



# PREVALENCE OF RISK FACTORS FOR NON-COMMUNICABLE DISEASES AMONG UNIVERSITY STUDENTS IN AND AROUND KAMPALA

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## LIST OF ACRONYMS

ART	Anti-Retroviral Therapy
CEHURD	Centre for Health, Human Rights and Development
CDC	Centers for Disease Control and Prevention
CNN	Cable News Network
CVD	Cardio Vascular Disease
CI	Confidence Interval
DALYs	Disability Adjusted Life Years
FCTC	Framework Convention for Tobacco Control
GPC	General Population Cohort
GSHS	Global School-Based Survey
GYTS	Global Youth Tobacco Survey
IDI	Infectious Disease Institute
IHD	Ischemic Heart Disease
KAP	Knowledge, Attitudes, and Practices (study)
KIU	Kampala International University
MUK	Makerere University Kampala
NCD	Non-Communicable Diseases
NEMA	National Environment Management Authority
UDHS	Uganda Demographic Health Survey
UHHS	Uganda House Hold Survey
UNTCA	Uganda National Tobacco Control Association
WHO	World Health Organization

# EXECUTIVE SUMMARY

## Background

Non-communicable diseases (NCDs) are fast becoming a public health problem in Uganda. Ministry of Health reports that cardiovascular diseases, diabetes, cancers, as well as chronic obstructive pulmonary diseases are becoming increasingly important as causes of morbidity and mortality in the Ugandan population.<sup>1</sup> Taking population ageing and risk factors into account, deaths from NCDs are projected to increase by 17% in 2005-15.

The four major NCDs share common risk factors that include tobacco use, unhealthy diets, physical inactivity, and harmful use of alcohol, as well as high blood pressure and cholesterol. Tobacco use is an important modifiable risk factor common to all major NCDs, causing over 16% of all NCD deaths; in 2004, World Health Organisation (WHO) ranked Uganda number one in global alcohol intake;<sup>2</sup> physical inactivity is now identified as the fourth leading risk factor for global mortality; while scientific evidence has shown that healthy diet and adequate physical activity<sup>3</sup> play an important role in the prevention of these diseases.

Ministry of Health established the non-communicable disease program in 2006, the program does not handle tobacco control and alcohol use as these are placed under the Mental Health and Substance abuse division, and to date the country lacks a national strategy on prevention and management of NCDs.

## Objective and methods

This study assessed knowledge, attitudes and practices (KAP) of students from Makerere University, Nkumba University, Kampala International University, Uganda Christian University Mukono on the four modifiable risk factors for NCDs. A self-administered questionnaire was used to collect data from a total of 2000 respondents in November 2013. Data from 1,800 valid questionnaires was analyzed using EpiInfo7.

## Results

Up to 67% of the respondents either did not know what NCDs were and/or could not specifically describe them.

Results show that 40% (95% CI 32-48) of all female respondents had ever taken alcohol, compared to 49% males (95% CI 42-57). From the responses, one quarter of those that had ever taken alcohol had their first drink when they were between the ages of 10 and 18 years.

Results show that 12% of the respondents reported to have used drugs – 11% for the females and 13% for the males. The most commonly used drug was marijuana.

About 15% of respondents were current tobacco smokers, but the proportion was twofold higher among

1 Ministry of Health (n.d.): Non communicable diseases. Ministry of Health website, [http://health.go.ug/mohweb/?page\\_id=761](http://health.go.ug/mohweb/?page_id=761)

2 WHO (2004): Global Status Report on Alcohol 2004. [http://www.who.int/substance\\_abuse/publications/global\\_status\\_report\\_2004\\_overview.pdf](http://www.who.int/substance_abuse/publications/global_status_report_2004_overview.pdf)

3 Greater than 30 minutes of moderate intensity physical activity, at least 5 days per week



male respondents in comparison to female respondents both for those that ever smoked cigarettes as well as for current smokers. In this study, we found that 9% of the students participating in this survey smoked Shisha, which was the most commonly used tobacco product other than cigarettes. Shisha use was reported to be more prevalent among females than males.

More than 40% of respondents reported staying in homes where parents smoke, and 10% of the respondents reported having friends who smoke. Over 60% of students had smoked for less than a year and 57% had been exposed to pro-cigarette advertisements.

Three quarters (74%) of the students that currently smoke wanted to stop smoking (70% for girls and 78% for the boys); only 27% had ever received help to stop smoking. Nine in 10 respondents (92%) know that smoke from other people is harmful to them, and three quarters (75%) want smoking in public places banned.

Most respondents reported to eat fruits (94%) and vegetables (93%) in their diets. The most commonly eaten fruit were sweet bananas (65%), mangoes (56%), avocados (49%) and oranges (44%). Most students (56%) ate at least one portion of fruits per day. This shows a healthy trend in diet. However, 7% reported eating neither vegetables nor fruits.

About 83% of the surveyed university students reported engaging in physical activity for at least 60 minutes in the past seven days – 80% of female students and 85% of male students. The most common physical activities are jogging (26%), walking (18%) and a variety of games (14%).

## Recommendations

- 1) The Ministry of Health NCD program should partner with universities, the Ministry of Education and Sports, and Uganda National Tobacco Control Association and other civil society to disseminate accessible information on the NCDs and how to prevent and manage them.
- 2) Ministry of Health should draw-up a national strategy and plan of action for prevention and management of NCDs
- 3) Demographic and health surveys should collect data relevant to NCDs. Similarly, government should invest in community-based surveillance of NCDs and NCD risk factors
- 4) Parliament should expedite the enactment of the Tobacco Control Bill 2014 in its current form as it fulfills the standards set by the WHO FCTC
- 5) Universities and other tertiary institutions should set up effective mechanisms to help students wishing to stop smoking to do so, and also to expand smoke-free environments

## Conclusion

It is evident that NCDs are rapidly becoming a major cause of preventable and premature death and illness in Uganda. The prevalence of NCD risk factors among respondents in this study, coupled with low levels of awareness of such risk factors among young people, is cause for concern as it creates fertile ground for a future NCD crisis unless effective interventions are urgently put in place.

# 1. BACKGROUND

## 1.1 The emerging challenge of non-communicable diseases

There has not been a population-based survey of the major risk factors for non-communicable diseases (NCDs) in Uganda to date, but Ministry of Health reports that cardiovascular diseases, diabetes, cancers, as well as chronic obstructive pulmonary diseases are becoming increasingly important as causes of morbidity and mortality in the Ugandan population.<sup>1</sup> Uganda Heart Institute records show a fivefold increase in outpatients with heart-related complaints over a seven-year period (2002-09). Uganda Cancer Institute has also reported an upward trend in cancer incidence over the past four years (2005-09), particularly among HIV infection related cancers. Regional referral hospitals have also reported an increasing number of diabetes and chronic obstructive pulmonary disease patients either admitted in their medical wards or seen at their out-patients clinics.<sup>2</sup>

HIV and AIDS treatment centers have also reported an increase in cardiovascular diseases and diabetes among patients on anti-retroviral therapy (ART). Mildmay Uganda - one of the biggest HIV and AIDS treatment centers in the country, reported a 5% increase in NCDs among patients on ART in the year 2010. Moreover these were relatively young patients with an average age of 39 years.<sup>3</sup>

The convergence of NCDs and infectious disease in the developing world presents new challenges as they share common features, such as long-term care needs and overlapping high-risk populations, and there are also notable direct interactions, such as the association between certain infectious diseases and cancers (especially HIV related cancers), as well as evidence of increased susceptibility to infectious diseases in individuals with NCDs. A typical example is diabetes mellitus and tuberculosis. Uganda currently has over 1.5 million people living with HIV and AIDS with close to 600,000 on ART.

At the global level, the world is facing a dramatic change with non-communicable diseases (NCDs), such as heart disease and stroke, cancer, diabetes and chronic lung diseases, killing more people globally than infectious diseases. Currently, more than 35 million people die from NCDs each year worldwide representing nearly two thirds of the world's deaths. Moreover, most of these deaths (over 80%) are in low and middle-income countries and occur before the age of 60.<sup>4</sup>

Taking population ageing and risk factors into account, deaths from NCDs are projected to increase by 17% in 2005-15 while during the same time period, deaths from communicable diseases, maternal and child health-related conditions and malnutrition are projected to decrease. A recent report by Harvard University and the World Economic Forum projects that over the next two decades, NCDs will inflict US\$14 trillion in economic losses on the developing world.<sup>5</sup> Yet only US\$185 million of the US\$28.2 billion spent globally on development assistance for health in 2010 was dedicated to NCDs.<sup>6</sup>

1 Ministry of Health (n.d.): Non communicable diseases. Ministry of Health website, [http://health.go.ug/mohweb/?page\\_id=761](http://health.go.ug/mohweb/?page_id=761)

2 Ministry of Health (n.d.): Non communicable diseases. Ministry of Health website, [http://health.go.ug/mohweb/?page\\_id=761](http://health.go.ug/mohweb/?page_id=761)

3 Kawuma E., et al (2012). Prevalence of Non-Communicable Diseases among HIV clients accessing care at Mildmay Uganda. 4th EAC Health & Scientific Conference . Mildmay Uganda

4 Alwan A, World Health Organization (2011) Global status report on non-communicable diseases 2010. Geneva, Switzerland: World Health Organization. Available: [http://www.who.int/nmh/publications/ncd\\_report\\_full\\_en.pdf](http://www.who.int/nmh/publications/ncd_report_full_en.pdf). Accessed 15 November 2013

5 Bloom DE, Jané-Llopis E, Cafiero E.T., Abrahams-Gessel S., Bloom L.R., et al.. (2011) The Global Economic Burden of Non-communicable Diseases. Geneva: World Economic Forum. Available: [http://www3.weforum.org/docs/WEF\\_Harvard\\_HE\\_GlobalEconomicBurdenNonCommunicableDiseases\\_2011.pdf](http://www3.weforum.org/docs/WEF_Harvard_HE_GlobalEconomicBurdenNonCommunicableDiseases_2011.pdf). Accessed 12 November 2013.

6 University of Washington. Institute for Health Metrics and Evaluation (2012) Financing global health 2012 the end of the golden

The four NCD-related diseases share common risk factors that include tobacco use, unhealthy diets, physical inactivity, and harmful use of alcohol, as well as high blood pressure and cholesterol. For example, the INTERHEART study<sup>7</sup> that included nine African nations and 43 other countries found that the five risk factors - smoking, hypertension, abdominal obesity, diabetes mellitus and elevated cholesterol, accounted for 90% of the risk for a first myocardial infarction in the African sites. Far from being diseases exclusively of the wealthy, NCDs are already, and will continue to be, a significant burden on the world's poor.

## 1.2 Modifiable risk factors for NCDs

The modifiable risk factors are those factors that are associated with the development of four main NCDs and their control (modification) leads to reduction in NCDs. The four groups of diseases share four risk factors. These include tobacco and alcohol use, insufficient physical activity and unhealthy diets.

### 1.2.1 Tobacco use

Tobacco use is an important modifiable risk factor common to all major NCDs, causing over 16% of all NCD deaths. Approximately 5.4 million people die each year due to tobacco and this is expected to rise to over 8 million by the year 2030. Moreover 10% of students around the world smoke cigarettes. In Uganda, tobacco use is more common among Ugandan men (15%) than women (3%). According to the 2011 Uganda Demographic Survey<sup>8</sup>, 12% of men aged 15-49 years smoke cigarettes, while 1% smoke pipes, and 4% consume other forms of tobacco. Use of tobacco is most common among older men, men living in rural areas, and those with no education. The highest tobacco use is found among men in the lowest wealth quintile (32%). Cigarette smoking among men is most prevalent in West Nile region (31%), while Karamoja has the highest proportion of men who use other types of tobacco (42%). Karamoja also accounts for a large proportion of the women who use tobacco.

Among women aged 15-49 who smoked cigarettes, 18% smoked 3 to 5 cigarettes, and 18% smoked 10 or more cigarettes in the previous 24 hours. Among men who smoked cigarettes, 28% smoked 1 to 2 cigarettes, 32% smoked 3 to 5 cigarettes, and 20% smoked 10 or more cigarettes in the 24 hours prior to the survey.

### 1.2.2 Harmful use of alcohol

In its 2004 ranking of countries based on per capita alcohol consumption, the World Health Organization put Uganda top of its list with adults consuming 19.5 liters (5 gallons) a year.<sup>9</sup> Moreover, alcohol has been identified as a leading risk factor for death and disability globally, accounting for 3.8% of deaths and 4.6% of disability adjusted life years (DALYs) lost in 2004. In terms of DALYs lost in

age? Seattle (Washington): Institute for Health Metrics and Evaluation, University of Washington. Available: [http://www.healthmetricsandevaluation.org/sites/default/files/policy\\_report/2011/FGH\\_2012\\_full\\_report\\_medium\\_resolution\\_IHME.pdf](http://www.healthmetricsandevaluation.org/sites/default/files/policy_report/2011/FGH_2012_full_report_medium_resolution_IHME.pdf). Accessed 13 November 2013.

7 Steyn K., et al (2005). Risk factors associated with myocardial infarction in Africa: the INTERHEART Africa Study. *Circulation* 2005 ; 112 :3554-61

8 Uganda Bureau of Statistics (UBOS) and ICF International Inc. 2012. Uganda Demographic and Health Survey 2011. Kampala, Uganda: UBOS and Calverton, Maryland: ICF International Inc.

9 WHO (2004): Global Status Report on Alcohol 2004. [http://www.who.int/substance\\_abuse/publications/global\\_status\\_report\\_2004\\_overview.pdf](http://www.who.int/substance_abuse/publications/global_status_report_2004_overview.pdf)



2004, alcohol ranked eighth highest in low-income countries.<sup>10</sup> The role of alcohol (and particularly heavy alcohol use) in NCDs has been given increasing recognition. Along with tobacco, diet and lack of exercise, alcohol has been recognized as one of four major common risk factors. In terms of NCDs, alcohol has been particularly linked to cancer, cardiovascular diseases (CVDs) and liver disease. Alcohol has also been clearly linked to mental disorders and in some systems mental health is seen to be part of NCDs.

Eight risk factors (alcohol use, tobacco use, high blood pressure, high body mass index, high cholesterol, high blood glucose, low fruit and vegetable intake, and physical inactivity) jointly account for 61% of loss of healthy life years from CVDs and cardiovascular deaths respectively. These same risk factors together account for over three quarters of deaths from ischaemic and hypertensive heart disease. Chronic, heavy alcohol use has been associated with adverse cardiac outcomes including ischaemic heart disease (IHD), dilated cardiomyopathy, cardiac dysrhythmias, and hemorrhagic strokes.

### **1.2.3 Diet, physical activity and health**

Physical inactivity is now identified as the fourth leading risk factor for global mortality. Physical inactivity levels are rising in many countries with major implications for the prevalence of NCDs and the general health of the population worldwide. Physical activity is any bodily movement produced by the skeletal muscles that uses energy. This includes sports, exercise and other activities such as playing, walking, doing household chores or gardening.

There is strong scientific evidence that healthy diet and adequate physical activity (of greater than 30 minutes of moderate intensity physical activity, at least 5 days per week) play an important role in the prevention of these diseases. Furthermore, it is estimated that approximately 80% of heart disease, stroke, type 2 diabetes and 40% of cancers can be prevented through inexpensive and cost-effective interventions that address the primary risk factors.

## **1.3 Policy and institutional framework for NCD prevention and management**

### **1.3.1 NCD programming**

Ministry of Health established the non-communicable disease program in 2006. The program coordinates the implementation of interventions aimed at prevention and control of NCDs in Uganda. However, the program does not handle tobacco control and alcohol use as these are placed under the Mental Health and Substance abuse division. This has the potential to delink the NCDs from the associated risk factors. There is currently a draft policy on NCDs but the document is still held up at the level of the NCD Technical Working Group in the Ministry of Health.

### **1.3.2 Tobacco control**

Currently there is only one legal instrument on smoking – the National Environment (Control of Smoking in Public Places) Regulations of 2004. The Regulations mandate a smoke-free environment by prohibiting smoking in public places. This framework for tobacco control is inadequate to fully

<sup>10</sup> Rehm, J., Mathers, C., Popova, S., Thavorncharoensap, M., Teerawattananon, Y., Patra, J. (2009). Global burden of disease and injury and economic cost attributable to alcohol use and alcohol-use disorders. *Lancet*, 373, 2223,-2233.

implement Uganda's obligations to the WHO Framework Convention on Tobacco Control (FCTC). The legislation only addresses the WHO FCTC areas of smoke-free environments, health warnings and product regulation (Articles 8, 9, 10 and 11 of the WHO FCTC). Other relevant WHO FCTC articles are currently not enforceable, including Article 13 which bans tobacco advertising, promotion and sponsorship (TAPS), and parts of Article 11. Moreover, although the relevant sectors have focal persons for tobacco control, there is no formal mechanism with a mandate to plan and implement intersectoral tobacco control activities.

In addition, neither National Environment Management Authority (NEMA), which is mandated to enforce smoke-free regulations, nor the district local governments have any structured plan to monitor and enforce the regulations, despite the fact that there appears to be no active opposition to such enforcement.

At the time of compiling this report, a draft law, the Tobacco Control Bill, was being scrutinized by the Health Committee of Parliament. Uganda has currently has a draft a tobacco control law that is fully WHO FCTC-compliant.

## **1.4 Purpose of the study**

Ministry of Health established the NCD program in 2006/07 to plan and coordinate implementation of interventions aimed at prevention and control of NCDs in Uganda. While the mandate of the program is to reduce the morbidity and mortality attributable to NCDs through appropriate interventions targeting the entire population of Uganda,<sup>11</sup> the dearth of evidence on the prevalence of NCDs and NCD risk factors at the population level poses a major challenge in designing effective interventions.

Center for Health, Human Rights and Development (CEHURD), with support from UNDP, commissioned this survey to contribute evidence on the prevalence of risk factors for NCDs among young adults, particularly university students in and around Kampala. The survey assessed knowledge, attitudes and practices (KAP) of students from Makerere University, Nkumba University, Kampala International University, Uganda Christian University Mukono on the four modifiable risk factors for NCDs.

The specific objectives were:

- To estimate the prevalence of and practices relating to alcohol and tobacco use, healthy diets and physical activity among the target population;
- To assess knowledge and attitudes of university students in and around Kampala towards alcohol, drug and tobacco use, and health diets and engaging in physical activity;
- To examine the role of the media and advertising in young people's use of tobacco;
- To assess awareness on the dangers of environmental tobacco smoke (ETS); and
- To assess willingness to cease tobacco and to adopt healthy diets.

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<sup>11</sup> Ministry of Health (n.d.): Non communicable diseases. Ministry of Health website, [http://health.go.ug/mohweb/?page\\_id=761](http://health.go.ug/mohweb/?page_id=761)

## 2. OVERVIEW OF THE LITERATURE

Mondo et al. (2013)<sup>12</sup> conducted a population-based survey aimed at describing the prevalence of risk factors for NCDs in Kasese district, a rural Ugandan population sample. They used the “WHO STEPwise approach to surveillance of non-communicable diseases” (STEPS) methodology. The results showed a 21% prevalence of hypertension (22% for men and 21% for women) and 7.2% for diabetes. 9.6% smoked cigarettes daily and 24% had ever smoked. Only 7.2% ate fruit regularly and 1.2% consumed vegetables.

Murphy et al. (2013)<sup>13</sup> conducted a cross-sectional population-based survey of 7809 residents aged 13 years and older in south-western rural Uganda. They found low socioeconomic status to be associated with smoking and alcohol abuse. Prevalence of smoking reduced fourfold from lowest (22%) to highest socioeconomic (at 5.7%).

The Uganda National Household Survey (UNHS 2009/10)<sup>14</sup> reported 9% of the population to have a history of NCDs and 5% prevalence for hypertension and heart disease. The survey found prevalence of smoking to be 13% for males and 5% for females.

The London School of Hygiene and Tropical Medicine<sup>15</sup> set up the General Population Cohort (GPC) in 1989 to examine trends in HIV prevalence and incidence, and their determinants in rural south-western Uganda. Recently, the research questions have included the epidemiology and genetics of communicable and non-communicable diseases (NCDs) to address the limited data on the burden and risk factors for NCDs in sub-Saharan Africa. The cohort comprises all residents (52% aged  $\geq 13$  years, men and women in equal proportions). This cohort offers a rich platform to investigate the interplay between communicable diseases and NCDs.

Kawuma E., et al (2012)<sup>16</sup> in their study on the prevalence of NCDs among HIV clients accessing care at Mildmay Uganda, provided insights into the convergence of NCDs and infectious disease in Uganda. The study reported a 5% increase in NCDs among patients on ART over one year.

Parkin DM et al (1999)<sup>17</sup>, Wabinga HR et al (1993)<sup>18</sup> and Mbulaiteye SM et al (2006)<sup>19</sup> found an increase in AIDS defining cancers (especially Kaposi Sarcoma) among patients living with HIV who attended care at TASO Uganda.

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12 Mondo CK et al (2013). The prevalence and distribution of non-communicable diseases and their risk factors in Kasese district, Uganda. *Cardiovasc J Afr*. 2013 Apr;24(3):52-7

13 Murphy et al (2013) Sociodemographic distribution of non-communicable disease risk factors in rural Uganda: a cross-sectional study. *Int J Epidemiol*. 2013 Nov 4.

14 Uganda Bureau of Statistics (2010). The Uganda National Household Survey 2009/10. [http://www.ubos.org/UNHS0910/chapter5\\_%20non-communicable%20diseases.html](http://www.ubos.org/UNHS0910/chapter5_%20non-communicable%20diseases.html)

15 Asiki G., et al (1989). The general population cohort in rural south-western Uganda: a platform for communicable and non-communicable disease studies. London School of Hygiene and Tropical Medicine

16 Kawuma E., et al (2012). Prevalence of Non-Communicable Diseases among HIV clients accessing care at Mildmay Uganda. 4th EAC Health & scientific Conference . Mildmay Uganda

17 Parkin DM, et al (1999). *AIDS*. 1999 Dec 24-13(18) ;2563-70

18 Wabinga HR, et al. (1993). *Int J Cancer*. 1993 Apr 22.54(1) 26-36.

19 Mbulaiteye SM et al (2006). *Int J Cancer* 2006 Feb 15 :118 (4) ;985-90

## 3. METHODOLOGY

### 3.1 Study design

This was conducted as a knowledge, attitudes and practices (KAP) study. The survey was conducted primarily among undergraduate university students from four selected universities – Makerere University Kampala in Kampala district, Kampala International University in Kampala district, Nkumba University in Wakiso district, and Uganda Christian University in Mukono district. A standardized scientific sample selection process; and core questionnaire modules, and core-expanded questions that were combined to form a self-administered questionnaire that was administered during regular lecture period.

The four core questionnaire modules address the leading causes of NCDs; namely use of alcohol; dietary behaviors; physical activity; and use of tobacco and drugs. Questions were generated from both The Global Student Health Survey (GSHS) and the Global Youth Tobacco Survey (GYTS) questionnaires. The GSHS and GYTS questionnaires were developed by the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) in collaboration with UNICEF, World Bank, UNESCO, and UNAIDS.

The questions were designed to gather data on the following seven domains:

- Knowledge and attitudes of young people towards alcohol, drug and tobacco use, and health diets and engaging in physical activity.
- Prevalence of alcohol and drug use and cigarette smoking among young people
- Role of the media and advertising in young people's use of cigarettes
- Access to cigarettes
- Tobacco-related university curriculum
- Environmental tobacco smoke (ETS)
- Cessation of cigarette smoking

### 3.2 Description of respondents

The study targeted 2000 respondents, 500 per participating university. Out of the 2000 questionnaires distributed and received back, 1,800 were valid for data entry and analysis. Of all the respondents, 48% were female while 52% were male. The mean age for the respondents was 22 years (21.7 for females and 22.3 for males). Most of the respondent students (73%) were between the ages of 20 and 23 years. There was minimal difference in mean age between the universities, although Nkumba University (NKU) respondents had a higher mean age of 23 years, while Makerere University (MUK) and Uganda Christian University (UCU) had a lower mean age of 21 years.

### **3.3 Data analysis**

The data was entered into and analyzed using EpiInfo7 to generate frequencies, means and logistic regression of the variables under the five core modules – Tobacco use, alcohol use, drug use, dietary behaviors and physical activity.

### **3.4 Study limitations**

This survey was limited to students attending tertiary institutions of learning. Uganda's education coverage for secondary and tertiary education remains low – reported at 28% for secondary and only 5% for tertiary level.<sup>20</sup> Since alcohol and tobacco use are reported to be more prevalent amongst out-of-school youth and the poor rural population, the study could underestimate the magnitude of the problem in the country. Second, this is the first KAP study on NCD risk factors that has been conducted among university students in Uganda. Therefore, there is no data available to compare with. We will therefore compare the results of this study with the previous GSHS and GYTS studies conducted among high school students aged 13-15. Second, the data applies only to students who were in school the day of the survey. Third, the data is based on the self-reporting of the students.

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20 World Bank (2009). <http://data.worldbank.org/indicator/SE.SEC.ENRR>. accessed November 30, 2013

## 4. RESULTS

### 4.1 Awareness of NCDs and risk factors

**67% of the students either did not know what NCDs were &/or could not specifically describe them**

The level of awareness of NCDs was found to be very low. The study findings show that up to 67% of the students participating in the study either did not know what NCDs were and/or could not specifically describe them. For instance, at least 10% of the respondent students included HIV and AIDS – a well-publicized communicable condition – among NCDs. It may therefore be unrealistic to expect the respondents to be conscious of – let alone make deliberate effort to minimize – the health implications of their lifestyles if they cannot understand, appreciate or tell NCDs.

### 4.2 Prevalence of alcohol use

**40% of female students had ever taken alcohol, compared to 49% males**

The findings indicate a high prevalence of alcohol consumption among university-age young adults, with alcohol consumption being slightly higher among males than it is among female respondents. Results show that 40% (95% CI 32-48) of all female respondents had ever taken alcohol, compared to 49% males (95% CI 42-57). However, a majority of the male respondents reported having had their first drink at a relatively more tender age of 10, two years lower than the age at which the female respondents, who reported having on average had their first drink at the age of 12, had ever drunk.

From the responses, one quarter of those that had ever taken alcohol had their first drink when they were between the ages of 10 and 18 years. The most commonly taken type of alcohol was beer (16%), followed by wine (14%).

**Table 1: Proportion of students that take alcohol in the respective universities**

UNIVERSITY	PROPORTION THAT TAKES ALCOHOL	95% CONFIDENCE INTERVALS
Nkumba University	48%	38-58
Makerere University	42%	33-51
Kampala International University	39%	25-54
Uganda Christian University	54%	39-68

### 4.3 Prevalence of drug use

**12% of the respondents reported to have used drugs**

Results from this study show that 12% of the respondents reported to have used drugs – 11% for the females and 13% for the males. The most commonly used drug was marijuana and 9% females reported using it while 12% males used marijuana.

### 4.4 Prevalence and attitudes toward tobacco use

**9% of the students participating in this survey smoked Shisha**

Results indicate a high level of tobacco use among young adults of university-going age, averaging 15% of the students that responded to the questionnaires, but the proportion was twofold higher among male respondents in comparison to female respondents both for those that ever smoked cigarettes as well as for current smokers. An estimated 10% of females, compared to 20% of male respondents had ever smoked tobacco, while 8% female respondents were current smokers, only half the proportion of the male respondents who currently smoke cigarettes (16%). Findings show an tobacco consumption level among university-age going youths to be just above the national prevalence rate for tobacco use, reported at 15% by the 2011 Uganda demographic and health survey (UDHS).

The findings suggest that Shisha is an emerging form of tobacco consumption especially among female university students. In this study, we found that 9% of the students participating in this survey smoked Shisha, which was the most commonly used tobacco product other than cigarettes. Shisha use was reported to be more prevalent among females than males. The 2002 GYTS found 9.7% of respondents used other tobacco products.

Shisha is a social form of tobacco consumption that is becoming increasingly popular among Kampala bar and café goers where tobacco is smoked through water pipes in flavoured and sweetened form, making it more trendy and appealing to consumers than cigarette smoking. WHO (2005) says that, contrary to popular belief, the shisha smoke is not any safer and that a single shisha smoking session may be equivalent to smoking 100 or more sticks of cigarettes. While water absorbs some of the nicotine, the reduced concentration of the nicotine in the water pipe smoke may result in smokers inhaling

higher amounts of smoke (to achieve the same level of the addictive nicotine that each smoker needs) and thus exposing themselves to higher levels of cancer-causing chemicals and hazardous gases such as carbon monoxide than if none of the nicotine was absorbed by the water.<sup>21</sup>

WHO (2005) puts the health risks of shisha smokers and second hand smokers at the same level with those of cigarette smokers, in terms of risk of cancer, heart disease, respiratory diseases and adverse effects during pregnancy, among others.

In this survey, second hand smoking was also reported to be high. More than 40% of respondents reported staying in homes where parents smoke. Moreover, 10% of the students had friends who smoked.

### **60% of students had smoked for less than a year**

One of the most intriguing findings was that 60% of students had smoked for less than a year and 57% had been exposed to pro-cigarette advertisements – implying that they initiated smoking recently. While WHO Framework Convention on Tobacco Control (FCTC), the international treaty that sets rules that govern the production, sale, distribution, advertisement, and taxation of tobacco, recommends a comprehensive ban on tobacco advertising, tobacco advertising, promotion and sponsorships continue to take place in Uganda. In this survey, more than half the respondents (57%) reported seeing a pro-tobacco message in a newspaper or magazine in the past 30 days.

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21 WHO (2005): Waterpipe tobacco smoking: Health effects, research needs and recommended actions by regulators. [http://www.who.int/tobacco/global\\_interaction/tobreg/Waterpipe%20recommendation\\_Final.pdf](http://www.who.int/tobacco/global_interaction/tobreg/Waterpipe%20recommendation_Final.pdf)



**Table 2: Tobacco use among university students**

VARIABLE	FREQUENCY (95% CI)		AVERAGE
	Female	Male	
<b>PREVALENCE</b>			
Ever smoked	10% (6-15)	20%(14-26)	15%
Currently use tobacco	8% (5-12)	16%(15-2)	12%
Average number of cigarettes per day	5 cigarettes	5 cigarettes	5 cigarettes
Average duration of smoking	Less than a year	Less than a year	
<b>ENVIRONMENTAL TOBACCO SMOKE</b>			
Think smoke from other people is harmful to them	91%(86-95)	92%(87-93)	92%
Ever lived near a person using tobacco	60%(52-68)	75%(69-81)	68%
Have most or all friends who smoke	7%(5-10)	12% (7-18)	10%
Think smoking should be banned from public places	78%(71-84)	75%(69-81)	77%
Have parents who smoke	42%(40-50)	42%(34-49)	42%
Use other tobacco products (shisha, etc)	10% (7-15)	7%(5-10)	9%
<b>MEDIA AND ADVERTISING</b>			
Heard/saw anti-smoking media messages in past 30 days	67%(60-75)	63%(55-70)	65%
Saw anti-smoking message on cigarette packages in past 30 days	54%(46-62)	62%(55-69)	58%
Saw pro-cigarette ads on billboards in the past 30 days	7%(3-12)	27%(21-35)	17%
Saw pro-cigarette ads in newspapers/magazines in past 30 days	58%(50-65)	55%(47-62)	57%
Been offered an object with cigarette brand logo	12%(8-18)	11%(7-17)	12%
Would wear an object with cigarette brand logo	19%(13-26)	19%(14-26)	19%
<b>KNOWLEDGE AND ATTITUDES</b>			
Think smoking tobacco help people feel more comfortable	15%(10-21)	25%(19-32)	20%
Think smoking tobacco makes people feel less comfortable	77%(69-82)	65%(58-72)	71%
<b>CESSATION CURRENT SMOKERS</b>			
Have ever received help to stop smoking	26%(19-33)	27%(21-34)	27%
Would like to stop smoking	70% (57-73)	78%(65-80)	74%
Taught in a lecture during the past one about dangers of smoking	45%(37-52)	37%(30-44)	42%

On a positive note, three quarters (74%) of the students that currently smoke wanted to stop smoking (70% for girls and 78% for the boys), even though only 27% had ever received help to stop smoking. Nine in 10 respondents (92%) know that smoke from other people is harmful to them, and three quarters (75%) want smoking in public places banned.

## 4.5 Dietary behaviors

A diet rich in vegetables and fruits can lower blood pressure, reduce risk of heart disease and stroke, prevent some types of cancer, lower risk of eye and digestive problems, and have a positive effect upon blood sugar.<sup>22</sup> In this study, the indicator for a healthy diet was the presence of vegetables and fruits in the respondents' diets.

**Table 3: Healthy diet among university students**

VARIABLE	FREQUENCY (95%CI)		AVERAGE
	F	M	
<b>PREVALENCE</b>			
Ate fruits in past 30 days	94% (89-97)	94% (90-97)	94%
<b>NUMBER OF TIMES ATE FRUITS IN PAST 30 DAYS</b>			
Once	52% (44-60)	55%(48-62)	54%
2-4 times	36%(29-44)	33%(26-40)	35%
More than 5 times	4%(2-9)	7%(2-10)	6%
None	8%(3-11)	3%	6%
<b>NUMBER OF FRUIT PORTIONS PER DAY</b>			
One portion	56% (48-64)	61%(53-68)	59%
2 portions	27%(20-35)	26%(19-33)	27%
3 -4 portions	9%(5-14)	7%(3-9%)	8%
More than 4 portions	1%(0-5)	2%(0-5)	2%
None	7%(3-10)	4%(2-9)	6%
<b>TYPE OF FRUIT EATEN</b>			
Apple	1%(0-3)	1%(0-3)	1%
Avocados	55%(48-63)	43%(36-51)	49%
Guavas	11% (7-17)	4% (2-8)	8%
Jack fruit	23%(17-30)	23%( 17-30)	23%
Mangoes	52%(45-60)	39%(32-47)	46%
Oranges	45%(37-52)	41%(33-48)	44%
Pawpaw	16%(11-22)	14% (9-20)	15%
Pineapples	36%(28-43)	40%(33-48)	38%
Sweet bananas	71%(63-78)	59%(52-66)	65%
<b>PREVALENCE</b>			
Ate vegetables	92%(81-96)	94%(82-98)	93%
<b>NUMBER OF PORTIONS EATEN PER DAY</b>			
1-3 portions	85%(79-90)	87%(81-91)	86%
4-6 portions	3% (1-6)	3%(1-7)	3%
More than 7 portions	5% (2-6)	4% (1-6)	5%
None	8%(4-13)	6% (3-10)	7%

<sup>22</sup> Harvard School of Public Health (n.d.): The nutrition source: Vegetables and fruits. <http://www.hsph.harvard.edu/nutritionsource/what-should-you-eat/vegetables-and-fruits/>

**7% do not eat healthy diets; they do not eat vegetables nor fruits**

Most respondents reported to eat fruits (94%) and vegetables (93%) in their diets. The most commonly eaten fruit were sweet bananas (65%), mangoes (56%), avocados (49%) and oranges (44%). Most students (56%) ate at least one portion of fruits per day. This shows a healthy trend in diet. However, 7% do not eat vegetables nor fruits. In addition, for those who ate fruits and vegetables, the number of portions eaten per day tended to be between one and three.

#### 4.6 Physical Activity

**83% of the surveyed university students reported engaging in physical activity for at least 60 minutes in the past seven days**

About 83% of the surveyed university students reported engaging in physical activity for at least 60 minutes in the past seven days – 80% of female students and 85% of male students. The most common physical activities female students engaged in included jogging (26%), walking (18%) and a variety of games (14%) ranging from soccer, volleyball, netball and swimming). While for male students the most common physical activities they engaged were football (18%) and jogging (15%). Table 6 below summarizes the data on physical activity.

**Table 6: Physical activity among university students**

VARIABLE	FREQUENCY (95%CI)		AVERAGE
	F	M	
Prevalence			
During the past 7 days - engaged in physical activity for at least 60 days	80% (73-85)	85% (79-90)	83%
Type of physical activity engaged in			
Jogging	26% (20-35)	15% (7-20)	21%
Walking	18% (16-24)	10% (4-12)	9%
Games	14% (9-18)	24% (2-10)	19%
None	14% (8-20)	12% (8-18)	13%

## 5. RECOMMENDATIONS AND CONCLUSION

### 5.1 Recommendations

- 1) The findings of this study show that the level of knowledge and awareness of NCDs and the associated risk factors among university is very low, yet they are arguably the elite within their age-group. The Ministry of Health NCD program should partner with universities, the Ministry of Education and Sports, and Uganda National Tobacco Control Association and other civil society to disseminate accessible information on the NCDs and how to prevent and manage them. There is therefore need to increase the level of awareness of NCDs and strengthen protective factors among children, adolescents and young adults.
- 2) A review of the literature for this study has found that data on NCD risk factors in Uganda at the population level is sparse. Therefore, nationally representative cross-sectional demographic and health surveys that are conducted every five years should collect data relevant to NCDs. Similarly, government should invest in community-based longitudinal demographic surveillance sites to collect data needed for planning, designing and implementing effective interventions for prevention, control and management of NCDs in Uganda.
- 3) The current regulatory framework is insufficient in effectively controlling tobacco use in Uganda and cannot facilitate the country to fulfill its obligations under the WHO FCTC. Parliament should expedite the enactment of the Tobacco Control Bill 2014 in its current form as it fulfills the standards set by the WHO FCTC and well suited to curbing new trends in tobacco promotion, marketing and consumption, such as shisha.
- 4) The findings of this study have shown that up to three quarters of the students who currently smoke want to stop smoking, and that only 27% had ever received help to stop smoking. Universities and other tertiary institutions should set up effective mechanisms to help students wishing to stop smoking to do so, and also to create smoke-free environments by expanding areas within their premises where smoking is prohibited.
- 5) Ministry of Health should draw-up a national strategy and plan of action for prevention and management of NCDs. The strategy should adopt an integrated approach that promotes strategic alliances and synergies both within the health sector and with sectors outside of health, involving government departments, civil society, academia, the private sector, as well as international organizations.

### 5.2 Conclusion

It is evident that NCDs are rapidly becoming a major cause of preventable and premature death and illness in Uganda. The prevalence of NCD risk factors among respondents in this study, coupled with low levels of awareness of such risk factors among young people, is cause for concern as it creates fertile ground for a future NCD crisis, at time when the country is still struggling with a huge burden of communicable diseases. This is not in line with international frameworks, such as the WHO Framework Convention on Tobacco Control and the Global Action Plan for the Prevention and Control of NCDs (2013-20). Global Plan of Action calls on states to raise the priority accorded to the prevention and control of NCDs.

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