Examining The Fundamental Role of School Gardening Programme and Its Impact on Malnutrition in South African Rural Communities

Malatji Thabiso Lucky*, Kgarose Mathibedi Frank, Setaise Lebo Caroline & Makhubela Daphney Katlego

Public Administration, Management and Law, University of Limpopo, South Africa

Received: 05 July 2023; Reviewed: 28 August 2023; Accepted: 30 November 2023

*Corresponding Email: Thabiso.malatji@ul.ac.za

Abstract

The notion of malnutrition remains the world's most serious health problem and the single biggest contributor to child mortality. Although food gardens are not specifically mentioned, they have the potential to provide support for malnourished and sick people including children and adults and potentially provide nutritional diversity to support complementary feeding. This study aims to examine the role of the school gardening Programme and its impact on malnutrition in South African rural communities. Data reveals that many children in the rural communities of South Africa suffer from malnutrition and they are experiencing several health consequences. Moreover, this is common among the children at most primary and secondary schools. Therefore, the lack of economic resources, and absence of information regarding nutrition, and inadequate breastfeeding increase the chances and number of malnourished children in rural communities. This is a conceptual or abstract paper whereby the authors relied merely on secondary data and government documents in writing and achieving the set goals and objectives. The study concludes that school gardening programs have the potential to play a fundamental role in addressing malnutrition in South African rural communities. By providing learners with access to fresh produce, nutrition education, and promoting environmental sustainability, these programs can have a positive impact on the health and well-being of students and their communities.

Key Words: Malnutrition; Gardening; Rural; Communities; Good health

INTRODUCTION

Malnutrition has become a rising concern in South African rural areas in recent years. According to Labadarios, (2005) child malnutrition is one of South Africa's most serious concerns, particularly in the form of micronutrient deficiency illness. Malnutrition is defined by Govender et al., (2016) as a lack of adequate nutrients in the body, which can have major implications on the health and well-being of individuals, particularly children. School gardening projects have arisen as a viable way to reduce hunger in these areas in response to this issue. South Africa has a variety of programs to combat childhood malnutrition, including food fortification, supplementary feeding, health professional training, and information and teaching about healthy diets, food preparation methods, and vegetable gardening (Klugman, 2002). Despite all of these efforts and the fact that the South African Constitution recognizes the right of everyone to enough food and the right of children to basic nutrition, many South African children face the threat of starvation and malnutrition. The primary function of school gardening programs is to provide learners the chance to grow and nurture their fruits and vegetables in a school garden. According to McLachlan & Kuzwayo (1997) food security is a concern among poor households in South Africa, as it is in many other developing countries; a significant number may be considered resource-poor and thus food insecure, even though South Africa is considered food self-sufficient. He went on to say that socioeconomic factors are more crucial in terms of food security. This is because ensuring family food access is dependent not just on safe food supply, but also on consistent demand or purchasing power. For many decades, school garden programs have been a popular development intervention. The relevance of school gardens in environmental and nature education, local food biodiversity and conservation, food and Eco literacy, diets, nutrition and health, and agricultural education is now well recognized (Gonsalves et al., 2020). According to Morgan et al., (2010) childhood is a vital age for the establishment of dietary behaviors that last into adulthood, particularly when it comes to fruit and vegetable consumption. Given the significance of appropriate nutrition in infancy for healthy growth and development, providing children with chances to learn about fruits and vegetables, including their advantages, may aid in increasing their consumption and preventing malnutrition. School gardens are thought to be an ideal location for youngsters to improve their eating habits. They may boost children’s exposure to and intake of fruits and vegetables. The initiative not only gives students access to fresh, healthy vegetables, but it also teaches them valuable skills like gardening, nutrition, and environmental sustainability.

This research paper aims to examine the impact of school gardening programs on malnutrition in South African rural communities. Through a review of existing literature and case studies, the paper will explore the effectiveness of these programs in addressing malnutrition, as well as the challenges and potential solutions to implementing them in these communities. Ultimately, the paper seeks to provide insight into how school gardening programs can be a valuable tool in promoting nutrition and health in South African rural communities.

A single formal theory makes up a theoretical framework. When a study is planned around a theoretical framework, the theory serves as the main tool for comprehending and exploring the research topic. Therefore, this section comprises the Micro Economic Theory of the Household and Nutrition Program, which is the theory relevant to this study.
Chernichovsky & Zangwill (1990) state that the Microeconomic Theory of household behavior is a theory of choices that focuses on how households react to changes in mostly external circumstances to improve or safeguard the welfare of their members. Chernichovsky & Zangwill (1990) further add that the theory of household economics views the household as a harmonious microcosm or entity that shares the same resources and seeks to improve its utility or welfare through the production and consumption of goods like good health and the aesthetic and gastronomic utility of food.

Diaz et al., (2018) state that commodities made at home are distinct from products bought on the market. This theory also allows for dealing with behavior related to the production and consumption of non-market goods, such as health, by viewing the family as a production unit rather than just a consumption unit (Chernichovsky & Zangwill, 1990). Additionally, it makes it possible to deal with farm households, which are prevalent in developing nations and frequently mix decisions about food production and consumption. The household generates these products and services by fusing market-bought items and services with labor inputs and member skills (Diaz et al., 2018).

Chernichovsky & Zangwill (1990) assert that any increase in household resources, whether through growth or development stops at the household. Additionally, the family is free to allocate these new resources however it sees fit, frequently in ways that are incompatible with enhancing nutrition. Chernichovsky & Zangwill (1990) added that changes in tastes, attitudes, wages, prices, and even family size result from economic development and social policy and have an impact on households. The school garden program may have an impact on whether or not the family decides to buy or prepare fruits and vegetables at home. Additionally, by lowering the prevalence of malnutrition-related illnesses, the program may have an impact on the household’s healthcare costs. Therefore, according to the microeconomic theory of households and nutrition, if the programs are to be effective, they must take household behavior into account.

Additionally, school gardening programs are crucial for reducing malnutrition, which is brought on by impoverished households’ inability to eat adequate nutrients (Schreinemachers et al., 2017). Gardens with a healthy lunch program or nutritional education are more likely to change children's eating patterns and promote healthier choices, according to Castro, (2010). Therefore, it’s crucial to take home microeconomic theory into account while evaluating the impact of the School Gardening Program on malnutrition. The School Gardening Program encourages the consumption of fresh fruits and vegetables through the use of school gardens to improve children's nutritional status (Castro, 2010).

The School Gardening Program’s ability to reduce malnutrition depends on several variables, including the program’s structure, the characteristics of the community it is intended to serve, and the larger economic and social environment (Castro, 2010). For instance, a program that instructs parents on how to make wholesome meals utilizing fruits and vegetables may be more successful at encouraging healthy eating habits than one that merely offers school gardening activities (Schreinemachers et al., 2017).

Overall, the household microeconomic theory offers a helpful framework for comprehending how the School Gardening Program may affect household resource allocation and outcomes related to malnutrition (Diaz et al., 2018). Policymakers can create more effective nutrition interventions that encourage healthy eating habits and enhance children’s nutritional status by looking at household decision-making.
processes as well as the economic and social environment of the program (Diaz et al., 2018).

Studies have revealed that the school garden program may affect whether or not the family chooses to purchase or cook fruits and vegetables at home. Notably, the school gardening program has an impact on rural communities. Since it sees the household as a harmonious microcosm or entity that shares the same resources and aims to improve its utility or welfare through the production and consumption of goods like good health and the aesthetic and gastronomic utility of food, the authors chose this theory because it is essential to take it into account while evaluating the impact of the School Gardening Program on malnutrition.

OBJECTIVES
1. To find out the causes of malnutrition among children in rural communities.
2. To examine the importance of the school gardening Programme in reducing malnutrition among learners in public schools.
3. To determine the importance of good nutrition as a foundation for good health.

Malnutrition has no recognized definition across the board. According to Stratton et al., (2006) it has been used to define a deficit, excess, or imbalance of a wide range of nutrients that has a measurably negative impact on body composition, function, and clinical outcome. Malnutrition is characterized by deficiencies, excesses, or imbalances in a person’s nutrient- and/or energy intake. Malnutrition refers to two major categories of diseases. One is "undernutrition," which is characterized by stunting (low height for age), wasting (low weight for height), underweight (low weight for age), and micronutrient deficiencies or insufficiencies, or a lack of critical vitamins and minerals (World Health Organization (WHO), 2020). Food security is defined by the Food and Agriculture Organization of the United Nations as 'access by all people at all times to the food needed for a healthy life’ (Food and Agriculture Organization, 1997). This definition appropriately acknowledges this relationship by stating that poverty and hunger should be addressed simultaneously. To achieve this goal, food insecurity must be addressed in development programs. Nutritionists have long recognized the basic importance of nutrition for the continuous development of human beings at every stage of life (Garza, 2002). The United Nations Children's Fund's (UNICEF, 1990) conceptual structure, which has been used for decades to analyse malnutrition, encompasses immediate factors (inadequate dietary intake; lack of care; and disease), root causes (inadequate access to food; inadequate care for mothers and children; inadequate access to health services; and an unhealthy environment); as well as the fundamental causes (inadequate education; formal and non-formal institutions; political and ideological superstructures a). All these recent, fundamental, and direct factors are now acknowledged as aspects of poverty. Sadly, this notion hasn’t always resulted in the inclusion of an "eradication of malnutrition" component in programs to combat poverty (Vorster, 2002).

A large portion of the population in the multicultural, multi-ethnic nation of South Africa is transitioning from traditional rural livelihoods to urban, more "Westernized" modern lifestyles. This lifestyle change is accompanied by a "nutrition transition" (Vorster, 2002), which is marked by modifications to dietary practices, nutritional intakes, levels of physical activity, alcoholic beverage consumption patterns, and socioeconomic and educational status. These modifications affect nutritional status either directly or
indirectly and are interconnected. They are partially to blame for population fluctuations throughout time as well as the disparities in diet and health between rural and urban South Africans. The current economic crisis and rising food costs make the situation worse: "The poor suffer from higher costs for food but no greater income and gradually starve" (Sen, 2008).

The varieties of food consumed in South Africa may have reduced hunger, but they have not appreciably reduced malnutrition (Jowell, 2011). The most important health issue in the world and the leading cause of child death continues to be malnutrition. According to the Lancet, malnutrition kills 3.5 million children worldwide and permanently harms 178 million more ("Maternal and Child Undernutrition," 2008). Urban agriculture might greatly help fight urban hunger and malnutrition by increasing and sustaining access to fresh, nutrient-dense food at prices below market rates, according to a 1996 UNDP proposal. Households who farm appear to have greater food security and generally have better nutritional status than non-farming households of the same socioeconomic standing. Further investigations from South Africa, as well as other studies from Kampala and Bangladesh, have discovered a favorable and significant relationship between small-scale agriculture and better child nutrition. The establishment of a food garden is provisionally proposed to potentially offer nutritional benefits in the form of a boost in micronutrient consumption and potentially advantageous income replacement choices, although with some limits (Jowell, 2011). Food gardens have the potential to reduce household spending on vegetables and, in some situations, create a little income, even if there is debate over their ability to produce a significant income for gardeners. This saving in cash translates to families being able to buy more nutrient-dense meals and enhance their nutrition because of the cost reduction or income produced. When estimating the worth of food gardens, this is a crucial issue to consider. By including veggies in school meals, ECD centers and schools may be able to use a portion of their school feeding budget to buy more food (Jowell, 2011). According to studies, as income rises, rural residents spend more money on fresh and processed produce and meat, which influences their diets. The impact of financial security on nutrition is further demonstrated by the fact that social grants in South Africa seem to have been the main factor in lowering poverty and food insecurity in the most impoverished families (Aliber & Hart, 2009). Lacking an effective nutrition education program, a food garden program cannot have success because changing people’s eating habits is necessary for change to occur. The growing problem of malnutrition in South Africa calls for the need for nutritional education. The growing worry of overweight children is frequently disregarded because the issue of underweight children is such a serious one. 17.1% of kids aged 1 to 9 were overweight or obese, according to the 1999 NFCS. This has a direct connection to bad dietary decisions and a lack of knowledge about healthy diets. This obesity predominance persists into adolescence and adulthood and poses several health hazards. A school garden is a cutting-edge teaching tool and method that blends practical activities into lessons taught in the classroom by offering a dynamic setting in which students can watch, discover, experiment, care for, and learn. A serious health problem is the improper nutritional habits of students, particularly their consumption of fruits and vegetables (Watts, 2018). Healthy eating habits are currently not encouraged in school settings, especially in South African schools with limited resources. Most students carry money to school, which enables them to acquire unhealthy food from tuck shops and vendors, and learners frequently come to school without eating breakfast, or packing lunches that
frequently simply contain bread (Faber et al., 2014). Vegetable gardens at schools have the potential to improve student health, education, and environmental awareness (Laurie et al., 2013). Through the adoption of good eating and lifestyle behaviors, knowledge and skills developed by learners may be able to support household food and nutrition security (Laurie et al., 2013). As a result, school gardens can be utilized as a means of disseminating information on the cultivation of food and nutrition (Laurie et al., 2013). The speed at which poverty and widespread malnutrition can be eradicated depends critically on how well school gardening initiatives are implemented.

In South Africa, the National School Nutrition Programme (NSNP) was established to enhance student performance by delivering nourishing meals produced from vegetable gardens (The Public Services Commission, 2008). By improving the selection of vegetables available in school eateries, growing a range of vegetables in school gardens can help fight childhood malnutrition (Mongwa, 2005). Additionally, students can have practical experience in vegetable growing, which will boost their understanding of, desire to try, and consumption of vegetables at the household level (Laurie et al., 2013). To boost home production for household food and nutrition security, a school food garden program can thus play a crucial role in educating students about gardening concepts and abilities (Laurie et al., 2013).

Inadequate consumption of fruits and vegetables is one of the top ten risk factors for mortality, contributing to 2.7 million deaths worldwide each year (Ruel et al., 2005). Between 2001 and 2020, the number of malnourished children in sub-Saharan Africa is expected to increase by 18%, according to the International Food Policy Research Institute (IFPRI) (Global Nutrition Report 2016, 2016). The World Health Organization (WHO, 2020) states that vitamin A and micronutrient deficiencies continue to be a major issue and a contributing factor in cardiovascular illnesses, cancer, chronic respiratory diseases, and diabetes, which together account for 60% of all fatalities worldwide. According to Ruel et al. (2005), one of the main causes of disease burden and child mortality worldwide is malnutrition, which includes undernutrition, vitamin A, iron, and zinc deficiencies. Like other major health issues, nutritional deficiencies are a problem in South Africa.

RESEARCH METHODS

Research methodology in a desktop or abstract paper is regarded as a research method that is commonly used in academic and scientific research to develop a theoretical framework for a study. This is also a qualitative study because the data that is analyzed in this kind of study is secondary data. The researchers relied on search engines like Google Scholar and other websites to obtain some documents for the sake of analysis. This is a systematic approach that helps researchers organize their thoughts and ideas, identify the variables that are relevant to their study, and establish the relationships between these variables.

RESULTS AND DISCUSSION

The Underlying Causes of Malnutrition in the rural communities

It was estimated that nearly 30% of infants, children, adolescents, adults, and elderly in the developing world are suffering from one or more of the multiple forms of malnutrition (Bain et al., 2013). There are underlying causes of malnutrition and those causes can be grouped under three broad categories: inadequate household food security, inadequate care and inadequate health services, and an unhealthy household.
environment, such as lack of access to safe water and effective sanitation.

**Food insecurity.** A threat to food security does not always mean having an empty stomach or being hungry, it can also refer to being without reliable access to sufficient, affordable, and nutritious food. Therefore, this incorporates three main domains, adequacy of food supplies; stability of supplies, and access to available supplies. The problem of food security continues to worsen especially in the rural communities of developing countries and as a result, the majority of the People are getting sick from malnutrition or starvation. The threats to food security arise from several factors that individually and collectively place food systems under serious stress and pressure and this is the highest in rural communities in the developing world (Bonti-Ankomah, 2001). There is a need to educate the members of the public on sustainable techniques for home and school gardening, crop harvesting, preservation, and processing methods to limit post-harvest losses and retain the vital nutrients in the foods consumed. Home or school gardening is very important because it produces nutritious food and also assists in terms of food security (Masuku-Maseko & Owaga, 2012).

This study confirms findings from previous studies that food insecurity remains a public health threat and it is widespread in developing countries, as millions of people continue to suffer from food scarcity and death due to food insecurity. In their study, *Determinants of Household Food Insecurity and Its Association with Child Malnutrition in Sub-Saharan Africa*, (Drammeh et al., 2019) indicated that malnutrition is the most severe consequence of food insecurity and income is also considered one of the most important determinants of food insecurity. Malnutrition affects both young and old, however, for the learners to live a good and healthy life and have access to nutritious food, there is a need to engage in a school gardening program, this will improve their nutritious status and at the same time, the school gardens may improve learners attitudes toward school itself. The gardening Programme does not only assist in terms of ensuring food security but may help learners to develop observational skills, and simultaneously provide an opportunity for students to integrate interdisciplinary content in the context.

**Insufficient Care.** According to Masuku-Maseko & Owaga (2012) access to essential healthcare services plays a fundamental role in the health of the child and elderly people. However, it is also important to consider the household socio-economic conditions of the families in the rural communities, there are those poor families who could not afford the private healthcare system and they rely on public health care. The prevalence of poverty in rural areas is higher as compared to the cities or urban areas. Moreover, the distribution of better health facilities and skilled health staff is also skewed towards urban areas, then communities in the rural areas are left stranded. Caring practices are the way the vulnerable, such as children, the elderly, and the sick, are fed, nurtured, looked after, taught, and guided. Parents of caregivers have much responsibility to ensure that they care for their children.

This was also confirmed by Otaha (2013) that malnourishment leads to poor health and some caregivers fail to provide for their families due to low income, they cannot afford health care when their family members are sick. However, both formal and informal systems of care may exist through institutional care and family networks. Caring practices are determined by cultural factors and by resources, such as income, time, and knowledge. The values of society strongly influence the priority given to the care of vulnerable people. Attitudes to modern health services, water supplies, and sanitation also affect caring practices. The care of vulnerable groups is
particularly linked with the status, responsibilities, power, and education of women, which may be culturally dependent. The unequal division of labor and resources in favor of men affects the well-being of both women and children.

**Poor health services and an unhealthy household environment**

Poor nutrition is strongly related to poor health because children with poor nutrition are highly vulnerable to diseases due to low body immunity. When children and older people are sick they can easily become malnourished because of loss of appetite and increased nutritional requirements. Moreover, these people will need proper health care and the majority of the members of the communities in rural areas rely on public health for treatment (Masuku-Maseko & Owaga, 2012). Proper health care refers to one being able to access treatment and prevention of diseases. An essential element of good health care is access to affordable, good-quality curative and preventative health services and a healthy household environment. More effective treatment can reduce the duration and the severity of infection and lower the risk of infecting members of the household or other people at large. But access to health services is determined by physical distance and cost, which includes the cost of transport, consultation, and medical treatment costs as well as the cost in time to attend a clinic and leave other tasks not done. In most cases, you find that there are poor quality health services in the public health centers and this delayed treatment until the disease is serious and the outcome of the treatment may be less successful (Masuku-Maseko & Owaga, 2012).

In their study, *A Qualitative Assessment of Facility Readiness and Barriers to the facility-based management of childhood Severe acute malnutrition in the Public healthcare Settings in Bangladesh*, (Fahim et al., 2022) demonstrated that the poor quality of healthcare in health facilities or hospitals in the developing countries impact negatively on the malnourished children and adults. The sick people do not get healthcare treatment on time and this is the reason why there are too many deaths that could have been prevented had the government prioritized the health of the communities. The public sector should have enough budget and cater to all people in their budget, children, adults, the poor, and all those who cannot afford private treatment.

An unhealthy household environment refers to the lack of enough safe water, no effective sanitation systems, and unhygienic conditions. Such an environment will increase the likelihood of the spread of infectious diseases. An unhealthy household environment can lead to an increased incidence (new cases) of disease. The disease then reduces the capacity of adults to work and increases the amount of time they spend caring for sick members of their families.

**The Role of School Gardening Programme In Reducing Malnutrition Among Learners In Public Schools**

Good nutrition is essential for maintaining good health and preventing chronic diseases. A balanced diet that includes a variety of nutrient-dense foods provides the foundation for good health, supporting the body's growth and development, immune function, and energy levels. According to Bojang & Manchana (2023) eating a diet that is rich in fruits, vegetables, whole grains, lean proteins, and healthy fats can help reduce the risk of chronic diseases such as heart disease, diabetes, and cancer. These foods provide essential vitamins, minerals, and antioxidants that support the body's natural defenses against disease. On the other hand, Lovell et al., (2023) stated that a diet that is high in processed and high-fat
foods could lead to chronic health problems such as obesity, high blood pressure, and high cholesterol, which increase the risk of developing chronic diseases. Good nutrition is also important for maintaining a healthy weight, promoting mental health and well-being, and supporting overall physical and cognitive performance. Good nutrition is essential for maintaining good health and should be a priority for everyone (Tzenios, 2019). A healthy and balanced diet, combined with regular exercise and other healthy lifestyle choices, can help ensure a long and healthy life.

**Nutrient balance.** Diet and nutrition are critical in preserving a population's overall and dental health. Nutrition is the process of using food to promote tissue growth, metabolism, and repair. Diet and nutrition have a two-way link with health; nutritional shortage can alter health status and vice versa. According to Zohoori (2019) nutrition is the process of using food for tissue growth, metabolism, and repair, and it includes intake, digestion, absorption, transport, incorporation into cells, and excretion. A balanced diet, which includes all the essential nutrients such as carbohydrates, proteins, fats, vitamins, and minerals, is necessary for maintaining good health. Nutrient balance can reduce the risk of chronic diseases such as heart disease, diabetes, and cancer.

School gardening programs can have a positive impact on nutrient balance by providing students with access to fresh fruits and vegetables that are rich in vitamins, minerals, and other essential nutrients (Gonsalves et al., 2020). By growing their food, learners can learn about the nutritional value of different types of produce and develop an appreciation for healthy eating habits. School gardening programs can help address food insecurity by providing learners and their families with access to fresh, locally-grown produce. Diehl et al., (2019) postulated that this could be especially important in areas where there are limited options for purchasing healthy foods. School gardening programs can play an important role in promoting a balanced and nutritious diet among students and their families. However, it is important to note that the impact of these programs may vary depending on factors such as the specific crops grown, the size and scope of the program, and the level of support and involvement from the school community.

**Encouraging environmental awareness.** A school gardening program can teach learners about the importance of environmental stewardship and sustainable agriculture practices. According to Cutter-Mackenzie-Knowles (2009) School gardening programs help to promote a culture of environmental awareness and conservation in rural communities. A School Gardening Program can be an excellent way to encourage environmental awareness among learners. Ignorance of plants continues to be another biggest challenge in the field of agriculture. Trontin et al., (2011) postulate that Plants play important roles in the environment and learners are encouraged to participate in activities that involve plans. According to Campbell et al., (2013) the School gardening Programme will assist learners in understanding how plants produce oxygen, provide food, and contribute to the beauty of our surroundings. The authors further indicate that it will introduce learners to the basic skills of gardening, such as planting, watering, and weeding. School Gardening Program is a great way to encourage environmental awareness among learners. By teaching them about the importance of plants and gardening skills, highlighting the benefits of gardening, connecting gardening to environmental issues, and involving the community, you can help inspire a new generation of environmentally conscious citizens.

**The significance of adequate diet as a basis for good health.** A balanced diet is crucial for optimal health. Our diet gives
our bodies the nutrients they require to function properly, repair themselves, and grow. A well-balanced and nutritious diet is essential for lowering the risk of chronic diseases such as heart disease, diabetes, and certain types of cancer. A healthy diet should include foods from all dietary groups, such as fruits and vegetables, whole grains, lean proteins, and healthy fats. These meals supply vitamins, minerals, fiber, and other nutrients that our bodies require to function correctly. A diet heavy in saturated and trans fats, salt, and sugar, on the other hand, can raise the risk of chronic diseases.

A nutritious diet, in addition to improving physical health, can also improve mental health. A balanced diet has been demonstrated in studies to aid in boosting mood, reduce stress, and improve cognitive function. A nutritious and well-balanced diet is an essential component of optimal health. Individuals can help prevent chronic diseases, maintain a healthy weight, and improve their general well-being by making wise food choices and adhering to a healthy eating plan.

Boosts Immunity to fight infections. The entire world was affected by the Covid-19 outbreak, which began in Wuhan, China. Chang (2020) explains that the virus infected or impacted persons of all ages, from children to the elderly, no one appeared to be immune to the virus's dangers. However, the virus may be more lethal or harmful for some people, such as those who have underlying conditions that weaken their immune systems. The stronger the immune system, the better the chances of surviving the infection. As a result, we must take steps to strengthen our immune systems. Foods heavy in saturated fat, carbohydrates, and poor cholesterol can cause a variety of issues.

A well-balanced diet that includes a variety of nutrient-rich foods can help strengthen the immune system, making the body more resistant to infections and diseases. Immunity is the ability of organisms to resist the invasion of microorganisms and harmful substances. Our immune system is a system, it cannot be considered as a single entity. The healthy immune system that acts as a warrior for our system needs good and regular nourishment (Lakra & Gahlawat, 2016). Our immune system’s essential functions are to protect the host against infection from pathological microorganisms, to repair the damaged tissues, and to arrest the growth of malignant cells that grow in our body.

Reduces the Risk of Chronic Diseases. The global burden of chronic diseases is rapidly increasing. According to the World Health Organization, chronic diseases accounted for nearly 60% of the 56.5 million total recorded deaths worldwide in 2001, as well as around 46% of the global disease burden. The share of the Non-Communicable Disease burden is anticipated to rise to 57% by 2020 (Bollyky et al., 2017). According to Wang et al., (2007) Cardiovascular illnesses account for about half of all chronic disease deaths; obesity and diabetes are also exhibiting concerning trends, not only because they already affect a considerable proportion of the population, but also because they have begun to manifest earlier in life. For many years, diet has been recognized as an important risk factor for chronic diseases.

According to science, the human body is more sophisticated than a car: whereas an automobile requires only one type of fuel, the body requires a variety of macronutrients (Frayn & Akanji, 2010). A healthy diet has long been linked to better health. Winter Falk et al., (1996) explain that diet and nutrition are significant aspects of promoting and maintaining good health throughout one's life. While most consumer research has focused on food perceptions in terms of enjoyment and health, consumers may also view food as a source of energy, or "food as fuel." Fischler
and Masson (2008) attempted to discover the purposes food is thought to fulfill. Food does, without a doubt, supply energy for the body, and food consumption can be adjusted in response to variable energy needs, whether in cognitive or physical domains (Usda, 2015). A diet high in fruits, vegetables, whole grains, lean proteins, and healthy fats can help reduce the risk of chronic diseases such as heart disease, diabetes, and certain cancers. Eliminating these reasons necessitates political and social action, of which dietary programs can only be one component. Adequate, safe, and diverse food sources not only prevent hunger but also lower the risk of chronic diseases. Good nutrition can also have a positive impact on mental health, helping to improve mood, reduce stress, and enhance cognitive function.

CONCLUSION
In conclusion, school gardening programs have the potential to play a fundamental role in addressing malnutrition in South African rural communities. By providing learners with access to fresh produce, nutrition education, and promoting environmental sustainability, these programs can have a positive impact on the health and well-being of students and their communities. However, there are also challenges to implementing these programs, such as limited resources and infrastructure, which need to be addressed. Despite these challenges, the evidence suggests that school gardening programs can be effective in promoting nutrition and health in South African rural communities.

RECOMMENDATION
Malnutrition is a serious concern in poor communities particularly in developing countries. Most of the time, it is the poor families that experience malnutrition, especially in families where there is still a problem of knowledge and lack of education. Education could help reduce excessively large family sizes that are usually seen in most regions of Sub-Saharan Africa. A poor community with certain cultural beliefs might not realize that giving birth to a smaller number of children might help them match their limited resources and also offer adequate and quality nutrition to the family. Families must learn to understand that the more family members in the household, the more there will be a shortage of food, households should also have gardening at their homes for household consumption. The study recommends that the public schools especially in the rural areas should bring back the school farming Programme. This will help ensure that there are no learners who go hungry throughout the day. It is further recommended that there should be a collaboration between the two sister departments, the Department of Health and the Department of Education in ensuring that they reduce malnutrition in the rural communities through the school farming Programme.

As part of the recommendation, the study recommends that the school together with health practitioners should identify children who are malnourished and be put on the Programme where they will be able to receive the produce from the school garden every week. There is a need for the schools to find volunteers from the community who can come and volunteer and work in the garden and make sure that poor malnourished kids have something to eat and they can sell the other produce to the community members.
REFERENCES


Food and Agriculture Organization. (1997). *Agriculture, food and nutrition for Africa.*


