

## Why empowering Pupils with Food and Nutrition Skills, Knowledge and Values in Zambian Schools.

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### **Abstract**

*The purpose of the study was to establish the significant skills for effective teaching of food and nutrition in selected secondary schools in Kitwe District, Copperbelt Province, Zambia. The study was motivated by the persistence of infectious diseases and the mushrooming of non-communicable diseases due to lack of knowledge and skills in Food and Nutrition among the public in general. This is so because most Zambians take health living for granted hence they are more curative than prevention. The study thus called for solutions to promoting and nurturing of the practical teaching and learning of Food and Nutrition in Zambian schools (Begum, 2008).*

*Data for the study was collected from ten (10) secondary schools in Kitwe District including the District Education Board Secretary (DEBS) and Mukuba University. The total sample size was fifty – five (55). Questionnaire data were analyzed using Microsoft excel and STATA that were interpreted into tables, frequencies and graphs whilst qualitative data were analyzed using emerging themes and sub-themes.*

*The findings revealed that Health living is an easy thing taken for granted whether you live where health and nutrition is in abundance or not. The life of human is a process of growth and development, on one hand he absorbs all kinds of nutrients from food and on the other hand he is exposed to potential attacks by various pathogens. Only through balanced nutrition intake can all systems of the human body function in harmony and the immunity be enhancing to keep diseases at bay (Richard, 2009; WHO, 2011).*

*Being merely free of any diseases based on balanced nutrition is not the only step towards optimal health. Longevity is built upon health metabolism helped by normal activities of cells, tissues and systems of human body. Smooth circulation ensures health growth and development of human body throughout life process which lay the foundation for longevity.*

*To realize this, the first step is to make the pupils understand Food and Nutrition as a preventive care are indispensable part of their daily life. As the saying goes prevention is better than cure, prevention is cheaper*

*while curative is very expensive. Therefore, pupils should know that modern health and nutrition Education can help them in their daily life and can also help them find work after school. With the newly coming method of teaching Food and Nutrition using hands on; pupils must be looking forward to preserving their health and to prevent diseases. Pupils should know that a balanced diet and good life style keeps non-communicable disease at bay.*

*Therefore, healthy nutrition interventions need to occur early in childhood and adolescence in order to prevent or reverse the adverse health effects of overweight and poor eating habits. Childhood and adolescence is a critical period for diets of high nutritional quality as the physiological need for nutrients is relative to energy needs. In addition, many core eating habits and behaviour patterns are developed that may persist throughout adulthood.*

*Hence, Schools provide an important opportunity for prevention, because they provide the most effective methods of teaching and reaching large numbers of people which includes children, youth, school staff, families and community members. Teaching is an activity that requires professional knowledge as well as pedagogical skills. The teacher, therefore, requires knowledge in terms of critical awareness of a range of pedagogies. The teaching process involves specific actions; hence, a teacher must have a repertoire of methods, strategies, approaches and techniques applicable to different teaching – learning situations. Hence, healthy food and improved nutrition should be a high priority on every school agenda because of the positive effect on the child well-being, and subsequent enhanced learning ability and academic performance.*

*Through effective teaching of Food and Nutrition as a compulsory subject from an early stage in the revised curriculum of “hands on” pupils can greatly improve their life qualities and live at full potential. Pupils who learn Food and Nutrition will realize that people, who live healthy, live at their full potential physically and mentally, and they will extend their love to people around them, to the community and to the whole Nation (Caballero, 2001). Therefore empowering all pupils with Food and nutrition skills, knowledge, values and attitudes will improve health qualities of the nation. This is in line with the philosophy of Reconstructionism which states that the school must play active role in changing or reconstructing society and pupils must be active participants in making positive changes in the existing social situation. (Andeyike, 2000).*

*Thus the study made the following recommendations (1). The government through the Ministry of General Education should buy the necessary equipment, materials, and ingredients needed for practical lesson in schools. (2) The government through the Ministry of General Education should make Food and Nutrition a standalone subject and make it a compulsory subject from primary level to tertiary level. (3) The government should start training teachers in Food and Nutrition as a standalone course in Colleges and Universities (4) the government should also start conducting surveys on the practical methods of Food and Nutrition. (5) the school management should create health promoting schools by having health promoting activities like nutrition clubs, school gardens, gym for physical activities, tuck shops that sells nutritious foods only and food exhibitions.*

**Key words:** *Healthy promoting schools, Empowering, knowledge, skills, values and attitudes*

## **Introduction: Background of the study**

Optimal health at each stage of the life cycle is a fundamental human right with diseases being viewed as a denial of that right. To attain good health and nutritional status, people also need sufficient knowledge and skills to grow (World Food Programme, 2014), purchase, process, prepare, eat and feed their families a variety of foods, in right quantities and combinations. This requires basic knowledge of what constitutes a nutritious diet and how people can best meet their nutritional needs from available resources. Undesirable food habits and nutritional related practices, which are often based on insufficient knowledge, traditions and taboos or poor understanding of the relationship between diet and health, can adversely affect nutritional status.

Globally, unhealthy diets and insignificant physical activities contribute to about 12million Non-Communicable Diseases and deaths annually. Diets in many sub-Sahara African countries lack diversity, meaning that meals often include a limited range of foods with high salt levels. Urbanisation and increasing access to commercially prepared food are leading to diets that have become low in nutrients, fruits, vegetables, proteins, and grains; are high in processed foods that contain excessive amounts of sodium, sugar and saturated fats. This shift in dietary patterns is particularly pronounced among people with low incomes.

While levels of physical activity have been relatively high in Africa, as an aspect of work or transportation, urbanisation and globalisation is driving people to become more sedentary. This shift also means that some areas lack safe places for children to play outside and exercise. Together the changes in diet and lack of exercise are leading to a rise in the share of Africans who are overweight, obese, and an increase in the prevalence of lifestyle induced Non-Communicable diseases such as type 2 diabetes, cancer and stroke. Consequently, most African countries are facing a double burden of unconquered infectious diseases and the rising incidence of Non-Communicable diseases. (WHO and CDC 2011; WHO and CDC, 2014).

Non- Communicable diseases exact a huge toll on health, economy and human potential. Chronicle illness can lead to tremendous social and economic burdens due to absenteeism, job loss, and costly medical expense, as well as increased care giving responsibilities or even the death of a bread winner. In addition, the risk in Non-Communicable diseases have created a multiple burden of disease for already overstretched health systems particularly in Africa were issues such as HIV and AIDS, infectious diseases and poor maternal and child health remain a major problem.

Sadly, according to United States of America, currently government funding specifically for addressing Non-Communicable Diseases in low income and middle-income countries is not designated by congress nor is such funding easily identifiable at the agency level. Where Non-Communicable Diseases funding is identifiable it remains relatively small without significant efforts to address the key risk factors and underlying social determinants driving, Non-Communicable Diseases the economic and social toll of huge numbers of people affected by Non-Communicable Diseases in developing countries will continue to grow.

Surely, how can societies with poorly-developed economical begin to cope with such a burden? Fortunately, prevention is a great deal simpler and cheaper than cure, and knowing the cause of the problem enables people to learn how to prevent and often even reverse them, and this is the real solution to the dilemma. Additionally, many public health experts stress the importance of early intervention in efforts to reduce Non Communicable Diseases as they generally develop overtime and are more difficult and costly to address later (WHO, 2010).

Therefore, people can adopt healthier diets and improve their nutritional well-being by changing their attitudes, gaining knowledge and practices, if sufficient nutrition is provided to do so. Note that according to FAO, (2012) the goal of nutrition education is to reinforce specific nutrition related practices or behaviours to change those habits that contribute to poor health; this is done by creating a motivation for change among people, to establish a desirable Food and Nutrition behaviour for promotion and protection of good health. People should be taught new information about nutrition so that they develop the attitudes; skills and confidence that they need to improve their nutrition practices.

In addition, one of the principal aims of nutrition education is to provide pupils in rural and urban areas with adequate information, skills and motivation to procure and consume appropriate diets. Such education should cover improvement of family food supplies and more efficient utilization of available food and economic resources to provide nutritious diet and better care for most vulnerable groups. For those richer sectors of society where these diseases of affluence are taking an increase toll, nutrition education should be directed to proper food selection, consumption and lifestyle. The present study therefore attempted to find out from administrators, teachers of Food and Nutrition and pupils taking the subject if methods used in teaching are effective and practical. And if the content taught in Food and Nutrition is able to help pupils and the society to preserve health and prevent diseases by developing positive attitudes towards food, gaining new and practical skills and having self confidence that they need to improve their nutrition practices (WHO, 2010).

## **Statement of the problem**

Despite appreciable worldwide improvements in life expectancy, adult literacy and nutrition status, we view with deepest concern the unacceptable fact that millions of people in both developed and developing countries still suffer from food related diseases. (Robert, 2014). More than 2 000 million people, mostly women and children, are deficient in one or more micronutrients: babies continue to be born mentally retarded as a result of iodine deficiency; children go blind and die of vitamin A deficiency; and enormous numbers of women and children are adversely affected by iron deficiency. Hundreds of millions of people also suffer from communicable and non-communicable diseases due to insufficient knowledge, traditions, taboos and poor understanding of the relationship between diet and health (WHO/CDC, 2014). This has caused concern particularly in view of the point that Food and Nutrition is the only subject that meet and deals directly with human life at family level so if effectively taught in schools most infectious and non-infectious diseases could be prevented and premature death could be reduced. Thus, Food and Nutrition studies in school does not only offer a promising career but can preserve life. This study therefore found out how this subject is being taught more especially that the curriculum demands hands on methods (learning by doing).

## **Significance of the study**

This study was significant firstly because the findings provided valuable information which would be a basis for further research for the improvement of Food and Nutrition teaching in Zambia. Secondly, the findings of this research were important as they brought awareness of important teaching experiences in Food and Nutrition which would be of interest to teachers, teacher educators and to curriculum planners. It is in the interest of every educational system to ensure that teachers are competent in the subjects they teach. Perceptions' concerning distinctive qualities as characteristics of a competent Food and Nutrition teacher is important in stimulating and guiding improvements in the teaching of the subject. Therefore, identification of competencies that Food and Nutrition teachers perceived to be critical for teaching the subject is an important step towards improved learning in Food and Nutrition.

Some teachers' perceptions may not necessarily be related to effective teaching and learning. Such data, however, shall bring awareness of how Food and Nutrition teachers interpret the existing syllabus and how they interpret what is fundamental for teaching the subject. The findings helped to expand the understanding of the nature of teaching in Food and Nutrition in Zambia. Such information is useful for preparation of curriculum reviews, in-service training courses and for the planning of pre-service teacher training courses. The information can also provide a basis for making changes in school programs. Focusing on perceptions of practicing teachers as a means of identifying critical competencies provided an opportunity to re-conceptualize the role of the Food and Nutrition teacher with regard to teaching responsibilities, professional development, and roles in curriculum and staff development. Focusing on teacher perceptions also helped revealing important elements inherent in the teaching of Food and Nutrition which would otherwise be impossible to identify if observed from an outsider's point of view. It is of prime importance that the teachers' perceptions on such issues be reflected through interpretative research.

## **Study site**

The study was conducted in selected secondary schools of Copperbelt province. Ten schools were selected and a case study research design was used. These sites in Copperbelt Province were chosen because they had been teaching Food and Nutrition as a subject.

## **Literature Review**

People are at their best when they are healthy, when they feel good, they are able to enjoy life to its fullest. However, staying healthy can be a challenge because the body can be affected by different kinds of diseases at any stage of the life cycle. Some diseases are caused by conditions outside the person's body while other diseases arise from conditions inside their body. People can help their body prevent and control both kinds of diseases by first finding out what causes them. When people learn more about diseases and about how their body responds to them, they can choose behaviours that will increase their chances of staying healthy. However, knowledge alone would not keep them

from getting diseases but their responsibility to use knowledge and skills to form health habits and make informed decisions will help them maintain wellness of their life. With the right knowledge, skills and thoughtful preparation, they would find the challenge of being healthy both exciting and enjoyable. (Begum, 2008)

In developing countries most illness and deaths are due to infections, poor or non-existent sanitation and public health services have allowed infections to spread. Poverty and inadequate food has allowed people's resistance, and limited medical understanding means that there are few effective treatments. All these facts have resulted in a high incidence of infectious diseases and premature death. As if that is not enough the Western diet and life style are becoming more and more popular with everyone who can afford them. Sedentary work and cars are in demand, Western style high-fat fast food outlets are multiplying, the use of tobacco and alcohol is increasing, and with all these changes, so is the incidence of degenerative disease. Thus the poorest countries in Africa Zambia inclusive now have the double burden of unconquered infectious diseases and rising incidence of degenerative illness (WHO, 2010).

On the other hand in the rich countries of the industrialized world, the diseases of civilization prevail and are responsible for most deaths and for much disability and chronic ill health, cancer and diseases of the heart circulation account for around 75% of all deaths in the developed countries. These diseases are now known to result largely from the civilized lifestyle, overabundant diet with its high proportion of refined fat, sugar and animal products, the lack of exercise, and the high levels of stress in general

Foods make our body, therefore, the weight and the composition of the body entirely depends on the food we eat. Each and every food that people eat has a basic function in the body. In order to supply all nutrients in correct proportion one has to consume a mixed diet which can meet the needs of energy, proteins, fats, minerals, vitamins and water in growth and repair of the body. The primary aim of consuming food is nourishment. Food is essential for human existence just like the air we breathe or the water we drink. Unfortunately, many people do not fully understand about food choices and planning a balanced diet (Begum, 2008). As a result this has led to the two contradicting nutrition related diseases, those associated with inadequate intake of nutrients and unhealthy dietary such as growth retardation among young children and micronutrient deficiencies; and those associated with changes in life style such as cardiovascular disease, cancer, osteoporosis, diabetes mellitus and obesity.

Factors contributing to nutritional problems vary from country to country, depending on socio economic status and also depending on which part of the world the country is situated. For example, the United States is experiencing an epidemic of obesity among adults and children more than 67% of America adults are either obese or overweight. The rate of adult obesity has grown from 15% in 1980 to 34% in 2001 (Ogden, 2008). Overweight and obesity rates in young children are equally alarming. More than 23 million children and adolescents in the United States are obese or overweight. (Ogden c, carol m and Flegal k, 2008)

While in Europe overweight and obesity have increased drastically among children and adolescents and are considered major public health concerns. World Health Organisation (2004) describes obesity as a global epidemic due to its high increasing prevalence. At present it is estimated that 14 million school children in Europe are overweight, 3 million of who are obese.

Obesity has very long term negative consequences on the health of children and adolescents (Musonda, 2015). The most important long term consequence of childhood obesity is its persistence into adulthood. It is estimated that 50-80% of obese teenagers will remain obese adulthood (Guo et al; Lissau et al 2004). Obesity and overweight in young people have been shown to be significantly associated with long term morbidity and mortality, especially in the development of chronically illness like cardiovascular, cancer and diabetes type 2.

Dental caries are highly prevalent in school children of European countries. The most dietary cause is sugar, particularly sucrose which is found in confectionary, soft drinks, biscuits, cake, fruits juices, honey and added sugar. The frequency of consumption as well as the total amount of the sugars consumed is important in the aetiology of caries. (Ludwig, 2001). Furthermore, the rates of dental erosion, related to extrinsic and intrinsic acids, appear to be rising. This is due to an increased consumption of acidic soft drinks (Moynihan and Petersen, 2004). Oral health is closely linked to diet and nutrition as poor dietary practices increase the risk of oral diseases.

Over the past few decades eating habits and home environments have changed due to the increase in families with two working parents and time limitation. This has led to convenience revolution with pre packed processed products forming the basis of the majority of meals prepared in the home, and the tendency to eat out has also risen (St-onge, Keller and Heymsfield, 2002). For example, in Finland, one third of the population consume one meal per day outside of the home, this leaves children with no opportunity to learn and develop basic food skills at home. Hence eating out maybe the only option for feeding themselves with which they are familiar, encouraging the consumption of large portion of meals and snacks with unknown calorific and nutrient content (James, 2002). For example, in Israel, the Netherlands, Malta, Scotland and Slovenia, more than 40% of school aged children consume soft drinks daily and almost one third of pupils eat sweets and chocolates more than once a day with the highest percentage in Ireland, Malta and Scotland (WHO, 2004).

Additionally, the conflicts for political situation in some Arab countries have great negative impact on the nutritional status of people, especially women and children. This is particularly true in Sudan (WHO/CDC, 2014), Palestine, Iraq and Somalia. According to the report of the personal Humanitarian Envoy of the United Nations secretary general, serious and mounting humanitarian crisis is occurring in the west bank and Gaza. There are the rising levels of malnutrition among children, high levels of poverty, unemployment, deteriorating health conditions and an increase exhausting of the coping mechanism (WHO/CDC, 2014; WHO/CDC, 2011). The Human- run Palestine Health Ministry reported that 70% of Gaza's 1.5 million residents suffer from anaemia, including 44% of pregnant women, 10% under five children suffer from malnutrition.

Apart from dodging bombs and bullets in their schools and neighbourhoods, children in Iraq are suffering from worryingly high levels of malnutrition. Many Iraqi children suffer from hidden

hunger (deficiencies in essential vitamins and minerals) making children more vulnerable to illness and less likely to thrive in school. The rate of exclusive breast feeding has decreased drastically among Iraqi mothers and infant formula is under spread which has the risk of illness especially diarrhoea which also contributes to under nutrition. The problem has become complicated with the absence of safe water and basic sanitation (WHO, 2009)

In sub-Sahara Africa, despite the national nutritional food policy being formulated and food dietary guidelines produced there is still a prevalence of non-communicable diseases and unconquered infectious diseases. According to WHO (2010) this is due to the fact that these diseases share from the risk factors such as tobacco use, harmful use of alcohol, physical inactivity and unhealthy diet. Hence all modifiable behaviours typically established during adolescents or young adulthood, are ones that set the stage for Non- Communicable Diseases later in life.

For example, in Kenya according to the Ministry of Public Health and Sanitation and National Nutrition Action Plan 2012-2017, malnutrition in Kenya remains a big public health problem. Kenya has high stunting rate (35%) and is currently experiencing a rise in diet related non-communicable diseases such as diabetes, cancers, kidney and liver complications that are attributed to the consumption of foods low in fibre and high in fats and sugars. This double burden on malnutrition is serious and without deliberate and concerted efforts, will lead to increased loss of productivity and lives.

In 2012 an estimate of 3.3million deaths worldwide were attributed to alcohol. Drinking also increases the risk of road traffic accidents, unprotected sex, gender based violence, poor mental health, ulcers and malnutrition. In Africa alcohol marketing is often strongly targeted toward adolescents and young adults, with messaging that portrays alcohol symbols of heroism, courage and virility. Non-commercial alcohol such as homebrews easily accessible to young people is also common in Africa where about one-third of the alcohol consumed is unrecorded (Grant and Dawson 1998; WHO, 2000).

Smoking is yet another socially accepted poison. Africans start smoking at an early age for example in Zambia boys and girls of ages 13-15 in secondary schools are currently tobacco users, while in south Africa 24% of boys and 19% girls age 13-15 use tobacco.

Social factors also influence dietary intake especially during adolescence. Eating habits, food choice and meal patterns of young people reflect the weakening influence of the family and increasing peer pressure. Changes in eating habits can be associated with the need to express freedom from parental control and the forging of identity. Many adolescents and children feel pressured into having an ideal body shape. The desire to be thin and the stigma of obesity may have a significant effect on body language and self- esteem in young people (WHO, 2004a).

However, Africa has made great strides in reducing the burden of Non- Communicable Diseases but with less success, for example, since 1992, Ministry of Health in Zambia has been implanting the health reform programmes through which it is intended to take health care as close to the family as possible. Although nutrition has been included as part of the minimum package of basic health

services to be delivered as close to the family as possible, the objectives, strategies and activities that have been identified are narrow and unlikely to tackle the broader nutritional issues within health setting. There seem to be a lack of understanding of what should constitute nutritional activities in the health sector.

Another sector is the Ministry of Agriculture and co-operative (MACO) which is directly responsible for Food and Nutrition improvement. It covers the production of food and to some extent its utilization, storage and preservation. Activities to incorporate nutrition components have been implemented mainly through the department of women and youth and the farming systems research. The incorporation of nutrition into mainstream agricultural sector objectives is still far from being achieved. The critical problem has been the lack of systematic institutional collaboration and cooperation between Ministry of Agriculture and Co-operative and National Food and Nutrition Commission.

While some Food and Nutrition programs and intervention focus on policy change like mandatory food fortification, and others on important services such as growth monitoring and promotion, vitamin A and mineral supplements for women and children, these and many others have varying requirements related to generation of demand by the population. Important aspects of many nutrition improvements also come from changes in knowledge and behaviours on the part of the public. Ultimately, many nutrition interventions seek to have consumers eat a diverse diet of foods that provides them with the nutrition needed for a healthy growth and development as children and be health productive adults (Zambia Government, 1996).

Programs to achieve this general object often requires planned and systematic use of communication models that aim toward informing and persuading to adopt attitudes and practices that result in health eating and healthy feedings of themselves and their families. Communication strategies in support of nutrition programmes may also be multi-stage targeting those who are known to have influence and respect of others as a way of reinforcing carrying or direct message. For instance, Food and Nutrition teachers in schools can really influence the life of pupils of different ages, parents and other staffs through their subject, clubs, and fairs.

Communication activities products may also target those who produce market and process foods with an objective of increasing the accessibility and availability of a diverse set of foods so that consumers find themselves able to act on their knowledge and decisions to provide healthy meals for their families.

According to World Health Organization (WHO, 1996) evidence of main years has supported that well-managed nutrition education programs can at relatively low cost bring about behaviour changes that contribute to improved nutritional well-being. For instance, studies in the United States have documented that carefully designed and implemented comprehensive health education curriculum can resist certain adverse health behaviours, inclusively dieting pattern that cause diseases. Students in behaviourally based health and nutrition education programmers have shown significant favourable changes in blood cholesterol, blood pressure and body. Thus, a focus on behaviour is considered a key deterrent in the success of nutrition education programs.

World Health Organisation (1996) further stipulates that cost-effect interventions in schools can prevent or greatly reduce health problems and consequences of malnutrition and foster the positive effects of nutrition. Compared with various public health approaches, school health programme that provide safe and low-cost health service intervention such as screening and health education show by research to be one of the low cost-effective investments a nation can make to improve health, for example a nutrition education programme in Indonesia which was based in behavioural change showed considerably greater impact at notably lower cost than the types of interventions to which it was compared.

Although it has been said and believed that nutrition education and nutrition intervention programs require intersectional collaborations among different professionals such as agriculture, health, education and communication (WHO, 2010) practical evidences have all pointed out that the ministry of education, through schools presents the idea setting for teaching basic skills in food nutrition and health.

This is so because schools reach children at an age when food and nutrition habits are being formed; they also reach families, school community and can be a channel for wide community participation. The school through subjects like home economics and food and nutrition will help young people to curb the rising Non-Communicable Diseases epidemic as well as coping with infectious diseases in Africa by targeting the modifiable risk behaviours thus tobacco use, harmful use of alcohol, unhealthy diet and inactivity. Such subjects provide knowledge and skills that can help pupils make good choices and develop eating habits that will help keep them healthy throughout their lives.

Through activities such as school gardens, school meals, school clubs like health and nutrition club, anti-drugs and drama, children, adolescents and their families can improve their health and nutritional well-being and develop good life style and good eating habits. Hence promoting nutrition through schools can create benefits that extend beyond the classroom and play ground to improve the health nutritional well-being of households and communities (WHO, 2010; Contento, 2011).

Contento, 2011, further stipulates that the approach to health nutrition education, in which classroom learning is linked with practical activities, reinforced by nutrition and health friendly school environment and involves the participation of all school personnel, families and community is effective. Education activities that complement each other, including classroom lessons, hands on opportunities for pupils to experience and practise and be actively involved in learning about food, diets and health are integral parts of effective school based nutrition education. This comprehensive approach helps create positive attitudes and skills and helps pave the way for carrying health habits beyond school and into adulthood.

### **3. Methodology**

The study undertook triangulation methodology approach where both qualitative and quantitative methods were used to collect data.

#### **3.1 Research design**

The study used a case study employed qualitative and quantitative methodologies in order for the study to establish significant skills for effective teaching of Food and Nutrition in selected secondary schools. The case study was used because it was manageable both in terms of time and cost. Moreover, it was easier to use multiple data collection techniques; questionnaires, interviews and classroom observations. A case study research design helped in obtaining in-depth information on the significant skills for effective teaching of Food and Nutrition in selected secondary schools of Kitwe district.

## 3.2 Population

The study comprised of pupils, Food and Nutrition teachers, administrators, the DEBS, the DESO and one Mukuba University lecturer all from Copperbelt Province.

## 3.3 Sample size

The sample size comprised fifty-five (55) respondents who included seven (7) secondary school head teachers, three (3) deputy head teachers, ten (10) secondary school Food and Nutrition teachers, ten (10) H.O.Ds, one (1) guidance teacher, twenty-one (21) pupils all drawn from secondary schools offering Food and Nutrition, one (1) DEBS and one (1) DESO, one (1) lecturer from the Home Economics department of Mukuba University.

Table 2: Demographic Characteristics of Participants

| Category                    | Male | Female | Total | Percentage% |
|-----------------------------|------|--------|-------|-------------|
| Pupils                      | 10   | 11     | 21    | 38%         |
| Food and Nutrition teachers | 0    | 20     | 20    | 36%         |
| Administrators              | 6    | 8      | 14    | 26%         |
| Total                       | 26   | 39     | 55    | 100%        |

## 3.4 Sampling Procedure

The simple random technique was used to select head teachers, teachers and pupils. The quota sampling technique was further used to select pupils in order to accord both the male and female pupils equal opportunities to participate in the study. Furthermore, the purposive sampling technique was used to select the DEBS, the DESO, and the lecturer because they are holders of valuable data that was required for the study.

## 3.5 Instruments for data collection

The study used questionnaires, interview schedules, class observations and corporative review of curriculum documents. The questionnaires were used to collect data from pupils and teachers who were the majority. Further, questionnaires were used because the sample composed of secondary school teachers and pupils who were literate. Furthermore, questionnaires were used as they were friendly, save time and suitable when dealing with quantitative data. However, the inadequacies of using questionnaires were supplemented by employing interview schedules. The interview unlike the questionnaires helped in collecting in-depth and comprehensive data from teachers and administrators.

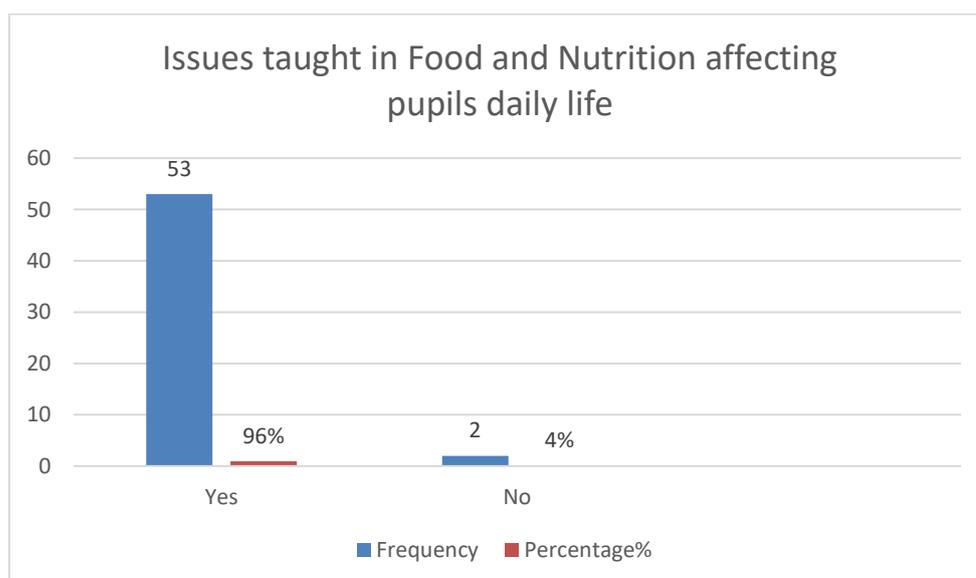
## 3.6 Data analysis

The statistical package (STATA) was used to analyze the quantitative data that was later interpreted into tables and graphs. The qualitative data was analyzed thematically under their respective emerging themes and sub themes. Further, ethical issues were also taken into consideration by obtaining participants consent and permission from relevant school head teachers. In addition, the respondents' identities were kept anonymous as a way of enhancing confidentiality and privacy.

## 4. Findings and Discussions

In establishing critical knowledge, practices and skills for effective teaching of Food and Nutrition in Zambian selected Secondary Schools pupil respondents, food and nutrition teachers and school administrators were asked if issues taught in food and nutrition affect pupil's daily life. The responses are shown in Figure 1 below:

Figure: 1



Source: Field data, 2016

Figure: 1 shows that 53(96%) agreed that issues taught in food nutrition affect people's daily life while 2(4%) said that issues taught in food and nutrition do not affect people's daily life.

Of the 20 practicing teachers in selected schools of Kitwe district 17(85%) had this to say on how the teaching of Food and Nutrition affect pupil's daily life and their behaviour.

*“Teaching of Food and Nutrition impart in pupils’ knowledge, skills and values*

*that will help them to live healthy and productive lives, issues of safety*

*In the kitchen are considered, they gain awareness on how food can affect their life*

*positively like having optimal health status and negatively such as being malnourished or being obese, hence learning how to plan and cook well promote healthy eating at family level”.*

Out of the 20 pupil respondents 10(48%) agreed that the learning of Food and Nutrition has influenced their daily life as well as their behaviour and they said,

*“Learning of Food and Nutrition influences our daily lives and behaviour by imparting*

*us with knowledge and skills concerning nutrition such as good food eating habits, how to select and purchase healthy foods, how to prepare healthy meals and food preservation”.*

It was revealed in the findings that what is taught in food and nutrition are issues that affect people's daily life. These are food related diseases like malnutrition, obesity, anaemia, diabetes mellitus and cancer which are more common today than they were in the past. They are not communicable diseases because they are not caused by microbes instead, such diseases come from inside a person's body hence cannot be passed from one person to another. (Laurson et al, 2014). People's eating habits and life style can make them suffer from non-communicable diseases such as eating lots of foods that are high in animal fats, getting too little exercise, smoking, beer drinking and lack of sleep

Over time, such habits may affect one or more parts of the body and when this happen other parts of the body can no longer do their jobs properly and the whole body gets affected by the damaged organ. Many non-communicable diseases are called chronic diseases because they last for a long time, they may start when a person is young, may begin slowly and a person may show no symptoms of diseases for years. For instance, one disease of the circulatory system begins when cholesterol or other fatty matter collects in the arteries and coats the walls. The fatty matter makes the arteries narrow and the condition is called atherosclerosis. In this condition blood cannot flow through the arteries as easily as it should hence the heart must pump harder to keep the blood moving (Alwan et al, 2010)

Sometimes the arteries may become completely blocked and blood cannot flow through them at all as a result some tissues cannot receive the nutrients and the oxygen they need and the cells in those tissues start to die. This may result into heart attack.

Under nutrition in pregnant women is also one of the causes of adverse pregnancy outcomes such as miscarriage, still birth and low birth weight. Children born with low birth weight are more

susceptible to recurrent infectious whose severity is also closely linked with child nutrition status. There is growing evidence that maternal body size is strongly associated with the size of the new born child. Undernourished children tend to become shorter adults, and thus are more likely to have small children. Some studies have even shown that for every 100g increase maternal birth weight, her child's birth weight will increase by 10-20g (in developed countries) and by 29g (low-income countries). In low-income countries, the same studies also show that birth length can rise by as much as 0.2cm for every 1cm increase in a mother's birth length. In addition, maternal height is associated with birth of their grandchildren, confirming the long-term repercussions of maternal nutrition. Emerging evidence points to the fact that children who are undernourished in the first two years of life and who put on weight rapidly later in childhood and in adolescent are at high risk of diet related non-communicable diseases such as diabetes, hypertension, arthritis, gout, certain types of cancers, and heart diseases among others (Musonda, 2015: WHO, 2009).

Good nutrition is imperative for optimal mental and physical development, learning and school performance. Under nutrition affects cognitive development by causing direct structural damage to the brain and by impairing infant motor development and exploratory behaviour. Similarly, iron deficiency anaemia delays mental development in infants and is correlated with poorer performance on cognitive tests in older children. Children have considerably reduced learning abilities, school performance and retention rates are low, and hearing and speech are impaired with such children not being trainable. Vitamin A deficiency (VAD) on the other hand lowers immunity, thus increasing the incidence and severity of illness which increase absenteeism and reduce concentration in school. In severe cases, night blindness and partial or total loss of sight may result from this deficiency.

Therefore, improving and expanding education opportunities for girls is one of the best health and social investment since improving girls' health will in turn improve the health of their children and families because women generally have a measure of responsibility to care for others with the household like food preservation and obtaining health care. (WHO, 1996)

Educated girls and women seek appropriate parental care, give birth to healthier babies and bring them home to healthier environments. Research evidence makes it clear that the single most important factor in determining a child's health and nutrition status is the mother's level of education. Malnourished mothers tend to have low birth weight babies (Horwitz, 1993) thus perpetuating the problem of malnutrition and ill health from one generation to the next (UN/ACC/SCA, 1996). For example, the child's attitude for formal education may be in jeopardy even poor to school involvement if the mother suffered from maternal iodine deficient during pregnancy. Thus, educating young girls and mothers it will be one of the best ways of ensuring the nutritional future of the next generation.

Heavy, repeated use of alcohol harms the body systems such as the nerve cells in the brain, causes ulcers, and it can also damage the liver and cause cirrhosis of the liver. Although, alcohol has many calories it has no proteins, vitamins or minerals and it stops the body from using certain vitamins from food therefore, lack of nutrients leads to a health problem called malnutrition.

As stated earlier tobacco is poisonous for example nicotine a drug found in tobacco speeds up heart rate as well as the working of nervous and endocrine systems, raises blood pressure by making blood vessels narrower. Tobacco also affects the digestive system by preventing the body from getting vitamin B and C from food which makes the body to be less resistance to infections. It is also harmful to unborn babies, the carbon monoxide in tobacco prevents the unborn baby from receiving enough oxygen and in most case babies are born with low birth weight. Smoking also causes lung damage, cancer, heart disease and smokeless tobacco damages the tissues in the mouth as well as the lips and teeth. While inhalants such as paint thinner or glue causes dizziness headaches and forgetfulness and can quickly damage the lungs, heart, brain and liver (Robert, 2014).

Truly speaking the causes of these diseases are not entirely due to factors beyond our control but due to violation of the laws of health. Most of these health problems are preventable or at least can be postponed (Richard, 2009). What people need is knowledge, skills and values to cope and deal with non- communicable diseases and that is exactly what Food and Nutrition education offers.

Therefore, interventions that tackle the social and economic precursors of Non-Communicable Disease risks, encourage positive health behaviours, and discourage negative ones in young people can significantly shift the projected trajectory of Non-Communicable Diseases in Africa. Hence, positive behaviours established during childhood or adolescent, such as healthy eating and regular exercise, are more likely to be carried through to adulthood. In contrast, the earlier people begin using harmful substance such as alcohol, the greater the risk of abuse and dependence later in life. Typically, when unhealthy behaviours persist into adulthood, they become difficult to change.

According to critical reviews examinations, nutrition education can make a significant contribution to improve dietary practices. Well designed and effectively implemented nutrition education can motivate those participating to change dietary behaviours and provide them with the knowledge and skills to make healthy food choices in the context of their lifestyles and economic resources.

Effective nutrition education and promotion includes multiple components such as skill building to facilities positive behaviour change, environmental and policy changes to make the healthy choice the easy choice and integrated initiatives and social marketing to build community and social support. This will help consumers to select and to consume healthy and enjoyable foods by improving awareness, skills and nutrition to make action at home, school and at work, (Contento, 2011; Whitney, 2013)

The study also revealed that knowledge, skills and values gained in food and nutrition will not only help pupils to find white collar jobs such as medical personnel, teachers, dieticians and nutritionists. The subject offers survival skills to those who may not find white collar jobs and also to those who drop from school. They can make ends meet through income generating activities like making a garden and sale the vegetables and at the same time that family will benefit from fresh vegetables which is a source of vitamin C and A. Others can open bakery shops selling bread, rolls, cakes and pies, again the family will benefit. Others still may engage into functions decorations like wedding decorations. And most important of all the grandaunts of food and nutrition will be able to manage their family well by planning and preparing meals suitable for every stage of their life.

Pupils will also acquire healthy life skills specific to nutrition. Life skills are abilities for adaptive and positive behaviour that enable individuals to deal effectively with the demands of everyday life. Life skills are psycho-social and interpersonal competences that enable informed decisions, problem solving, critical and creative thinking, effective communication, healthy relationships, empathy, general healthy and productivity. Pupils will acquire the following healthy life skills: communication skills to persuade parents and friends to make healthy food choices; refusal skills to resist social pressures to adopt unhealthy eating practices; advocacy skills to present messages of healthy nutrition to others and gain support of influential adults; decision making skills to choose nutritious foods and snacks; and critical thinking skills to recognize aggressive marketing and evaluate nutritional claims in advertising and news stories (WHO, 2003).

Healthy nutrition during childhood and adolescence lays a foundation for healthy adulthood. Therefore, the multiple benefits of healthy Food and Nutrition in childhood reinforce the need for these issues to be a high priority on school agendas.

## 6. 0 Conclusion and Recommendations

Based on the findings of this study which sought to establish the significant skills for effective teaching of Food and Nutrition, it has emerged that practicing good health habits can help people to avoid many kinds of diseases. Learning about many health habits can help pupils acquire special knowledge and up-to-date health information that can help them meet the challenges of being healthy. To be healthy, one must also satisfy mental, emotional, and social needs. Hence being healthy does not just happen; one must choose to live in a healthful way by taking responsibility for his / her well-being and develop habits that will keep him healthy. This responsibility will require them to make important difficult decisions such as eating and maintaining a balanced diet, keeping away from all harmful substances, having enough sleep, having regular and vigorous exercise and being able to resist social pressures and to adopt healthy eating practices. Remember that keeping the laws of health is the route to better health while ignoring them sooner or later leads to trouble.

Based on the findings the following recommendations emerged from the study;

- (1). The government through the Ministry of General Education should buy the necessary equipment, materials, and ingredients needed for practical lesson in schools.
- (2) The government through the Ministry of General Education should make Food and Nutrition a standalone subject and make it a compulsory subject from primary level to tertiary level.
- (3) The government should start training teachers in Food and Nutrition as a standalone course in Colleges and Universities
- (4) The government should also start conducting surveys on the practical methods of Food and Nutrition.
- (5) The school management should create health promoting schools by having health promoting activities like nutrition clubs, school gardens, gym for physical activities, tuck shops that sells nutritious foods only and food exhibitions.

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