LEVEL OF EXPOSURE TO RISK FACTORS FOR NON-COMMUNICABLE DISEASES AMONG THE YOUTH IN BUNGOMA COUNTY, KENYA

Situma Jane
Masinde Muliro University of Science and Technology
KENYA
jsituma@mmust.ac.ke

Keseko Enid
Masinde Muliro University of Science and Technology
KENYA
enidkeseko@gmail.com

Ruth Nabwoba
Masinde Muliro University of Science and Technology
KENYA
ruthnabwoba78@gmail.com

ABSTRACT

Non-communicable diseases (NCDs) have been on the rise in Kenya over the past few years. This has become a major public health concern due to the impacts it has had on the individual's health and socio-economic status as a result of increased health care needs, lost productivity and premature deaths. The four major risk factors of NCDs are; tobacco use, alcohol, physical inactivity and unhealthy diets. These behavioral risk factors mostly affect the youth thus the purpose of this study was to assess the level of exposure to the risk factors for non-communicable diseases among the youth in Bungoma County, Kenya**.** The objectives were: to examine the prevalence of behavioral risk factors of NCDs among the youths, the NCDs prevalence and the relationship between behavioral risk factors of NCDs and the prevalence of NCDs. The study employed purposive sampling for study area and study population. Five sub-counties in Bungoma County were selected by random sampling from. The respondents' ages ranged from 18-34years. A sample of 150 youths was studied. The data collected was cleaned, coded and entered in the SPSS statistical software for data analysis. The mean, standard deviation and percentages were established. Chi-square was used to establish the relationship between the variables. This study is relevant in increasing the knowledge in the existing literature on the burden of non-communicable diseases among the youth and influence policy formulation that aim at reducing the burden of NCDs and also reversing the trends of NCDs. The study will influence behavior change among the youth reducing their indulgence in the risk factors thus improving their overall health.

Keywords: NCDs, prevalence and behavioral risk factors.

INTRODUCTION

The world health organization points out non-communicable diseases as chronic diseases i.e. they tend to be of long duration and are the result of a combination of genetic, physiological and behavioral factors (WHO, 2014). NCDs affect people of all age groups and all countries. These conditions are associated with older age groups but evidence shows that 15million of all deaths attributed to NCDs occur between the age of 30 and 69years. Of these premature deaths over 85% are estimated to occur in low and middle income countries. There are four main types of NCDs including; cardiovascular diseases, cancer, chronic respiratory disease and diabetes (WHO, 2009).

The burden of NCDs is high globally but mostly affects people in low income and middle income countries where more than three quarters of global NCDs occur. This attributes to 32 million people. Seventy one percent of all annual deaths (41million of world's 57 million deaths) result from NCDs, 80% of these deaths occur in low and middle income countries and each year. Assessing risk factor exposure for NCDs among the youth is very important for

young people since two third of premature deaths in adults are associated with childhood conditions and behaviors, and behavior associated with NCD risk factors is common in young people (WHO, 2015).

Majority of preventable adult deaths are associated with behaviors which started in adolescence (WHO, 2009). This is due to association between the main causes of NCDs which are termed as behavioral risk factors and NCDs. These behavioral risk factors are; physical inactivity, consumption of unhealthy diets, alcohol intake and tobacco use. The behavioral risk factors often lead to metabolic risk factors such as raised blood glucose levels, obesity and raised blood pressure. This later predisposes one from developing one or more of the NCDs. Other factors which lead to morbidity from NCDs are air pollution, environmental degradation, climate change and psychological stress including chronic stress related to work or unemployment.

In Kenya, many of the NCDs affect Kenyans at the height of their productive years and not in old age. Two thirds of NCDs death in Kenya occur prematurely (defined as death among people below the age 70) compared to only a quarter in high income countries (WHO, Global Health Observatory Data, 2017). Greater exposure to the risk factors, delayed diagnosis and insufficient treatment has been a major challenge. Once there is the onset of the disease, the productivity of the person is reduced due to a period of disability, need for health care and other support increases. Increasing prevalence of NCDs risk behavior among the youth is likely to cause a rise in the rates of premature deaths.

Statement of problem

The burden of the rapid rise of non-communicable diseases like cancer, cardiovascular diseases and respiratory diseases has become more prevalent. In 2015, the ministry of health (MOH) stated that among the youth, there is lack of knowledge and adequate awareness on the impact of the risk factors in accelerating NCDs development and spread in the body (MOH 2015). According to Kenya National Bureau of Statistics (KNBS, 2010), the population of young people aged 10-24years is about one third of the total population. NCDs are one of the major health problems which affect the development of young people in Kenya. It is estimated that up to two thirds of early deaths are linked to exposure to NCD risk factors and up to half of such deaths are associated with weak health system (MOH, 2015). These weak health systems do not respond effectively and equitably to the health care needs of young people with NCDs such as cardiovascular diseases, cancers, chronic respiratory diseases and diabetes.

The main risk factors for NCDs in Kenya are exposure to tobacco use, physical inactivity, unhealthy diets and harmful use of tobacco. These four main risk factors are behavioral factors which mostly affect the youth due to peer pressure. Tobacco use is very rampant among the youth and more common among young Kenyan men than women, with 5% of young men aged 15-24 years smoking cigarette compared to less than 1% young women. The issue of alcohol abuse in Kenya is deeply rooted and has continued to affect not only the health but also the social and economic well-being of the youthful population. A survey done by the National Authority for Campaign against Alcohol and Drug Abuse (NACADA, 2016), found out that 36% of students consumed alcohol. Drug abuse leads to negative behavioral and social effect to the youth.

Although the percentage of young people with raised blood pressure or hypertension in Kenya is minimal, young female (3.8%) are at risk of hypertension as compared to males (1.2%). Out of 61% of young women who had cervical cancer, only 7.8% had tested themselves to check cervical cancer status. About 15.6% of young women have ever examined their breasts to check

for breast cancer. It seems that more women have more knowledge in cancer prevention awareness than men. Only 48.6% of young men have ever heard of prostate cancer and of these, only 2.6% have been examined for prostate cancer (KNBS and ICF Macro, 2015).

Objectives of the study

1. To determine the level of behavioral risk factors for NCDs among the youths in Bungoma County.
2. To examine the prevalence metabolic risk factors for NCDs among the youth in Bungoma County.
3. To find out the relationship between behavioral risk factors of NCDs and the prevalence metabolic risk factors for NCDs among the youth in Bungoma County.

Research questions

1. What is the level of behavioral risk factors for NCDs among the youths in Bungoma County?
4. What is the prevalence of metabolic risk factors for NCDs among the youth in Bungoma County?
5. What is the relationship between behavioral risk factors of NCDs and the prevalence metabolic risk factors for NCDs among the youth in Bungoma County?

Significance of the study

The study will be important in, increasing the knowledge on the existing literature on the burden of NCDs among the youth. Early intervention will contribute to increased economic productivity of the youth by reducing indulgence in some of the behavioral risk factors like alcohol intake which affect the productivity of the youth. In addition, the study will contribute to encouraging positive behavior change by enlightening the youth on the detrimental effect of engaging in some of the behavioral risk factors such as alcohol intake and tobacco smoking.

Justification of the study

The rise in NCDs is a worldwide menace but more alarming in developing countries. The young population being energetic are more prone to being affected by NCDs due to the four behavioral risk factors which predisposes one to high risk of developing NCDs. The poor and young in developing nations are increasingly falling victims of the diseases. This will later lead to reduced health and productivity of the youth. The prevention and control of NCDs has been a priority as seen among the sustainable development goals (goal 4); one of the key areas is to address food and nutrition security, health and wellbeing of every individual. One of the emerging issues for food and nutrition security is the concern for the changing lifestyle and eating habits which have resulted to NCDs which are closely related to obesity and represent a significant development challenge. The Food and Nutrition Security Policy (FNSP) enforces that the health consequences of obesity related diseases range from premature death to disabilities and reduce the quality of life.

In order to attain the vision 2030 several pillars have been put in place to accomplish this vision. The social pillar aims at improving the quality of life for all Kenyans by targeting a cross-section of human and social welfare project and programs. In this pillar one of the sectors being addressed is health and sanitation. Since NCDs are a developmental and social issue the approach to this diseases need to be revised and made effective and relevant to the needs of the youth who are at a high risk due to the behavioral factors which affect them. This study will be relevant to shed light on the prevalence of NCDs and their risk factor among the youth. Knowledge on the burden will be useful in implementing effective policies directed to the

youth and thus mitigate against the adverse impact that NCDs have on the health and productivity of individuals and the society around them.

LITERATURE REVIEW

Non communicable diseases have been on the rise in the past decade and are the leading cause of death in the world. The global NCD burden is unacceptably high and mostly affects people in low and middle income countries where more than three quarter of global NCDs occur. They are the leading cause of death representing 71% of all annual deaths (41 million of the world's 57 million deaths) (WHO, 2016). In low and middle income countries 80% of these deaths are as a result of NCDs. Furthermore, nearly 43 million children under 5 years old were overweight in 2010 (WHO, 2018).

Cardiovascular diseases are those which affect the heart and blood vessels. They include diseases like; coronary heart disease which affect blood vessels supplying the heart muscles, cerebrovascular disease which are diseases which affect blood vessels supplying the brain, congenital heart diseases which are malformation of the heart structure which exist at birth, deep vein thrombosis and pulmonary embolism that lead to blood clots in the leg veins, which can dislodge and move to the heart, amongst others. Worldwide, cardiovascular diseases result to 17.9 million deaths thus accounting for 44% of all global deaths (WHO, 2016). This is a worrying trend hence information on risk factors for the same needs to be updated for effective mitigation strategies.

Cancer is another chronic disease which is a result of uncontrolled growth and spread of cells. It usually affects any area of the body and often grows affecting surrounding body tissues. It accounts for 9 million deaths thus 22% of all global deaths (WHO, 2016). Cancer can either be a benign or a malignant tumor. Benign tumors remain confine to its original location and does not involve surrounding tissues or spread to distant body sites. A malignant tumor is one capable of invading surrounding normal tissues and spread throughout the body circulatory or lymphatic system.

Chronic respiratory diseases are diseases of air way and other structures of the lung. The most common being; obstructive pulmonary disease, asthma, occupational lung disease and pulmonary hypertension. They are not curable but various forms of treatment help dictate the major air passages thus can reduce symptoms and improve the quality of life. They result to 3.8 million deaths which represent 9% of all global deaths (WHO, 2016).

Diabetes is a disease which occurs when the pancreas cannot produce insulin or when the body cannot effectively utilize the insulin it produces. It exists in two forms one that is characterized by deficient insulin production and require daily insulin administration (type 1 diabetes). The other one is mostly as a result of excessive weight gain and physical inactivity. There is also gestational diabetes which is usually hyperglycemia with blood glucose values above normal but below those diagnostic of diabetes occurring during pregnancy. Diabetes results to about 1.6million deaths (WHO, 2016).

The alarming rise in NCDs is predicted to rise in the coming years. According to WHO (2005) study, seven out of every ten deaths in low income countries will result from NCDs by 2020. The increase in NCDs can be explained by increase in their risk factors. The four NCDs share the same set of risk factors which are; tobacco use, physical inactivity, poor diets and alcohol use (Africa Population and Health Research Center, APHRC, 2017). Tobacco use is currently one of the leading global risk factors for illness and death from NCDs. It has resulted to death

of nearly 6 million people a year and by 2030 this number will increase to 75million, accounting for 10% of all deaths. Globally in 2016, around 34% of men and 6% of women 15 years and older were current smokers of tobacco. The effects of tobacco are not only caused by direct consumption of tobacco but by exposure of non-smokers to second hand smoke.

Physical inactivity is also a contributing factor and according to WHO (2018), 1 out of 4 adults (1.4 billion people Worldwide) do not meet the WHO recommendation on physical activity to benefit from the reduced risk of common chronic diseases and to improve their health and wellbeing. Sedentary lifestyle increases all the causes of mortality, doubles the risk of cardiovascular diseases, diabetes and obesity with increased risk of cancer.

Poor diets or unhealthy diets include high intake of sugars, salts and fats. These kinds of diets contribute to the raised blood pressure and increased risk of heart diseases and stroke. Increased production of processed foods, rapid urbanization and changing lifestyle has led to a shift of dietary patterns. Thus people are now consuming more foods high in energy, fats, free sugars or salt /sodium and many do not eat enough fruit, vegetables and dietary fiber. The recommendation for intake of sodium is <2g/day which is 5g of salt per day. Increased intake of convenience foods and highly processed foods has led to the high consumption of salt. Sugar is another important component in diet. According to Kenya Stepwise Survey for NCDs (2015) it showed that 2% of the respondents always consumed processed foods high in sugar, with highest proportion being among women age 18-29 years. The risk of developing NCDs is lowered by reducing saturated fats to less that 10% of total energy intake and trans-fats to less than 1% of total energy intake, and replacing both with saturated fats (WHO, 2015).

Africa is experiencing a double burden of communicable diseases and non-communicable diseases. There are predictions that NCDs will continue to rise in the coming years causing at least 9million deaths every year among people aged <60years in Sub-Saharan Africa (Mbanya, 2010). Alberti et al, (2006) projects that diabetes mellitus (DM) will double by 2025. Diet is of particular concern in Kenya, as economic and societal changes have led to an enormous spike in obesity. 8 out of 20 countries with the fastest growing rate of obesity are in Africa (WHO, 2010).

METHODOLOGY

Study area

Bungoma County is a county in the former Western Province of Kenya. Its capital is Bungoma or Bungoma Town. It has a population of 1,375,063 (KNBS, 2009) and an area of 2,069 km^2. In 2010, the neighbouring Mount Elgon District was eliminated and its lands were merged with Bungoma District to form Bungoma County. The economy of Bungoma County is mainly agricultural, focusing on the sugarcane and maize industries. The area experiences high rainfall throughout the year, and is home to several big rivers, which are used for small-scale irrigation. The county has 9 sub counties.

Research design

This research adopted a community based cross-sectional survey. Data was collected at one point in time and questionnaires were used. The study determined the level of exposure to non-communicable disease risk factors and the prevalence of NCDs among the youth in Bungoma County.

Sampling design

Bungoma County was purposively sampled because of its production of tobacco and huge cross border activities among the young population. Kanduyi, Bumula, Sirisia, Webuye West and Tongaren sub counties were randomly selected. In each sub county wards were randomly sampled. In Kanduyi sub county the following wards were sampled; Bukembe East, Sangalo West Township, Sangalo East and Musikoma. Bumula sub county the following wards were sampled Bumula, Khasoko, Kabula, Kimaeti and West Bukusu. Bokoli, Matulo, Miendo Sitikho and Misikhu represented Webuye West. Sirisia Sub County was represented by Malakisi, Namwela and Lwandanyi. Tongaren had Ndalu, Milima, Tongaren and Naitiri wards which were all selected. A total of 30 wards were therefore randomly sampled and in each ward five (5) youths were randomly sampled giving a total of 150 youths sampled. The basic criterion for selecting a youth was the age bracket of 18-34 years.

Sample size

Sample size determination

The sample size was determined by use of Fischer's *et al* formula 1998:

$N = Z^2pq/d^2$

Where; N= the desired minimum sample size at the set precision level

Z = 1.96, standard normal deviate at the required 95% confidence level

p= 0.099, proportion of the Kenyan youth population exposed to an NCD risk factor (Analysis of Non-Communicable Prevention Policies in Kenya, APHRC, 2017)

q= 1-p = 0.901

d= 0.05 level of statistical significance set for desired precision of estimates in the study

Therefore $N = 1.96^2 \times 0.099 \times 0.901 / 0.05^2 = 152$ respondents.

Only 150 youth were studied because the two could not fit in the sampling strategy used.

Data analysis

Data was cleaned, coded then keyed in the statistical software (SPSS) and analyzed using mean, standard deviation and percentages. Data was presented in the form of tables, bar graphs and pie charts. A chi-square was used to establish the relationship between variables.

Logical and ethical consideration

Ethical clearance was obtained from Masinde Muliro University Ethics and Review Committee. Permission to collect data was sought from the ward and sub county administrators. The researcher introduced herself and clearly explained the objectives of the study to the respondent. An informed consent was sought from the respondent's before proceeding with the data collection. The decision of the respondents to either consent or not was respected in case they decided not to take part in the study. The respondents' was required to sign a consent form upon agreeing to allow the researcher/ research assistants to collect data from them. The researcher assured the respondent on the confidentiality of the information obtained from them. The data obtained was used for research purpose with the view of improving the wellbeing of the youth. The study picked only clients who met the criteria for selection and all data collected was analyzed. During the study, all the respondents were treated equally regardless of the religion, age, their position social status in the community. There was no physical harm to the respondents as data collection methods were non-invasive.

RESULTS

Demographic information

The study findings were obtained from 150 youths drawn from Bungoma County. Out of the youth studied, 45.3% were male and 54.7% were female. A large proportion (41.3%) were aged between 30-34 years old followed by 26-30 years old, representing 30.0% of the total youth. Thirty two (32) percent of the youth reported to have attained secondary education and 22% tertiary education. A large percentage (49%) reported that they were still single and only 2% were widowed. In terms of source of income 34% percent reported to be involved in casual labour.

Table 1 : Demographic characteristics of youth in Bungoma County

GENDER	**N**	**PERC**
MALE	68	45.3
FEMALE	82	54.7
AGE IN YEARS	**N**	**PERC**
18-25	43	28.7
26-30	45	30
30-34	62	41.3
LEVEL OF EDUCATION	**N**	**PERC**
No formal schooling	24	16
Primary	45	30
Secondary	48	32
Tertiary	33	22
MARITAL STATUS	**N**	**PERC**
SINGLE	74	49.3
MARRIED	41	27.3
SEPARATED	13	8.6
WIDOWED	3	2
COHABITING	19	12.6
SOURCE OF INCOME	**N**	**PERC**
FORMAL EMPLOYMENT	27	18
CASUAL LABOUR	51	34
SMALL SCALE BUSINESS	23	15.3
STUDENT	49	32.7

Behavioral risk factors measurements
Tobacco use

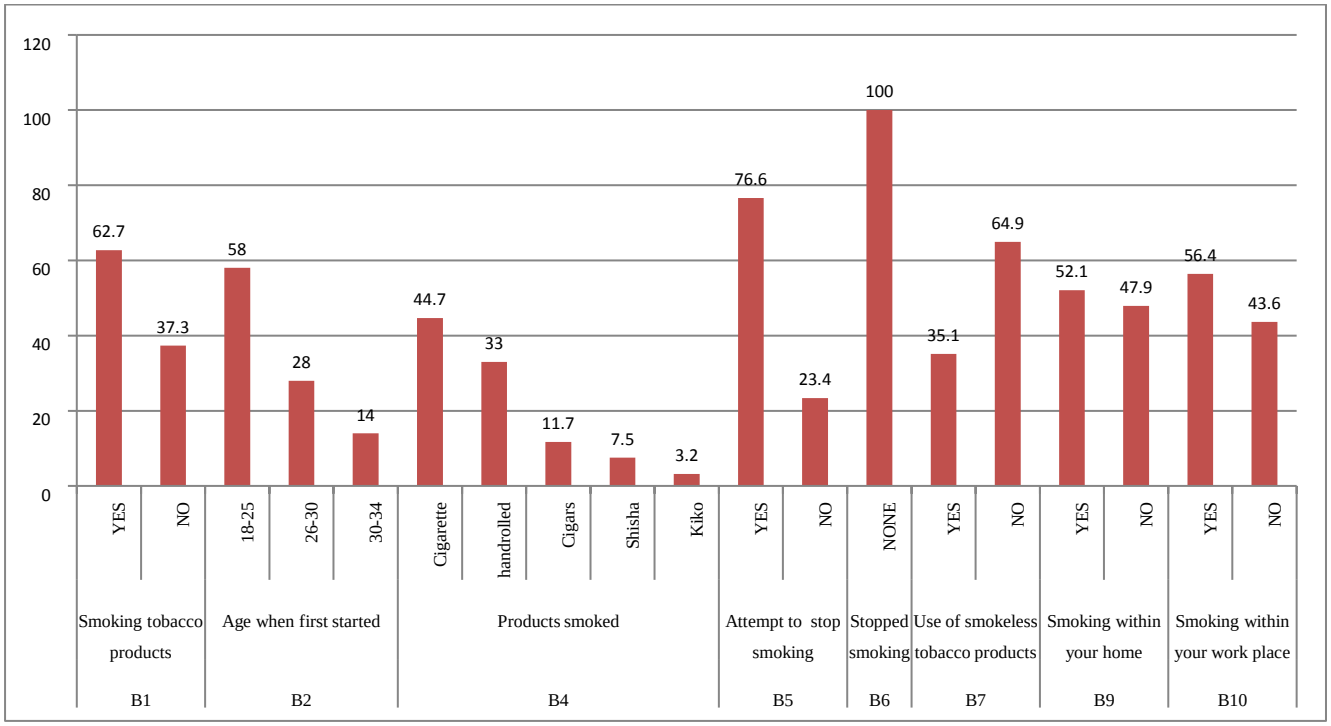

Figure 1: Tobacco use among the youth in Bungoma County

The first behavioral measurement assessed tobacco use among the youth in Bungoma County. 62.7% of the youth reported to be currently smoking a tobacco product and the age at which most of the youth (58%) reported to have started smoking was between 18-25 years. The most smoked tobacco product on a weekly basis was cigarette at 44.7% followed by hand rolled tobacco at 33%. Cigars and shisha were also smoked at 11.7% and 7.5% respectively. Kiko was the least smoked tobacco product with 3.2% of the youth reporting its use. A good percentage of the youth (76.6%) reported to have attempted to stop smoking in the past twelve months but none reported to have succeeded in the attempts to stop smoking. Only 35.1% of the youth reported to have used smokeless tobacco products such as snuff, kuber or pan. 52.1% of the youth reported that in the past thirty days there was another person smoking in their home while 56.4% of the youth reported to have had someone smoking in their workplace in the past three days.

Alcohol consumption

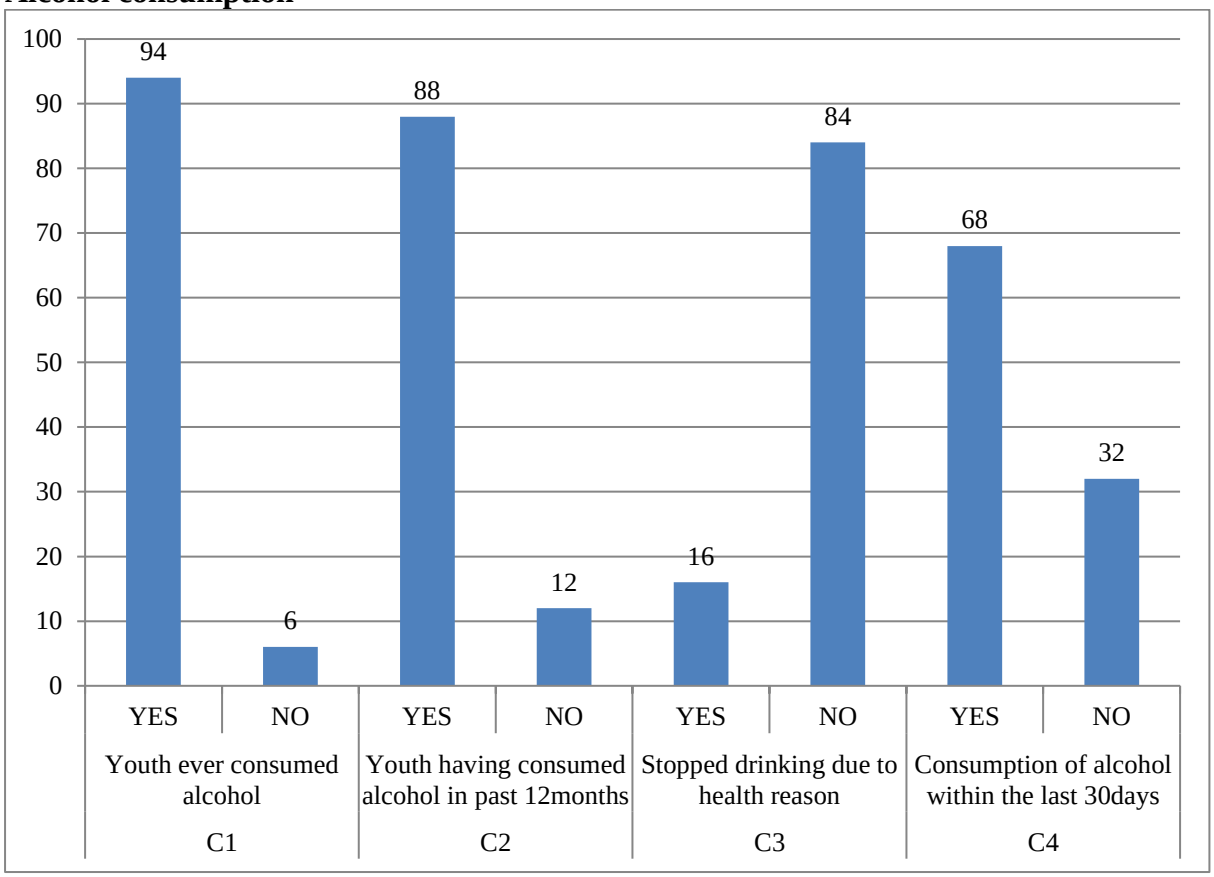

Figure 2: Alcohol consumption among Youth in Bungoma County

94% of the youth reported to have ever consumed alcoholic products such as beer spirits, wine and local brews and 88% of them reported to have consumed the alcoholic drinks in the past twelve months. Consumption of alcohol in the past thirty days was at 68%. However, only 16% of the youth confirmed to have stopped drinking the alcoholic drinks due to the negative impact it has on an individual's health.

Dietary salt and Oil intake.

	DIETARY SALT AND OIL INTAKE	Response	N	PERCENT
D5	**Addition of salt or salty sauce in food**	Always	6	4
		Often	22	14.7
		Sometimes	101	67.3
		Rarely	12	8
		Never	4	26.7
		Do not know	5	33.3
D6	**Consumption of processed food high in salt**	Always	9	6
		Often	37	24.7
		Sometimes	87	58
		Rarely	8	5.3
		Never	7	4.6
		Do not know	2	1.3
D7	**Salt or salty sauce consumption**	Far too much	26	17.3
		Too much	41	27.3

		Just the right amount	83	55.4
D8	**Importance of lowering salt in the diet**	Very important	81	54
		Somewhat important	41	27.3
		Not at all important	28	18.7
D10	**Opinion on too salt and health**	yes	118	78.7
		no	32	21.3
D12	**Type of oil used for meal preparation in the HH**	Vegetable oil	40	26.7
		Vegetable fat	8	5.3
		margarine	41	27.3
		None in particular	61	40.7
D13	**Meals eaten away from home**	More than 10 meals	8	5.3
		10 meals	27	18
		5 meals	89	59.3
		Less than 2 meals	26	17.4

Table 2: Dietary salt and oil intake among youth in Bungoma County

The response of the youth on sometimes adding salt or salty sauces to food and consuming processed foods high in salt (such as njugu karanga, packed salty snacks, canned salty food including pickles and preserves, salty food prepared at a fast food restaurant, cheese, bacon and processed meat) was highest at 67.3% and 58% respectively. 18.7% of the respondents did not think that lowering amount of salt in the diet is important and 21.3% did not think that too much salt could lead to health problems. Majority of the youth (40.7%) did not have a particular oil that was used in meal preparation while 26.7% used vegetable oil. 5.3% and 27.3% used vegetable fat and margarine respectively. The most number of meals eaten away from home averagely per week was five as identified by 59.3% of the youth.

Dietary sugar and Oil intake

	Dietary sugar intake	**Response**	**N**	**PERCE**
E1	**Frequency of sugar addition in beverages**	Always	16	10.7
		Often	51	34
		Sometimes	47	31.3
		Rarely	23	15.3
		Never	11	7.3
		Do not know	2	1.3
E2	**Frequency of soft drinks consumption**	Daily	79	52.7
		5 times	42	28
		3 times	24	16
		Less than3 times	5	3.3
E3	**Number of servings soft drinks drank in a day**	One	123	82
		Two	27	18
E4	**Frequency of consumption of processed food high in sugar**	Always	31	20.7
		Often	117	78
		Sometimes	2	1.3
E5	**Level of sugar consumption**	Far too much	6	4
		Too much	13	8.7
		Just the right amount	112	74.7

		Too little	11	7.3
		Far too little	8	5.3
E6	**Importance of lowering sugar in the diet**	Very important	43	28.7
		Somewhat important	91	60.7
		Not at all important	0	0
		Do not know	16	10.7
E7	**Opinion about too much sugar in the diet**	Yes	114	76
		No	31	20.7
		Do not know	5	3.3

Table 3: Dietary sugar and oil intake among youth in Bungoma County

About 31.3% of the youth reported to sometimes add sugar to their drinks right before drinking them. The highest frequency of soft drink consumption was on a daily basis reported by 52.7% of the youth with the rest consuming 5-3 times a week or less than three times a week. Most of the youth (78%) often consume processed foods high in sugar such as biscuits, wafers, cakes, candy, sweets and chocolates. 5% of the youth reported to not know that too much sugar in the diet is harmful to one's health.

Level of involvement in physical activities

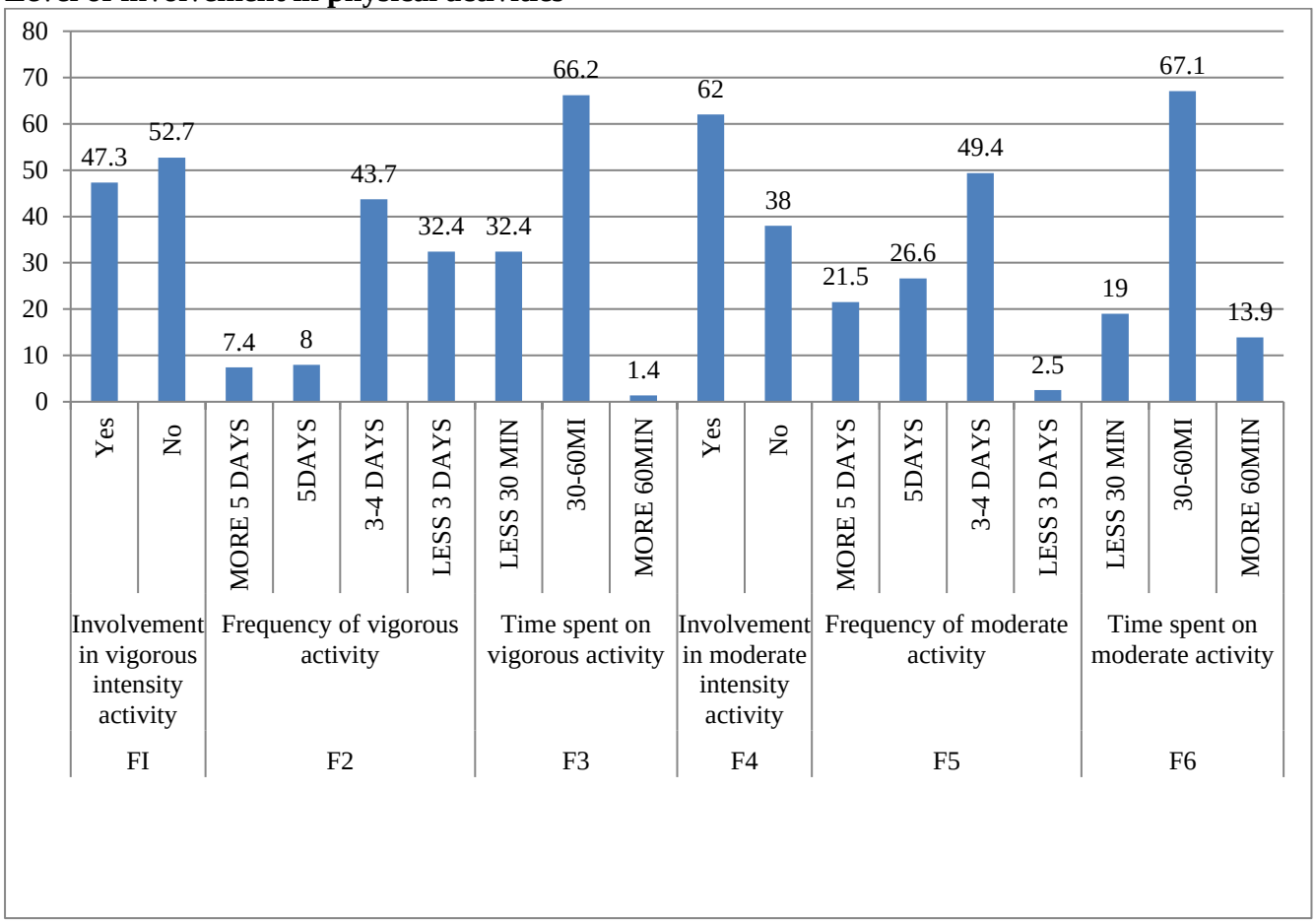

Figure 3: Level of involvement in physical activities by youth in Bungoma County

Majority (47.3%) of the youth get involved in vigorous intensity activities with the highest frequency being 3 – 4 days per week. 62% of the youth reported to get involved in moderate intensity physical activity with a similar highest frequency of 3 to 4 days per week by 49.4% of the youth.

Level of involvement in recreational activities

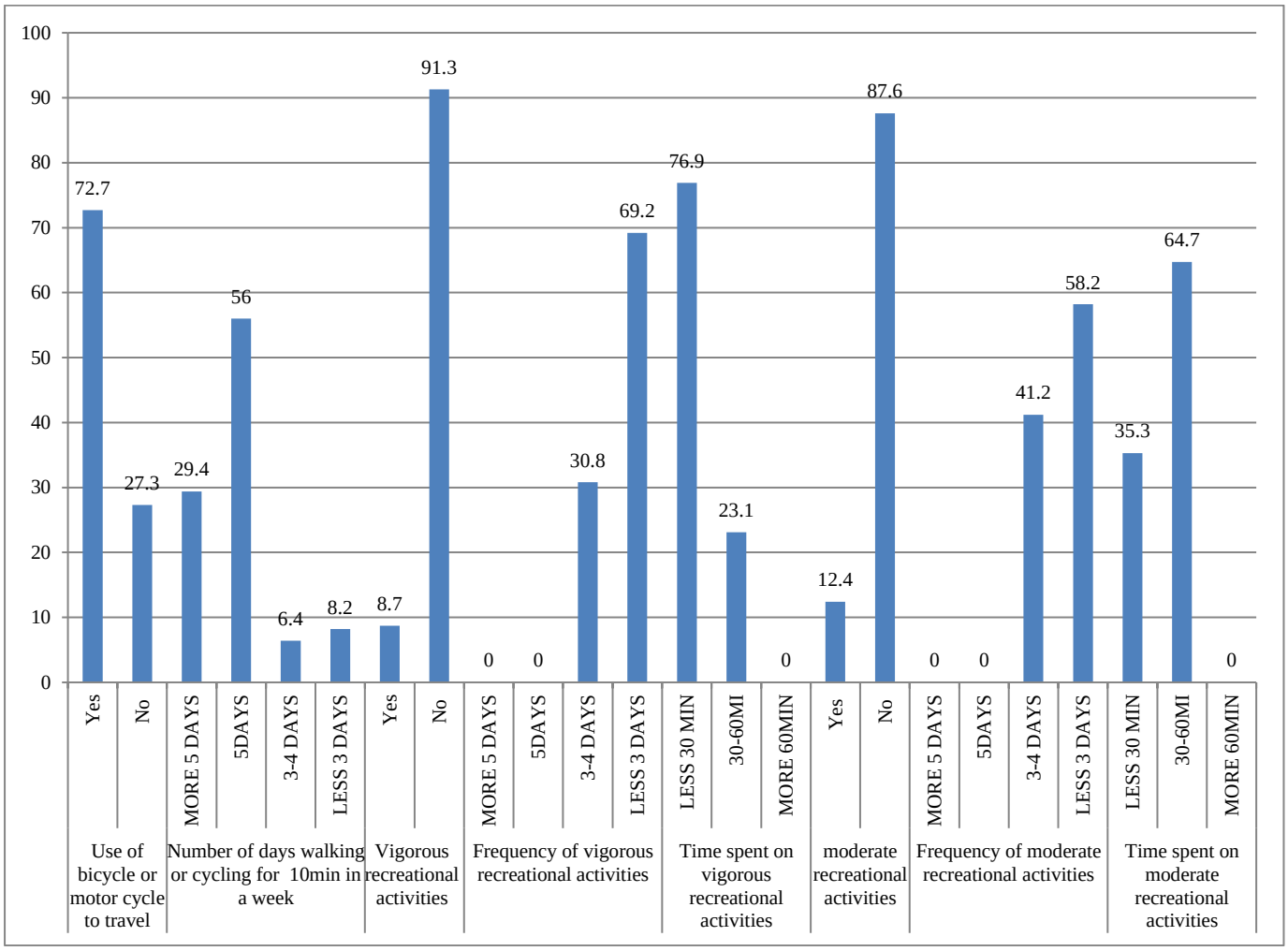

Figure 4: Level of involvement in recreational activities by youth in Bungoma County

Greater number (91.3%) of the youth reported that they do not get involved in vigorous recreational activities (those that cause increases in breathing or heart rate like running or playing football for at least 10 minutes continuously) while most of those who reported (69.2%) did so on a frequency of less than 3 days. Similarly, involvement in moderate recreational activities (those that cause a small increase in breathing or increase of heart rate such as brisk walking, cycling and swimming, volleyball for at least 10 minutes continuously) was least reported with 87.6% of the youth reporting to not get involved in the recreational activities. The most reported time spent on both vigorous and moderate recreational activities was less than 30 minutes (76.9%) and 30-60 minutes (64.7%) respectively.

Metabolic risk factors measurements
Status of blood pressure, blood sugar and heart attack

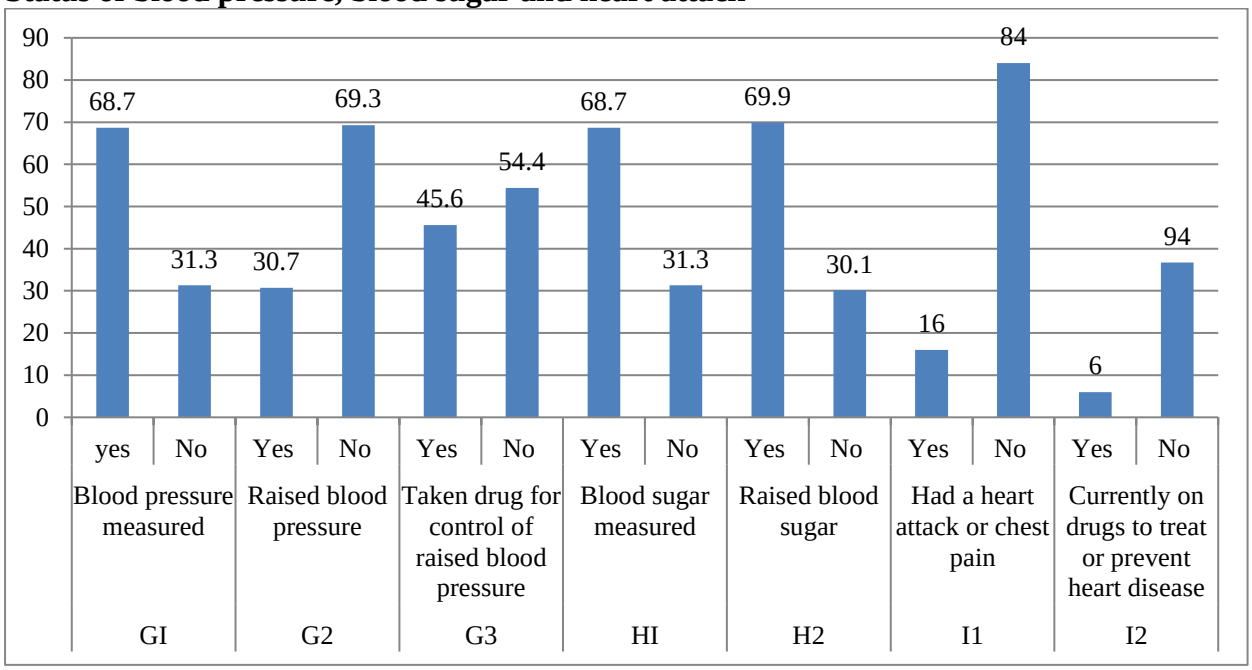

Figure 5: Status of blood pressure, blood sugar and heart attack among youth in Bungoma County

Considerable percentage (68.7%) of the youth reported to have had their blood pressure checked and 30.7% found out to have high blood pressure. 45.6% reported to be taking drugs for control of the high blood pressure. 68.7% of the youth also reported to have had their blood sugar checked and of those who checked, 69.9% had raised blood sugar. Only 16% of the youth have had incidences of chest pains or heart attack and 6% reported to be on drugs (e.g. aspirin in order to prevent heart disease.

Relationship between behavioral risk factors and metabolic risk factors among the youth in Bungoma County

The chi square test of independence on the relationship between behavioral risk factors and metabolic risk factors among the youth in Bungoma County gave $X^2_{4\ 0.01} = 25.08$. This indicates that there was highly significant ($p<0.01$) association between behavioral risk factors and metabolic risk factors. The study findings agree with APHRC, 2017 report which indicates that many of behavioral risk factors are leading to metabolic risk factors which are the leading causes of non-communicable diseases.

DISCUSSION

Due to the increased global burden of NCDs, there is a global push for NCD prevention strategies including advocacy at country level towards the NCD epidemic (Juma and Kyobutungi, 2017). The fifth strategic objective of Kenya Health Sector and Strategic Plan 2014-2018 focused on minimizing exposure to major health risk factors including several key multi-sectorial interventions against NCDs, such as tobacco use and harmful alcohol use. Recommendations from this policy brief emphasized on strengthening of NCD interventions at the community level through a variety of channels (Kiarie et al, 2019). This study was conducted at a community level in order to provide baseline information towards strengthening such interventions. 45.3% of the respondents were male and 54.7% were females both aged 18-34 years.

Despite all the efforts, the NCD risk factors' prevalence remains to be high. Findings from the Global Youth Tobacco Survey (GYTS) in 2013 showed that the prevalence of tobacco use was 9.9%. The most recent STEP-wise approach to Surveillance (STEPS, 2015) survey in Kenya revealed that 13% of Kenyans use some form of tobacco product. The prevalence was highest in men (23%) compared with women (4.1%). Chifa et al (2015) in their study on behavioral risk factors for young people suggested that tobacco use is the most obvious and serious problem. In this study, 62.7% of the youth reported to be currently smoking a tobacco product and the age at which most of the youth (58%) reported to have started smoking was between 18-25 years. The survey also revealed that 19.3% (33.8% male and 5.4% female) adults drink alcohol, with 12.7% being heavy episodic drinkers. This study did not categorize the respondents in terms of gender but nevertheless, 94% of the youth in this study reported to have ever consumed alcoholic products such as beer spirits, wine and local brews and 88% of them reported to have consumed the alcoholic drinks in the past twelve months. This could be a reflection of the youth being majority of the adults who drink alcohol and its products. A study on promoting healthy behaviors among youth to tackle Kenya's growing NCD epidemic In Kenya by Kaneda et al, 2017 revealed that 10% of adolescents (people aged between 11 and 19) consume alcohol and are exposed to potent, illicit alcoholic brews that are not so regulated hence portraying a similar trend.

Findings from a study on individual and household level factors associated with the presence of multiple NCD risk factors in Kenyan adults showed that the most prevalent NCD risk factor for both males and females in the population were insufficient consumption of fruits and vegetables(98%), high salt consumption (89.5%) and insufficient physical activity (80.3%). (Wekesah et al, 2018). According to this study, 67.3% of the youth agreed to be sometimes adding salt and salty sauces to food and 58% agreed to consume processed foods that are high in salt. It is important to point out that 45.6% reported to be taking drugs for control of the high blood pressure. The high percentages could be a depiction of lack of education or ignorance of the role of high salt intake in high blood pressure.

Contrary to most other studies, this study looked at dietary sugar and oil intake instead of frequency of consumption of fruit and vegetables. The findings were that 31.3% of the youth reported to sometimes add sugar to their drinks right before drinking them. Highest frequency of soft drink consumption was on a daily basis reported by 52.7% of the youth with the rest consuming 5-3 times a week or less than three times a week and 5% did not know that too much sugar in the diet is harmful to one's health. This cannot be ignored because from the same study, 68.7% of the youth also reported to have had their blood sugar checked and of those who checked, 69.9% had raised blood sugar. This therefore makes the youth very susceptible for diabetes, one of the main NCDs.

According to the Kenya STEP-wise Survey for Non-Communicable Diseases Risk Factors 2015 Report, about 6.5% of Kenyans (6.3% men; 6.8% women) did not engage in the recommended amount of physical activity. In this study, 91.3% of the youth reported to not get involved in vigorous recreational activities (those that cause increases in breathing or heart rate like running or playing football for at least 10 minutes continuously) while most of those who reported (69.2%) did so on a frequency of less than 3 days. The most reported time spent on both vigorous and moderate recreational activities was less than 30 minutes (76.9%) and 30-60 minutes (64.7%) respectively. WHO recommends 150minutes of moderate-intense activity per week for 18-64 year olds (MOH, 2015b). The results of this study concur with the above report since majority of the youth do not meet the recommended physical activity.

CONCLUSION

According to findings of data collected on a number of NCD risk factors from 2009 or later among young people in various countries, Kenyan youth seem to have exposure to at least three risk factors (current use of alcohol and tobacco, physical inactivity and overweight/obesity status). This study shows a similar trend with majority of the youth being exposed to tobacco and alcohol use, improper dietary sugar, salt and oil use and physical inactivity. This shows that NCDs are still a major public health problem at the county, country and global level.

RECOMMENDATION

The launch of the first Kenya National Strategy for the Prevention and Control of NCDs 2015–2020 and the Kenya Mental Health Strategy 2015–2030 have emphasized on management of risk factors as a pathway to further reducing the rising burden of NCDs. Narrowing these strategies to a county level may be of benefit in emphasizing the broader impact of NCDs and improving the overall status.

REFERENCES

Alberti G, Zimmet P, Shaw J,et al (2006). The IDF consensus worldwide definition of the metabolic Syndrome. International Diabetes Federation. Elsever Group PLC, MONTEREAL, Canada.

Chifa et al (2015). Profile of non-communicable disease risk factors among young people in Palau. *J Epidemiol* ; 25(5):392-397

Juma PA, Mohamed SF, Wisdom J, Kyobutungi C, Oti S. Analysis of Non-communicable disease prevention policies in five Sub-Saharan African countries: Study protocol. Archives of Public Health. 2016;74(1):25.

Juma, P; Mohamed S & Kyobutungi C. (2017). *Analysis of Non-communicable Disease Prevention Policies in Kenya. Nairobi*: APHRC

Kaneda, T., Mbau-Simba, L., & Osewe, N. (2017). *Promoting healthy behaviors among youth to tackle Kenya's growing NCD epidemic*. Retrieved from https://www.prb.org/noncommunicable-disease-epidemic-in-kenya/

KNBS (2009). Kenya census

KNBS and ICF macro. (2010). Kenya demographic and household survey 2008/9. Calverton, Maryland: KNBS and ICF Macro

Maina WK, Ndegwa ZM, Njenga EW, Muchemi EW: Knowledge, attitude and practices related to diabetes among community members in four provinces in Kenya: a cross-sectional study. *Pan African Med J* 2010, 7(1).

Mbanya, J, Motala, A, Sobgnwi, E et al, (2010). Diabetes in sub-Saharan Africa. *The Lancet*, 375:2254-66.

Ministry of Health. (2015b). Kenya STEPwise Survey for Non-Communicable Diseases Risk Factors 2015 Report. 2015.

National Agency for the Campaign against Drug Abuse (NACADA). Youth in Peril: Alcohol and Drug Abuse in Kenya. 2004.

Wekesah et al. (2018) Individual and household level factors associated with the presence of multiple NCD risk factors in Kenyan adults. *BMC Public Health*, 18 (Suppl 3):1220

World Health Organization *STEPwise approach to surveillance (STEPS)* [homepage on the Internet]. Geneva: World Health Organization [cited 2014 July 15]. Available from: http://www.who.int/chp/steps/en/

World Health Organization. (2010) *Set of recommendations on the marketing of food and non-alcoholic beverages to children*. Geneva.

World Health Organization (2015) Available from: www.who.int/global-coordination-mechanism/ncd-themes/ncd-and -youth/en/

World Health Organization. (2014) *Global status report on non-communicable diseases*, vol. 2014. Geneva.

World Health Organization. (2014) WHO Country Cooperation Strategy Kenya: Medium – Term Support Strategy 2014 - 2019. 2014.

World Health Organization (2016). Atlas of African Health Statistics 2016: health situation analysis of the African Region.