. Individuals' behaviour is influenced by their cultural and religious background. Religious networks and social support systems determine individual's attitude towards breastfeeding and stunting prevention. Cultural belief systems determine attitude towards breastfeeding and influence practising knowledge gained from health specialists. Communities that are more into traditional medicinal practices tend to support cultural practices rather than conventional medicines from nurses and nutritionists. Households inclined to traditional

medicines were found to view diarrhoea as a sign of child growth and change of seasons rather than a disease that affect their stuntedness. The economic status of households determines their capacity to access health support services. Low status communities are most affected by stunting as they cannot afford high fees for health services. This significantly contributes towards persistent stunting prevalence in the study area.

It is the knowledge, attitude and behaviour of individuals about the prevention of stunting that influence social connectivity among friends and relatives. At the same time, interpersonal behaviour influences relationships between organisations. Individual knowledge and attitude also determines social institutions and organisations in place that governs over policies, laws and regulations. To reduce the prevalence of stunting, individuals at local level should be empowered with knowledge of breastfeeding, the dangers of other diseases associated with stunting and the role of nutritionists, nurses and health workers in and around the villages. The capacity and capability of an individual caregiver significantly influence families and friends. Reducing stunting should start with an individual in the society and nation at large to prevent stunting by creating an enabling environment in the eastern highlands.

CONCLUSIONS AND RECOMMENDATIONS

The success of mothers in averting stunting starts at a personal level. Her capability and degree of alignment with the standards set by health institutions leads to an organisational plan, administration and ethos that are well-organised and result oriented. These are inevitably the mainstays of the system of the institution in terms of connections, priorities, performance as well as institutional relationships with clients, particularly mothers caring for their children. The Rusitu Valley case illustrated that ignoring individuals' potential contribution towards averting stunting among under 5 year olds might lead to limited success. This implies that the people at individual level builds the organisations, while those capacitated at organisational level determines the level of success of implemented initiatives. Undoubtedly, successful initiatives provide a firm foundation to prevent stunting among children.

With the understanding of individual, interpersonal, community, organisational and policy factors as levels that influence diseases prevalence, resilience to stunting should be built at individual level by empowering households to directly influence behaviour and attitude to change at a local level. Social capital strengthened through networks among families and friends are critical for reciprocity and integration of good nutritional practices to be realised in averting stunting. Rela-

tionships among stakeholders such as mothers and nutritionists are pivotal in transforming individuals' attitude, knowledge and behaviour towards averting stunting. All these efforts should be enforced with Zimbabwe's national policy frameworks such as the food and nutritional policy and the adopted SDGs 2 and 3 to avert stunting prevalence in Rusitu, Manicaland.

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