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EXAMINING THE FUNDAMENTAL ROLE OF SCHOOL GARDENING PROGRAMME AND ITS IMPACT ON MALNUTRITION IN SOUTH AFRICAN RURAL COMMUNITIES

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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 impact to provide support for malnourished and sick people including children and adults and potentially provide nutritional diversity to support complementary feeding. This study aim at examining the role of school gardening Programme and its impact on malnutrition in the 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 school. Therefore, the lack of economic resources and absence of information regarding nutrition and inadequate breastfeeding increases the chances and number of malnourished children in the rural communities. This is a conceptual or abstract paper where by the authors relied merely on secondary data and government document in writing and achieving the set goals and objectives. The study conclude 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.

Keywords: Malnutrition, Gardening, Rural, Communities, Good health

1 INTRODUCTION AND BACKGROUND

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. Govender, Pillay, Siwela, Modi, and Mabhaudhi (2017) define malnutrition as an insufficient amount of nutrients in the body, which can have serious effects on people's health and wellbeing, especially in children. School gardening projects have arisen as a viable way to reduce hunger in these areas in response to this issue.

In order to address childhood malnutrition, South Africa offers a range of initiatives, such as food fortification, supplemental feeding, training for health professionals, and dissemination of knowledge on nutritious meals, food preparation techniques, and vegetable gardening (Klugman, 2002). Many South African children still face the risk of famine and malnutrition in spite of all of these efforts and the South African Constitution, which guarantees everyone the right to adequate food and basic nutrition for children. The primary function of school gardening programs is to provide learners the chance to grow and nurture their own fruits and vegetables in a school garden.

According to Mc Lachlan and Kuzwayo (1997), food security is a problem for low-income households in South Africa, as it is in other developing nations; even though the country is thought to be food self-sufficient, a sizable portion may be deemed resource poor and consequently food insecure. South Africa offers a variety of programs to combat childhood malnutrition, including food fortification, additional feeding, health professional training, and information sharing about wholesome meals, food preparation methods, and vegetable planting. He went on to say that socioeconomic factors are more crucial in terms of food security. This is due to the fact that ensuring family food access is dependent not just on food supply, but also on consistent demand or purchasing power. For many decades, school garden programs have been a popular development intervention. It is now widely acknowledged that school gardens are important for teaching about the environment and wildlife, local food biodiversity and conservation, food and ecoliteracy, diets, nutrition and health, and agricultural education (Gonsalves, Hunter, and Lauridsen 2020).

According to Morgan, Warren, Lubans, Saunders, Quick, and Collins (2010), childhood is a vital age for the establishment of dietary behaviours 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.

2 THEORETICAL FRAMEWORK

A theoretical framework consists of a single formal theory. When a study is designed with a theoretical framework in mind, the theory functions as the primary means of understanding and investigating the research question. Therefore, this section comprises the Micro Economic Theory of the Household and Nutrition Program, which is the theory relevant to this study

Micro Economic theory of the household and nutrition programme

Chernichovsky and Zangwill (1990) states that Microeconomic Theory of household behavior is a theory of choices that directs on how households react to changes in mostly external circumstances in order to improve or safeguard the welfare of their members. Chernichovsky and Zangwill (1990) further adds that the goal of household economics theory is to enhance the utility or welfare of the household by producing and consuming things such as food that is both aesthetically pleasing and satiating, and by viewing the household as a harmonic microcosm or organism that shares resources. Diaz, Warner and Webb (2018) denote that commodities made at home are distinct from products bought on the market. This theory's perspective of the family as a production unit as opposed to merely a consumption unit makes it possible to address behaviour pertaining to the manufacturing and utilisation of non-market products, like health (Chernichovsky and Zangwill, 1990). Additionally, it makes it possible to address agricultural households, which are common in poor countries and frequently merge 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, Warner and Webb, 2018).

Chernichovsky and Zangwill (1990) asserts that any growth or development that results in an increase in home resources ceases at the household level. The family can also choose how to use these new resources, but oftentimes it does so in ways that are not conducive to improving nutrition. Chernichovsky and 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 health care costs. Therefore, according to the microeconomic theory of the 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, Rai, Dorji, Chen, Dukpa, Thinley, Sherpa and Yang, 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 with the aim of improving children's nutritional status (Castro, 2010).

The School Gardening Program's ability to reduce malnutrition depends on a number of 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, Warner, and Webb, 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, Warner, and Webb, 2018).

Studies have revealed that the school garden program may have an effect on 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. The authors selected this theory because it is crucial to consider when assessing the effect of the School Gardening Program on malnutrition because it sees the home as a harmonious microcosm or entity that shares resources and strives to increase its utility or wellbeing by producing and consuming things like food, which has both culinary and artistic value.

3 OBJECTIVES

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

4 CONCEPTUALISATION OF MALNUTRITION

Malnutrition has no recognized definition across the board. According to Stratton, King, Stroud, Jackson, and Elia (2006), it has been used to characterise an excess, imbalance, or deficiency of a variety of nutrients that has a demonstrably detrimental effect on function, body composition, and clinical results. Deficiencies, excesses, or imbalances in an individual's intake of nutrients and/or energy are the hallmarks of malnutrition. Malnutrition encompasses two main types of illnesses. Undernutrition is one that manifests as low height for age, low weight for age, wasting, and deficits or insufficiencies in micronutrients, or as a deficiency in essential vitamins and minerals (WHO, 2020). Food security is defined as everyone having constant access to the food required for a healthy life, as defined by the Food and Agriculture Organization of the United Nations (Food and Agriculture Organization, 1997). This definition rightly recognizes this connection by emphasizing the need to address hunger and poverty at the same time. It is imperative that development programs address food insecurity in order to accomplish this goal. Nutritionists have long recognized the basic importance of nutrition for the continuous development of human beings at every stage of life (Garza, 2002). For decades, the United Nations Children's Fund (UNICEF, 1990) has employed a conceptual framework to analyse malnutrition. This framework includes immediate factors such as insufficient consumption of food, disease, and well as root causes such as inadequate food access, inadequate care for mothers and children, unfavourable environmental conditions, and insufficient access to health care. Furthermore, covered are underlying reasons including poor education, formal and informal institutions, and political and ideological superstructures. All these recent, fundamental, and direct factors are now acknowledged as aspects of poverty. Sadly, this notion has not always resulted in the insertion of an "eradication of malnutrition" constituent in programs to combat poverty (Vorster, 2010).

In the multicultural, multi-ethnic country of South Africa, a sizable segment of the populace is moving from traditional rural ways of living to urban, more westernized progressive lifestyles. Alongside this shift in lifestyle

comes a nutrition transition (Vorster, 2001), characterized by adjustments to food habits, nutritional apertures, physical motion levels, samples of alcohol consumption, and socioeconomic and educational standing. 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 South Africans living in rural and urban areas.

The varieties of food consumed in South Africa may have reduced hunger, but they have not appreciably reduced malnutrition (Jowell, 2011). Malnutrition remains the world's most serious health problem and the main cause of death for children. Malnutrition kills 3.5 million children globally and damages 178 million more in the long run, according to the Lancet (Maternal and Child Undernutrition Series, The Lancet, 2008). According to a 1996 UNDP proposal, urban agriculture might significantly aid in the battle against urban hunger and malnutrition by boosting and maintaining availability to fresh, nutrient-dense food at prices below market rates. Compared to non-farming households in the same socioeconomic category, households that farm seem to have higher nutritional status and greater food security. Further investigations from South Africa, as well as other studies from Kampala and Bangladesh, have discovered a favourable 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 centres 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, 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 of 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 obesity, 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 provides a vibrant setting in which students can monitor learn, investigate, take care of, and gain knowledge. It is a cutting edge teaching tool and approach that integrates real-world experiences into classroom learning.

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. The majority of students bring cash to school, allowing them to purchase junk food from tuck shops and street vendors. Additionally, students usually arrive at school without eating breakfast and pack lunches that usually consist solely of bread (Faber et al., 2013). Schools that implement vegetable gardens may see improvements in student health, learning, and environmental consciousness (Laurie et al., 2017). Through the adoption of good eating and lifestyle behaviours, knowledge and abilities developed by learners may be able to encourage the security of food and nourishment in the home (Laurie, Faber, Malebana, Van de Heever, 2013). As a result, school gardens can be utilized as a means of disseminating information on the cultivation of nutrition. The effectiveness of school gardening programs will determine how quickly poverty and prevalent hunger can be eliminated.

National School Nutrition Programme (NSNP)

In South Africa, the National School Nutrition Programme (NSNP) was established to enhance student performance by delivering nourishing meals produced from vegetable gardens (Public Service Commission, 2008). Grown in school gardens, a variety of vegetables can help combat childhood malnutrition by improving the variety of vegetables offered in school cafeterias (Mongwa, 2005). Additionally, students can have practical experience in vegetable growing, which will boost their understanding of, desire to try, and intake within their homes (Laurie et al., 2007). To increase domestic production for the security of food and nutrition in the home, a school food garden program can be quite important in teaching children about gardening principles and skills. (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, it is anticipated that the percentage of undernourished children in sub-Saharan Africa will rise by 18%, according to the International Food Policy Research Institute (IFPRI) (IFPRI, 2001). Deficiencies in vitamin A and other micronutrients persist to be a significant issue and a contributing factor to chronic respiratory diseases, diabetes, cancer, and cardiovascular ailments, which together account for 60% of all deaths globally in accordance to the World Health Organisation (WHO,2020). According to Ruel et al. (2005), malnutrition triggers disease burden and child death worldwide, which includes undernutrition, vitamin A, iron, and zinc deficiencies. Like other major health issues, dietary inadequacies are a problem in South Africa.

5 RESEARCH METHODOLOGY

A desktop or abstract paper's research methodology is considered a research technique that is frequently employed in academic and scientific research to create a study's theoretical framework. This is also a qualitative study because the data that is analysed on 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 methodical technique aids researchers in structuring their ideas and thoughts, determining the factors pertinent to their investigation, and establishing the connections between these variables.

6 SECONDARY ANALYSIS

The Underlying Causes of Malnutrition in the rural communities

An estimated 30% of developing-nation infants, kids, teens, adults, and senior citizens suffer from one or more of the many types of malnutrition (Bain, Awah, Geraldine, Kindong, Siga, Bernard and Tanjeko, 2013). Malnutrition has underlying causes that fall into three main 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 can also imply not having enough food in your stomach or being hungry; it can also indicate that you do not have consistent access to enough food that is inexpensive and nourishing. Consequently, this encompasses three primary areas: sufficiency of food supplies; consistency of supplies; and availability of supplies. The problem of food security continues to deteriorate especially in the rural communities of the developing countries and as a results, most of the People are getting sick from malnutrition or starvation. The threats to food security arise from quite a number of factors which individually and collectively place food systems under a serious strain, and this is the highest in rural communities in the developing world (Boni-Ankomah, 2001, Nelson, Rosegrant, Palazzo, Gray, Ingersoll, Robertson, Tokgoz, Zhu, Sulser, Ringler, and Msangi, 2010). To reduce post-harvest losses and preserve the essential nutrients in the food consumed, the people must be educated on sustainable practices for home and school gardening, crop harvesting, preservation, and processing. Home or school gardening is very important because it produces nutritious food and also assist in terms of food security (Maseko and Owaga, 2012).

This study confirms findings from the 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, Hamid, and Rohana, 2019, showed that the most serious effect of food insecurity is malnutrition, and that one of the key factors influencing food insecurity is income. Malnutrition affects both young and old, however, for the leaners to live a good and healthy life and have access to nutritious food, there is a need to engage in school gardening program, this will improve their nutritious status and at the same time the school gardens may improve learners' attitudes toward school itself. In addition to helping to ensure food security, the gardening program may aid in the development of observational skills in learners and give them the chance to incorporate multidisciplinary information in a context-appropriate manner.

- **Insufficient Care**

According to Maseko and Owaga (2012) access to essential health-care services played a very fundamental role in the health of the child and elderly people. However, it is also important to consider the household socio-economic circumstances of the families in rural communities, there are those poor families who could not afford the private healthcare system, and they rely on public health care. In comparison to cities or urban areas, poverty is more common in rural communities. Furthermore, residents in rural areas are left behind as a result of the unbalanced distribution of better healthcare facilities and trained medical personnel towards urban areas.

The ways that people feed, care for, and guide the weak, such as children, the elderly, and the ill, are referred to as caring practices. It is the parents' duty to make sure that the caregivers take good care of the kids.

This was also confirmed by Ottawa (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 your family members are sick. However, family networks and institutional care can give rise to both formal and informal systems of care. Cultural factors as well as actual resources like money, time, and experience have an impact on caring behaviours. The care of those who are vulnerable is prioritized based in large part on societal values. Attitudes regarding water supplies, sanitation, and modern healthcare also have an impact on caring practices. The treatment of marginalized populations is closely associated with women's status, authority, education, and responsibilities all of which may vary depending on cultural context. The unequal allocation of labour and resources in favour of men has an impact on women's and children's well-being.

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

There is a strong correlation between poor nutrition and bad health because undernourished youngsters have lowered immunity to illnesses. Due to decreased appetite and higher nutritional needs, children and the elderly are particularly vulnerable to malnutrition when ill. Moreover, these people will need a proper health care and majority of the members of the communities in the rural areas rely on public health for treatment (Maseko and Owaga, 2012). The ability to receive illness prevention and treatment is referred to as proper health care. A healthy home environment and access to reasonably priced, high-quality curative and preventative healthcare services are fundamental components of great health care. More effective treatment can lessen the length and intensity of the infection as well as the chance of spreading to additional family members or the general public. Access to health care is, however, determined by the financial and geographical distance, which takes into account the costs of medical treatment, consultation, and transportation, as well as the time required to travel to a clinic and leave unfinished business. The majority of the time, you will discover that public health centres provide subpar healthcare, which delays treatment until the illness is more severe and may result in fewer favourable treatment outcome (Maseko and 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, Islam, Rasul, Raihan, Ali, Bulbul, and Ahmed (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 is too much deaths that could have been prevented had the government prioritized health of the communities. The public sector should have enough budget and cater for all people in their budget, children, adults, poor, and all those who cannot afford private treatment.

Inadequate access to clean water, ineffective sanitary systems, and unsanitary surroundings are all considered components of an unhealthy home environment. The chance of infectious illness transmission will rise in such an environment. An elevated incidence (new instances) of disease might result from a poor home environment. Adults with diseases are therefore less able to work and must spend more time tending to the health of their family members.

7 THE ROLE OF SCHOOL GARDENING PROGRAMME IN REDUCING MALNUTRITION AMONG LEARNERS IN PUBLIC SCHOOLS

A balanced diet is necessary for both preventing chronic diseases and maintaining optimum health. The cornerstone of excellent health is a well-balanced diet that supports the body's growth and development, immune system, and energy levels through a range of nutrient-dense foods. According to Bojang and Manchana (2023), consuming a diet high in fruits, vegetables, whole grains, lean meats, and healthy fats might help lower the chance of developing chronic illnesses like diabetes, cancer, and heart disease. These foods present essential vitamins, minerals, and antioxidants that support the body's natural defences against disease. On the other hand, Lovell, Krishnaswamy, Lin, Meier, Revord and Thomas (2023) stated that a diet that is high in processed and high-fat foods could lead to chronic health problems such as high blood pressure, high cholesterol, and obesity which increase the risk of developing chronic diseases. Maintaining a healthy weight, fostering mental health and wellness, and enhancing general physical and cognitive function are all aided by good diet (Tzenios, 2019). A long and healthy life can be ensured by eating a balanced, healthful diet, exercising frequently, and making other wise lifestyle decisions.

Nutrient balance

Maintaining the general and oral health of a community depends heavily on diet and nutrition. The process of employing food to support metabolism, tissue growth, and repair is known as nutrition. Health and diet are correlated in two ways: a nutritional deficiency can affect health and vice versa. According to Zohoori (2020),

nutrition comprises the processes of intake, digestion, absorption, transport, incorporation into cells, and excretion. It is the process of using food for tissue growth, metabolism, and repair. To stay healthy, one must eat a balanced diet that contains all the vital components, including proteins, fats, carbs, vitamins, and minerals. A balanced diet helps lower the chance of developing chronic illnesses like diabetes, cancer, and heart disease.

School gardening programs have a positive influence on nutrient balance by providing students with access to fresh fruits and vegetables that are rich in vitamins, minerals, and other essential nutrients (Gonsalves, Hunter and Lauridsen, 2020). By growing their own 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, Oviatt, Chandra, and Kaur (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 programme can teach learners about the importance of environmental stewardship and sustainable agriculture practices. According to Cutter-Mackenzie (2019), School gardening programmes 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 on plants continues to be another biggest challenge in the field of agriculture. Trontin, Tisne, Bach, and Loudet, (2011), postulate that Plants plays the important roles in the environment and learners are encouraged to participate on activities that involve plans. According to Campbell, Skovdal, and Campbell (2013), 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 citizen.

The significance of adequate diet as a basis for good health

A balanced diet is crucial for optimal health. Our diet gives our bodies with the nutrients they necessitate to operate appropriately, repair themselves, and grow. A well-balanced and nutritious diet is essential for lowering the risk of chronic diseases such as diabetes, heart disease, 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 Tran's 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 boost mood, reduce stress, and improve cognitive function. Nutritious and well-balanced diet is an essential component of optimal health. Individuals can assist avert chronic diseases, maintain a healthy weight, and enhance 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 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 system. The stronger the immune system, the better the chances of surviving the infection. As a result, it is critical that we take steps to strengthen our immune systems. Foods heavy in saturated fat, carbohydrates, and poor cholesterol can cause a variety of issues.

An array of nutrient-dense foods in a well-balanced diet can help boost immunity, increasing the body's resistance to illnesses and infections. The ability of an organism to fend off the invasion of pathogens and dangerous chemicals is known as immunity. It is impossible to think of our immune system as a single entity; rather, it is a system. Good and consistent nutrition is necessary for a robust immune system, which defends our system (Lakra and Gahlawat, 2016). The primary roles of our immune system are to heal injured tissues, prevent the spread of cancerous cells within our bodies, and defend the host against infection by pathogenic microbes.

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 Non Communicable Disease burden is anticipated to rise to 57% by 2020 (Bollyky, Templin, Cohen and Dieleman, 2017). According to Wang, Mi, Shan, Wang and Ge (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 (Frayne and Akanji 2011). A healthy diet has long been linked to better health. Falk, Bisogni and Sobal (1996), explains that diet and nutrition are significant aspects in promoting and maintaining good health throughout one's life. While most customer research has focused on food perceptions with regard to enjoyment and health, customers 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. There is no denying that food provides energy for the body, and that food intake may be modified to meet changing energy demands in both the physical and cognitive domains (USDA, 2015). A diet rich in fruits, vegetables, whole grains, lean meats, and healthy fats can help lower the chance of developing long-term conditions including diabetes, heart disease, and some types of cancer. 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.

8 CONCLUSION

In conclusion, school gardening programs have the capacity to enact 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 attestations demonstrate that school gardening programs can be efficient in encouraging nutrition and health in South African rural communities. Further research and investment in these programs could have a significant impact on reducing malnutrition and improving the overall health outcomes of these communities. It is therefore important for policymakers, educators, and community members to work together to overcome the challenges and promote the implementation of school gardening programs as a valuable tool in promoting nutrition and health in South African rural communities.

9 RECOMMENDATION

Malnutrition is a serious concern in the poor communities particularly in developing countries. In most of the times, it is the poor families that experience Malnutrition, especially in families where there is still a problem of knowledge and lack of education. The majority of Sub-Saharan Africa often has very large family sizes, which education could help reduce. It may not occur to a poor society with particular cultural ideas that having fewer children could help them match their limited resources and provide the family with appropriate and high-quality nutrition. It is important that families learn to understand that the more family members in the household, the more there will be 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 in ensuring that there are no learners who goes hungry throughout the day. It is further recommended that there should be a collaboration between the two-sister department, Department of Health and Department of Education in ensuring that they reduce Malnutrition in the rural communities through the school farming Programme.

As part of recommendation, the study recommend 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.

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