Chapter

Poverty, Compromised Dietary Intake and Health Implications among South Africa's Sub-Populations: A Conceptual Analysis

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Abstract

Hunger and malnutrition-related problems have been identified as proxies for extreme poverty. Poverty and hunger currently affect >400 million people in Sub-Saharan Africa, the poorest region in the world. South Africa, being the most unequal society in Africa, is no exception to the crisis of food poverty and health implications among sub-population groups. Research shows that individuals or households that experience food insecurity have staple diets that are energy-dense, thereby compromising their health lifestyle. This qualitative study reviewed the evidence of the potential impact of poverty on compromised-dietary intake and healthy lifestyle using 53 publications among them scientific studies, policy documents, government documents and electronic sources. Contextual analysis was used to arrive at discussions, conclusions and recommendations. Major findings reveal that the historically disadvantaged including undocumented immigrants are highly vulnerable to compromised dietary intake and non-communicable diseases due to persistent inequality in the country. As the global extreme poverty is expected to rise in 2020/2021 due to COVID-19 pandemic which is negatively affecting the global health and economic system, vulnerable groups with little to no social protection such as financial social grants from the state in middle income countries like South Africa, will be more affected. The findings conclude by providing valuable information for state actors and non-state actors to protect the most vulnerable to acute food insecurity and chronic poverty.

Keywords: compromised dietary-intake, public health concern, non-communicable diseases, undernutrition, vulnerable groups

1. Introduction and background

Poverty and hunger related issues have been paramount concern of humanity. Poverty has been identified as a complex problem affecting nearly 700 million people across the globe, of whom 422 million or > 70% live in the world's poorest region—Sub-Saharan Africa [1]. Current estimates by the World Bank are that between 2020 and 2021, the pandemic nature of the severe acute respiratory

syndrome coronavirus 2 (SARS-CoV-2), fondly known as COVID-19 disease which is ravaging the global health and economic system would result in increased extreme poverty by 100 million people with Sub-Saharan Africa accounting for 40 million individuals [1]. Extreme poverty refers to the socio-economic condition of people living below the international poverty line of $1.90 a day. This population will experience abject poverty in addition to being vulnerable to acute food insecurity, and compromised health lifestyle. It is worth noting that the global concern for food security as a necessity for quality health, dates back to early years of twentieth century post-World Wars (World War I and World War II in 1930s and 1940s, respectively) during which most societies afflicted with non-communicable diseases resulted from several factors including famine which led to their compromised health lifestyle. It was not until 1935, that the first survey report on global nutrition and public health by the League of Nation's Health Division, documented the extent of malnutrition and hunger in the world. The report revealed a critical food shortage in low and middle-income countries [2]. The League of Nations' survey report is fundamental to the present discourse on dietary intake and health implications because it resulted in the Organization's fundamental discussions on action-oriented developmental policies including the need for coordinated nutrition-related policies in several countries [2].

Contemporary episodes of famine and global food insecurity dates back to early 1970s during the world food crisis when food production and consumptions significantly dropped. This prompted the General Assembly of the United Nations to convene the member states to take specific actions to determine the global food challenge using the comprehensive approach of development agenda and international economic operation [3]. The conference, attended by 135 member states from developed and developing countries (including countries in Sub-Saharan Africa) was concluded through the adoption of the following declaration; "Universal Declaration on Eradication of Hunger and Malnutrition" [3]. The participating states were invited within the context of the United Nations Economic and Social Council Resolution [3]. Thenceforth, the issue of food and nutrition security has been prominent on the global development agenda. In other words, the process of eradicating chronic hunger and poverty and the implication on wellbeing has been a priority since the last quarter of the twentieth century.

However, contemporary research on the history of global food security revealed that for much of the twentieth century, food security was broadly viewed through the lenses of accelerating food production as remedy to famine and international food insecurity. Within this context, the equal relation between health and agriculture would enhance the international economies [2]. Such a perspective, also promoted the need for meeting human basic needs through fundamental policy objectives using commercial agriculture as means to economic development [2]. Consequently, between 1950s to 1970, the world recorded an increase in food production (particularly staple food and/or cereal); concurrently, production per capita improved by 50% and 20%, respectively [2]. Research on the history of food security [2] also reveals that, the period between late 1960s to early 197os saw an annual food aid distribution by high income countries such as the United States to middle income and low-income countries, dropping from an estimated 17 million tons to only 7 million tons. By 1972, several regions of the world among them Sub-Sahara Africa witnessed bad climate conditions such as drought that resulted in famine or general food insecurity. As a consequence, the global food production in staple food such as cereal, sharply fell by 30 million tons [2].

While such substantial measures in post-World Wars were undertaken by the international communities, and three decades after the 1970s' Universal Declaration on Eradication of Hunger and Malnutrition, the chronic poverty and

undernutrition continued to engulf developing regions such as Sub-Sahara Africa, the Middle East and South Asia. Accordingly, the World Development Report [4] revealed that while Sub-Sahara Africa constituted only 11.1% of the global population, the region had 16.1% of the worlds' chronically impoverished. By 1992, more than 780 million people in developing countries were undernourished [5].

Reassuringly, at the dawn of the new millennium (21 century), the past decades of the aforementioned poverty related conditions prompted the United Nations General Assembly to devise eight fundamental goals, of which— eradicating extreme poverty and hunger was set as a priority goal. The Millennium Development Goals (MDGs) were international development goals that resulted from the UN Millennium Summit in 2000 after the adoption of the United Nations Millennium Declaration. These ambitious goals would be achieved by 2015 [6]. However, in 2015, the global report on the state of food insecurity in the world revealed that some 795 million people were undernourished and/or food insecure largely due to poverty [7] of which, >400 million were from Sub-Sahara Africa. This is despite the region's significant progress in reducing extreme poverty from >50% in 1990 to about 41% in 2013 [8]. Thus, the MDGs were preceded by the 17 Sustainable Development Goals that would be implemented from 2016 to 2030 [6]. The Sustainable Development Goals were devised by the United Nations' General Assembly. Expectantly, the process of eradicating extreme poverty and hunger have been reprioritized on the SDGs agenda.

The aim of this study is to determine the nexus between poverty and compromised dietary intake, and the implication on health in selected sub-population groups in a developing country, within the socio-economic context of South Africa. The choice of South Africa as a focal point is suitable because of the nation's complex history that traverse 150 years of colonialism and about 50 years (1948–1994) of the oppressive apartheid regime whose white minority rule and its radical racialized policies significantly disadvantaged the country's majority (>90%) mostly people of black ancestry who were left in abject poverty [9]. The scars of the historically unjust policies remain visible as evidenced by the black majority or the historically disadvantaged population [10] being the most vulnerable to socio-economic issues such as poverty, food insecurity and poor health— making the country one of the most unequal societies in the world. Historically disadvantaged simply means South African citizens that live in poverty due to the unjust systematic racism of the apartheid policy or Act 110 of 1983 Constitution of the Republic of South Africa that disenfranchised them.

2. Clarification of concepts

2.1 Food security and insecurity

As a concept, food security was coined in 1970s following the global economic crisis and the subsequent United Nations Conference that aimed to combat the global food insecurity. Although there is no universally accepted definition of food security, one internationally recognized definition is authored by the World Food Programme of the United Nations which posits that "food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" [11]. Within this context, a household or, an individual's ability to obtain sufficient and nutritious food to stay healthy is crucial. The definition of food security was also documented as the principle achievement of the 1996 World Food Summit [2] because it operationalized food security

as a condition that exists at different levels of society including international, national, community, and household or individual level.

Therefore, food security includes factors such as availability, accessibility, utilization and stability. Within the context, availability refers to the quantity of food commodities that result from mass food production that is sufficient enough to feed the entire human population; food accessibility happens when all people have access to sufficient food or an individual's economic power to access or acquire sufficient food for consumption. This implies that high food prices can negatively affect food access. Furthermore, food, utilization refers to an individual's means to acquire safe-nutritious food that meets their basic nutritional needs. Under this notion, nutritious food and food safety includes one's food preference, its conservation and preparations, and "nutrient absorptions in the human body" [2]. Food utilization also refers to the process by which a human body detects the nutrients or calories stemming from macronutrients and micronutrients, feeding practices, and food preparations. This concept is critical to the current discourse as it unveils the importance of dietary intake as one of the key factors to a healthy lifestyle. It could be reasoned that, individuals with compromised-dietary intake are likely to meet the challenge of being unhealthy.

Among conditions that are associated with compromised-dietary intake are cardiovascular diseases such as heart failure, stroke, heart attack, cardiac arrest, obesity, and other non-communicable diseases such as malnutrition and iron deficiency anemia. An individual's nutritional status is determined by biological absorption of the food consumed [12, 13]. In this regard, the basic nutritional knowledge and good dietary habits, clean and safe water, sanitation, and health care should be considered when ensuring food security. Likewise, the food utilization aspect authenticates that nutrition is directly associated with food security and as such, there is food insecurity when the human population is not adequately nourished.

Food stability is another fundamental element when analyzing the notion of food security [12, 14]. From this perspective, an individual is food secure provided that there is stability in the other three elements of food security (availability, accessibility and utilization of the food) over time. Within this context, food security can neither be limited to a particular moment such as, a month or a year but that it should be sustainable. In other words, where there is lack of food stability, transitory or chronic food insecurity occurs. Thenceforth, if a household has adequate and nutritious food intake today, they are regarded food insecure whenever they lack a sustainable food supply because, their health or nutritional status risk being compromised by inadequate food consumption. In cases where there is credit crisis that influence food prices, food security at all levels (international, national community or household) may be difficult to achieve. For instance, the sharp rise in global food crisis in post 2000, resulted in accelerating food prices, anxiety and food riots in some parts of the world [15]. Furthermore, unfavorable weather conditions such as floods and famine, economic factors, or political instability may impact negatively on household or individual food security status.

3. Contextualizing poverty as a proxy for food insecurity and compromised health

Poverty is a multifaceted phenomenon that derives from the word poor— or the inability to meet basic human necessities [16]. Being a such phenomenon, poverty has various dimensions of human deprivation in terms of food consumption, health, education, dignity, security, decent employment, and voice [17].

As a concept, poverty includes the state of being vulnerable to adverse shocks. This implies that people who are poor, are burdened with having little to lack of resources such as goods, finances or means for their livelihood. In economic terms, poverty means that the income level from employment is so low that one's basic needs such as food security is highly compromised. Literature shows that poverty is increasingly recognized as a prime determinant of food insecurity. From this perspective, food poverty is the extent to which individuals live without basic resources such as money to acquire a stable supply of adequate food, and the ability to make appropriate decisions to live and maintain a lifestyle [18, 19]. Research on association between poverty related conditions such as food insecurity and mental health revealed that, individuals who are food secure are less likely to experience anxiety disorder than their food insecure counterparts [20]. Anxiety about the availability of food can affect one's social and/or mental well-being, by creating feelings of depression and irritability [21].

As a concept, food insecurity is the state of being without reliable access to sufficient safe and nutritious food for consumption to enhance normal growth and to live an active and healthy life [22]. The phenomenon is one of the leading cause of chronic hunger in Sub-Saharan Africa. As highlighted in the foregoing, food insecurity may be caused an absence of any of the four fundamental element (availability; access; utilization; and stability) of food security which are—characterized by food inadequacy: to lack of resources to acquire food; utilization; improper use or consumption of food in the body; and unstable supply and consumption of nutritious food, respectively. As a complex process, food insecurity may occur in the form of, chronic or persistent food insecurity that manifests when a household or an individual is unable to meet basic food consumption requirements over a sustained period [16]. A report by the World Food Programme [23] shows that individuals who experience chronic food insecurity are unable to meet basic food necessities due to lack of sufficient economic power to acquire income, land or productive assets, or they experience high dependency ratios, acute sickness or social barriers. Such households or individuals are constantly at risk of being unable to afford or acquire adequate nutrition food over a sustained period [12, 13]. It is reasoned that chronic food insecurity could be sustainably overcome with deliberate measures used to address abject poverty and enhanced development such as education, employment, or access to productive or financial resources in the form of credits or loans. Furthermore, households affected by chronic food insecurity need more direct access to adequate food supply to enable them raise their productive capacity [22]. The importance of analyzing the notion of food security and insecurity is that it helps in fostering improved food security responses both at macro and micro levels in addition to influencing emergency interventions such as food aid programmes and projects, and action-oriented food security policies.

4. Malnutrition versus overnutrition: dietary intake

Malnutrition is a public health concern that is occasioned by deficiencies, excess or imbalances in macro and/or micronutrients in humans [22]. These deficiencies could result from chronic food insecurity, hunger, and poverty [13]. Other non-food factors that influence malnutrition are inadequate care practices, lack of health services, unhealthy environment, and ignorance. This implies that malnourished people in resource-poor communities, are at high risk of suffering from deficiencies of micronutrients caused by poverty and hunger. Hunger simply means food deprivation. Within this context, hunger and malnutrition are not only a threat to public health but are also among the leading cause of death in the middle and low

income countries where the population is largely impoverished. On the other hand, nutrition refers to the quality and the quantity of food consumed for a healthy living. A healthy diet consists of four basic nutrients which are, proteins, carbohydrates, minerals and vitamins (meat, dairy, starch vegetable, and fruits). Other essential nutrients recommended for quality health lifestyle include fiber and lipids. Consequently, nutritional complications not only emerge from compromised-dietary intake but have adverse effects on human health resulting in death. On the other hand, when good eating habits are practiced, nutrition is one of the fundamental factors that enables people to stay healthy. Children especially those below the age of 10 have high nutritional requirements for their growth. However, in developing countries where poverty and food insecurity are high, undernutrition and lack of adequate dietary diversity is a major contributor to child mortality [24]. Research on *Maternal and child malnutrition in low-income and middle-income countries* [25] shows that in 2011, undernutrition contributed to 45% of child mortality in the low income and middle income countries.

It is also worth noting that dietary intake refers to the daily absorption or consumption of nutrients such as protein, carbohydrate, fats and vitamins and other food components such as fiber as recommended daily allowances for a healthy living. This also implies taking sufficient amount of calories (units of energy) from the food that is consumed. Hence, good dietary intake will mean that an individual should take at least a minimum required calories per day. Dietary measurements area also keys to assessing food, and nutrient intake of households or individuals. For example, the recent global report by the World Health Organization [26] echoed that healthy diet practices means calories intake should resonate with the energy expenditure. Conversely, to avoid unhealthy weight gain, total lipid should not exceed 30% of total energy intake; while consumption of saturated fat should not be more than 10% of total energy intake. Further, free sugars intake should be less than 10% of the total energy consumption [26]. Meanwhile, public health problems such as cardiovascular diseases have been on the rise. Most recent estimates by the World Health Organization [26] also shows that cardiovascular diseases mostly originate from compromised dietary intake and lack of physical activities and that, they are a primary cause of death globally. The WHO echoed that cardiovascular diseases claim about 31% or 17.9 million lives annually, and that the diseases are characterized by high levels of blood pressure, glucose, and lipids. Other symptoms include obesity and overweight and these result in some cancers, type-2 diabetes, stroke, heart attack, and cardiac arrest [26]. The problem of obesity and overweight is also on the rise in middle-income countries such as South Africa.

To enhance nutritional health, in 2003 South Africa launched its Food-Based Dietary (FBNGs), which it revised in 2013 using a multi sectorial approach comprising the National Department of Health- Directorate of Nutrition, the medical research council, Nutritional Society of South Africa, food producer organizations, academics and the United Nations organizations such as the FAO, as the national working group. The 2003 South African FBNGs had the following items (mostly local and affordable foods) to be consumed regularly by individuals who are ≥7 years as necessity for health eating which lowers the risk of noncommunicable diseases [27]:

- Enjoy a variety of foods.
- Be active.
- Make starchy foods the basis of most meals.
- Eat dry beans, peas, lentils and soy regularly.

- Chicken, fish, meat or eggs can be eaten daily.
- Drink lots of clean, safe water.
- Eat plenty of vegetables and fruit every day.
- Eat fats sparingly.
- Use salt sparingly.
- If you drink alcohol, drink sensibly.

Use foods and drinks containing sugar sparingly, and not between meals.

The limitation in the first (2003) guide was that while it recommended the consumption of food groups it neither specified the items (such as highly processed foods, energy dense food, fat and salt) whose consumption should be limited nor provided the absolute values for the recommended daily allowance or calories. The implication is that the supposed evidence based guideline to comprehensive dietary patterns and healthy lifestyles overlooked the issue of overnutrition, an emerging public health concern in high income and middle income countries including South Africa [27].

Overnutrition is the overconsumption of any food or nutrients regardless of the food group (source) such that one's health is compromised. Overnutrition can result in obesity and overweight which in turn increases the risk of metabolic syndrome, noncommunicable diseases and/or cardiovascular diseases. Additionally, studies [27–31] conducted in South Africa and around the world have shown that overnutrition is among the leading cause of metabolic syndrome in children and adolescents (conditions such as increased blood pressure, high blood sugar, excess body fat around the waist, and abnormal cholesterol or triglyceride levels) and that it increases among others, the risk of heart disease and type-2 diabetes.

The 2012-reviewed revised general FBDGs for South Africans had the following items [27]:

- Enjoy a variety of foods.
- Be active!
- Make starchy foods part of most meals.
- Eat plenty of vegetables and fruit every day.
- Eat dry beans, split peas, lentils and soya regularly.
- Have milk, maas (sour milk) or yoghurt every day.
- Fish, chicken, lean meat or eggs can be eaten daily.
- Drink lots of clean, safe water.
- Use fats sparingly. Choose vegetable oils, rather than hard fats.
- Use sugar and foods and drinks high in sugar sparingly.
- Use salt and food high in salt sparingly.

5. South African inequalities, poverty and compromised dietary-intake: implications on public health

Africa is the most unequal society in the world of which South Africa is the leading unequal country, mainly due to the nation's historical injustices that were driven by colonial and the apartheid regimes. In fact, poverty and food insecurity related problems are not new in South Africa. The nation's socio-economic inequalities can be traced back to the arrival of the Europeans in the present day Western Cape province and the subsequent apartheid governance whose racialized policies disadvantaged and left the majority (black population) in chronic poverty. This increased their vulnerability to hunger and malnutrition related conditions evidenced by the 1994 demographic records which revealed that at the end of the apartheid government, about 41% of children from South Africa's impoverished households were chronically hungry and undernourished [32]. Of note is that, that during the apartheid regime, South Africa was food secure in terms of food availability. This was due to increased food production by commercial farming—a white dominated industry. However, cheap labour was sourced from the black population whose wage could not sustain their basic human needs including household food security.

Consequently, the issue of food insecurity and poverty was worsened by unjust and racialized policies that deprived the majority socially and economically [33]. More evidence of the existing inequalities such as high poverty levels among the black population is reported in several studies that were conducted during the first decade of post-apartheid South Africa. Likewise, a study [34] recounts that in 1995, in terms of annual income quantile by race, South Africans of African ancestry constituted the poorest households in terms of annual income such that an estimated 26% of them had incomes between R0. 00 and R6 839.00 per annum. This was followed by the mixed race ancestry households who constituted 12%, and only 2% of both Indian, and white households.

Additionally, in 1994, South Africa conducted its first national survey on child malnutrition whose findings revealed that one out of four children aged between 6 months and six years were malnourished. Of these 10% were underweight [35]. Having a low Body Mass Index or being underweight compromises one's immunity system, and leads in poor health. Despite that these results only linked poverty to child malnutrition, they are significant to this research as they underscore the potential correlation between lack of dietary diversity and malnutrition, and poverty or the inability to afford a good diet for a healthy living.

Similarly, research by, Woolard [9] concluded that the Africa National Congress (ANC) government inherited extremely unequal economic opportunities which saw the black population accounting for 95% of the impoverished South Africa. The prioritization of the household food security as a basic human necessity by the ANC government is evident in section 27 of the Constitution, which stipulates that "Everyone has the right to have access to (a) health care services; (b) sufficient food and water; (c) social security' [36] and that; government should "take reasonable legislative and other similar measures within the context of its available resources to achieve the progressive realization of services such as sufficient food and water, and health care" [36]. Further recognition of the right to food is enshrined in the socio-economic policies such as the Reconstruction Development Programme (RDP) and the Broad Based Black Economic Empowerment (B-BBEE) programmes which seek to eradicate the nation's high levels of poverty and deprivation that have been compounded by relatively high level of disparities between the white population and the historically disadvantaged population. The former was favored during apartheid. The RDP is a government programme whose priority is to rectify the inequalities

fabricated by the apartheid government to the majority of South Africans [37, 38]. As observed by Hendriks [39] the RDP identified household food security as a basic human necessity and food insecurity as a legacy of the oppressive apartheid laws which favored the minority white race.

Despite that the apartheid government collapsed in 1994, and that the new government ushered into new policies such as the RDP of 1994 and the B-BBEE of 2003, poverty levels are still high in the country and majority of those affected are the black population and the youth. These vast populations are not only impoverished but have also been found to be food insecure [40]. Evidence of the existing poverty and poor nutrition is the government social protection policies that have been implemented through social grant financial packages and the national nutritional programmes [such as the National School Nutrition Programmes (NSNP)] which are meant to easy household poverty and vulnerability to hunger.

The NSNP is a fundamental government initiative that directly addresses macro and micro nutritional needs among the historically disadvantaged children in South Africa. The program is part of the National Policy on Food and Nutrition Security that enhances a broad framework for the reorientation of household food security interventions such as the nutrition programs in the country [41]. One of the aim is to address nutritional needs among the most vulnerable groups such as the school age. Adequate nutrition is essential for keeping humans healthy across their lifespan. Thus, a healthy diet helps children grow and develop properly. It also reduces their risk of chronic diseases, including obesity. Adults who eat a healthy diet live longer and have a lower risk of obesity, heart disease, type 2 diabetes, and certain cancers. Healthy eating habits can help individuals with chronic diseases to manage these conditions and prevent complications.

Another strategy in which South African government addresses poverty and household food insecurity, and vulnerability is through social grants. Social grants are a government initiative that target household food insecurity in South Africa. In particular, the grants target sub-population groups such as the impoverished, including other vulnerable groups such as people with disabilities, children and older persons above the age of 60 years. The social financial grants are distributed in form of old age pension funds, foster care grants, disability grants, care dependency grants and child support grants [32]. In 2016, 30% of the vulnerable groups were beneficiaries of social grants that translated into 44% of all households in South Africa [32]. In the same year, the Child Support Grant benefited 11, 9 million children whereby each of them was paid R350.00 per month, making it the highest form of paid social grant. On the other hand, the Older Persons Grant benefitted from an estimated R3.2 million elderly people whereby those who were aged between 60 and 74 years received R1 505.00 each per month; while R1 525.00 was granted to each beneficiary aged >75-year-old [32, 42]. A disability grant beneficiary received R1 505.00 per month, a foster Care grant received R890.00 per month; while the Care Dependency Grant beneficiary received R1 505.00 per month.

These grants are shown to have improved household food access and other basic household needs among the beneficiaries. In 2012 the Statistics South Africa [39] reported that social grants contributed to 42% of household income in impoverished families and were their major source of income. Despite such a remarkable mile stone in public spending on improving the welfare of vulnerable people, the challenge is that not all the targeted beneficiaries have access to the grants arguably due to bureaucracy in selecting those who qualify to be beneficiaries among the millions who are impoverished in the country. As a result, about 20% [43, 44] of the economically disadvantaged South Africans lack financial support from the state and are thus malnourished and live in abject poverty.

Some empirical studies [45] have reported about caregivers of child support grants citing forgery of more birth certificates including having multiple children so that they could secure more grants as safety nets. Similarly, there are also reports of increased teenage pregnancy in households particularly in rural areas as strategy to secure more child grant support. In turn, this increases poverty and unemployment among such households because the young mothers are likely to drop out of school and stay unemployed; in cases where they fail to secure their child support grants, such families find it difficult to cope with the cost of maintaining large households. Alcohol abuse is another identified risk factor for poverty and compromised healthy lifestyle in South Africa. Some studies revealed that some grant caregivers do not utilize the money for the intended purposes but divert a portion of it on alcohol consumption [46].

Furthermore, it is reasoned that poverty levels in South Africa are also escalated by undocumented immigrants in the country. For instance, given that the grants are exclusive to documented persons or citizens (vulnerable groups) of South Africa, this leaves the resource-poor undocumented or illegal immigrants in the country to fend for themselves. Of note is that, South Africa has the highest number (>4 million) of immigrants legal and undocumented (mostly from low income countries), in Africa [47] most of whom are highly vulnerable to poverty and hunger.

In 2010–2011, South Africa drafted a National Development Plan-2030 (NDP-2030) as a broad strategic framework for a more prosperous and equitable South Africa, where poverty and its related conditions such as individual food insecurity and non-communicable diseases will be adequately addressed by enhancing social-economic opportunities such as health care, education, social security and safety nets [48]. The implementation and success of the plan would depend on every South African taking responsibility for the NDP, led by the head of state and the Cabinet. However, several years after the implementation of the program whereby, less than a decade is remaining to reach the year 2030, the problem of social-economic inequalities persistent common in South Africa. Likewise, a report on South African household poverty as proxy for household food insecurity revealed that in 2015, some 13,8 million individuals were vulnerable to hunger because they lived below the national food poverty line of R441.00 per person per month [49]. This was an increase from 11 million people in 2011. The most affected were the historically disadvantaged, single-parent households, and the rural households.

Consequently, most recent research shows that poverty, vulnerability to hunger, and compromised health lifestyle are still common in South Africa. Accordingly, the 2019 Statistics South Africa report showed that, 11.3% or 6.5 million people by head count experienced hunger while vulnerability to hunger by households was 9.7%. In terms of food access inadequacy, 15.7% of the households that lived in metropolitan areas had experienced inadequate or severely inadequate access to food during the preceding year [50]. At the same time, severe inadequate food access affected 5.2% of the households. Moderate food access inadequate stood at 15.0%. In the same study, it was reported that inadequate food access was influenced by rising economic challenges or poverty in the country. More so, rural poverty areas remained much poorer, despite that the urban–rural economic gap has narrowed.

Another research [51] revealed that in South Africa, chronic malnutrition coexisted in increasing cases of obesity and overweight whereby compromised diet often caused high levels of malnutrition. As such, high food prices, high poverty levels and socio-economic inequalities meant that many households were unable to consume a diverse diet. In the same study, socio-economic status was measured using income and relative asset index. The study concluded that a consistence of pro-rich Socio Economic Status (SES) influenced dietary intake among high income households. Of note is that, although, consumption of starch and energy dense food (high

sugar) was common in both categories of the surveyed, low income households had a low intake of fruit, vegetable, and meat than their high SES counterparts whose households also consumed food rich in vitamins, minerals and protein. The findings also concluded that inequality in both dietary diversity and the frequency of consuming all food categories favored high income households whose dietary intake resonated with both the South African national and the WHO. On the same subject, a different research [27] shows that an intake of fruits and vegetables reduces the risk of non-communicable diseases such as diabetes, obesity, cancer and cardiovascular mortality and all cause of mortality among resource-poor communities.

6. Conclusions and recommendations

This chapter concludes that in a developing country like South Africa, poverty is one of the influencers of compromised-dietary intake and vulnerability not only to cardiovascular diseases such as stroke, heart attack and heart failure, but also to other non-communicable diseases, malnutrition and undernutrition, and type 2 diabetes. This is evident in the majority of the historically disadvantaged group in South Africa.

A comprehensive public health approach is needed to curb the inequality and ignorance which are the main source of compromised dietary intake among vulnerable groups. The problem associated with malnutrition related diseases cannot be left in the hands of government alone. It requires multi sectorial approach from civil society actors, researchers and the public itself; the approach that requires public awareness.

As the world continues to nurse its latest public health disaster—COVID-19 pandemic which infected >62 million people and claimed >1.5 million lives in 2020 [52, 53], individuals with pre-existing unhealthy conditions such as malnutrition, cardiovascular disease, and diabetes are highly vulnerable to succumbing to the virus. Deliberate policies that promote household food security are critical in fostering dietary diversity, and health lifestyle such as physical exercises.

Furthermore, global extreme poverty is expected to rise in 2020/2021 for the first time in over two decades. This is due to the disruption of the COVID-19 pandemic that has worsened the pressures of conflict and climate change, which were already slowing poverty reduction progress in Sub-Saharan Africa. As a result of the COVID 19 pandemic, Sub-Sahara Africa's fragile economy, will negatively affect the vulnerable groups who are dependent on government handouts for their livelihood as is the case in South Africa.

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