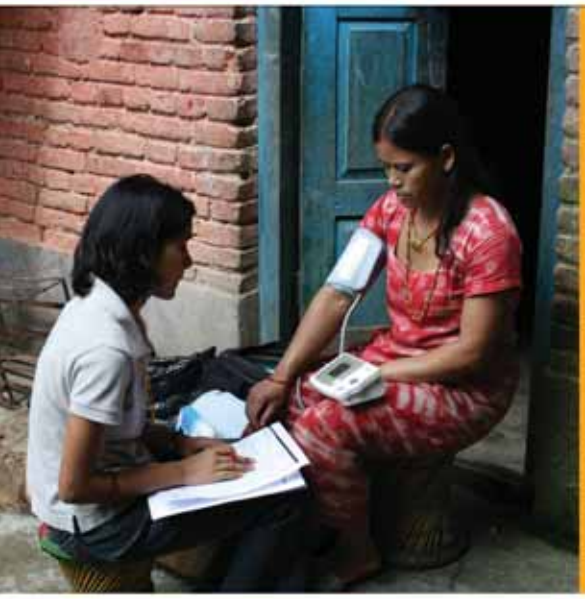
WHO STEPS SURVEILLANCE

NEPAL

NON COMMUNICABLE DISEASE RISK FACTORS



SURVEY 2008

SOCIETY FOR LOCAL INTEGRATED DEVELOPMENT
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WHO STEPS SURVEILLANCE

NON COMMUNICABLE DISEASE RISK FACTORS SURVEY,

2007/08

NEPAL

MINISTRY OF HEALTH AND POPULATION
GOVERNMENT OF NEPAL

SOCIETY FOR LOCAL INTEGRATED
DEVELOPEMENT NEPAL (SOLID NEPAL)

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Preface

The WHO STEP -wise approach to surveillance of risk factors for non-communicable diseases (NCD) in Nepal has been implementing since 2002/03 by Ministry of Health and Population in conjunction with World Health Organization and Society for Local Integrated Development Nepal (SOLID Nepal).

The NCD Risk Factors Surveys carried out in 2002/03 and 2005 had showed high prevalence risk factors for NCDs but those survey were not nationally representative. Therefore, this nationally representative survey has been carried out with the objectives of estimating national distribution of NCD risk factors as a first step in a sequential process that aims to establish and maintain a comprehensive, integrated, systematic and sustainable population-based data collection system as part of the National Action Plan for the Prevention and Control of Non-communicable diseases in Nepal ; establishing awareness and experience in NCD risk factors survey among different level of health managers and health workers that will improve the country capacity for NCD prevention and control program for the future, and developing plans and intervention as a follow up of FCTC ratification and to develop specific intervention in community mental health.

This survey has set up the prevalence of common and easily modifiable NCD risk factors such as tobacco use, excessive alcohol use, unhealthy diet, physical inactivity, obesity and high blood pressure. Findings of the survey serve as baseline to design and implement the NCD prevention and control programme in Nepal.

During the survey, many institutions and individuals supported us extensively. First and foremost, I would like to express my sincere thanks to Dr. Nirakar Man Shrestha, former health secretary and principal investigator for his leadership and guidance to accomplish the survey.

I would like to extend my appreciation to Dr. Jerzy Leowski, Regional Advisor for NCD, WHO, Regional Office for South-East Asia (Delhi) for his steady support to conduct NCD risk factor survey in Nepal. Likewise, our gratitude goes to WR Nepal and WHO country staff for their technical and financial support.

I would also like to extend my special appreciation for the work and support provided by the Society for Local Integrated Development Nepal, a NGO engaged with surveys since 2002/03, District Health Officers and District Public Health Officers of the concerned districts and to all health staffs, who worked as supervisors and interviewers during the survey.

Last but not the least, my heartfelt thanks and respect to all the respondents who were very keen to provide information to our enumerators.

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Dr Dirgh Singh Bam
Secretary

June 2009

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Foreword

The increasing burden of Non Communicable Diseases (NCD), particularly in developing countries, threatens to overwhelm an already-stretched health service. The factors underlying the major NCDs (heart disease, stroke, diabetes, cancer and chronic respiratory conditions) are well documented. Primary prevention based on a comprehensive population-based programme is the most cost-effective approach to contain this emerging epidemic.

From a primary prevention perspective, survey of the major risk factors known to cause these diseases is an appropriate starting point. The basis of NCD prevention is the identification of the major common risk factors and their prevention and control. Effective prevention strategies for NCD do exist and current studies show that interventions such as diet and physical activities are effective to reduce risk factors. However, they require specific data on risk factors so that priorities can appropriately be set and targeted interventions developed and monitored.

The WHO Stepwise approach to Surveillance (STEPS) is a standardized method for collecting, analyzing and disseminating data in WHO member countries. By using the same standardized questions and protocols, all countries can use STEPS information not only for monitoring within-country trends, but also for making comparisons across countries. The approach encourages the collection of small amounts of useful information on a regular and continuing basis.

I hope this publication will be useful for everyone working to reduce NCD risks and promoting healthy life throughout the country.

Dr Alexander Andjaparidze

WHO Representative to Nepal

List of Abbreviations

BMI	Body Mass Index
BP	Blood Pressure
CBS	Central Bureau of Statistics
CI	Confidence Interval
COPD	Chronic Obstructive Pulmonary Diseases
CVD	Cardiovascular Diseases
DBP	Diastolic Blood Pressure
DALY	Disability Adjusted Life Years
FCTC	Framework Convention on Tobacco Control
GDP	Gross Domestic Products
HMG Nepal	His majesty's Government of Nepal
ICD	International Classification of Diseases
MET	Metabolic Equivalent
mmHg	Millimeter of Mercury
MOH	Ministry of Health
MOHP	Ministry of Health and Population
NCD	Non-communicable diseases
NCDRF	Non-Communicable Diseases Risk Factors
NGO	Non-governmental Organization
NHRC	Nepal Health Research Council
PPS	Probability Proportionate to Size
SEAR	South East Asia Region
SEARO	South East Asia Regional Office
SBP	Systolic Blood Pressure
SOLID Nepal	Society for Local Integrated Development Nepal
TFI	Tobacco Free Initiative
VDC	Village Development Committee
WHO	World Health Organization

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The STEPS survey of non-communicable diseases risk factors in Nepal was carried out from January 2007 to August 2008. Nepal carried out Step 1 and Step 2. Socio demographic and behavioural information was collected in Step 1. Physical measurements such as height, weight and blood pressure were collected in Step 2. The STEPS survey in Nepal was a population-based survey of adults aged 15-64. A multi-stage probability proportionate to size sampling design. Sample design was used to produce representative data for that age range in Nepal. A total of 4328 adults participated in the Nepal's STEPS survey. The overall response rate was 98.4%. A repeat survey is planned for every five year.

Results for adults aged 15-64 years (incl. 95% CI) *(adjust if necessary)*	**Both Sexes**	**Males**	**Females**
Step 1 Tobacco Use			
Percentage who currently smoke tobacco daily	**23.8 %** (16.3-31.3)	**31.2%** (20.8-41.7)	**15.5%** (10.3-20.7)
For those who smoke tobacco daily			
Average age started smoking (years)	**20.0** (17.7-22.4)	**18.8** (17.7-19.9)	**12.9** (11.3-14.6)
Average years of smoking	**21.6** (17.4-25.8)	**21.1** (16.9-25.2)	**22.9** (17.7-28.1)
Percentage smoking manufactured cigarettes *(Among current smokers)*	**73.9%** (61.5-86.3)	**85.7%** (73.4-98.0)	**47.7%** (22.8-72.6)
Mean number of manufactured cigarettes smoked per day (by smokers of manufactured cigarettes)	**7.8** (6.0-9.5)	**8.1** (6.1-10.1)	**6.4** (5.0-7.8)
Step 1 Alcohol Consumption			
Percentage of abstainers (who did not drink alcohol in the last year)	**62.7%** (54.1-71.3)	**49.6%** (39.2-59.9)	**77.3%** (67.8-86.9)
Percentage of current drinkers (who drank alcohol in the past 30 days)	**28.5%** (20.3-36.7	**39.3%** (27.7-51.0)	**16.5%** (8.9-24.1)
For those who drank alcohol in the last 30 days			
Percentage who drank alcohol on 4 or more days in the last week	**33.3%** (22.8-43.8)	**36.1%** (22.2-50.1)	**26.0%** (15.8-36.2)
Percentage of women who had 4 or more drinks on any day in the last week			**30.5%** (22.6-38.5)
Percentage of men who had 5 or more drinks on any day in the last week		**21.2%** (9.1-33.3)	
Step 1 Fruit and Vegetable Consumption (in a typical week)			
Mean number of days fruit consumed	**2.1** (1.6-2.7)	**2.1** (1.6-2.6)	**2.1** (1.5-2.8
Mean number of servings of fruit consumed per day	**1.7** (1.3-2.1)	**1.8** (1.4-2.1)	**1.6** (1.1-2.0)
Mean number of days vegetables consumed	**5.2** (4.7-5.8)	**5.1** (4.6-5.7)	**5.3** (4.7-6.0)
Mean number of servings of vegetables consumed per day	**2.5** (2.1-2.8)	**2.5** (2.1-2.8)	**2.5** (2.1-2.9)
Percentage who ate less than 5 of combined servings of fruit & vegetables per day	**61.9%** (50.2-73.6)	**60.5%** (49.0-71.9)	**63.5%** (48.9-78.1)
Step 1 Physical Activity			
Percentage with low levels of activity (defined as <600 MET-minutes/week)	**5.5%** (3.4-7.7)	**5.2%** (2.9-7.4)	**5.9%** (3.3-8.5)
Percentage with high levels of activity (defined as ≥3000 MET-minutes/week)	**82.9%** (78.0-87.9)	**83.1%** (78.6-87.6)	**82.8%** (75.1-90.4)
Median time spent in physical activity per day (minutes)	**480.0** (120.0-960.0)	**445.7** (102.8-908.5)	**480.0** (120.0-960.0)
Mean time spent in physical activity per day (minutes)	**280.6** (251.6-309.6)	**270.6** (270.8-300.4)	**291.7** (248.5-334.9)

Non Communicable Diseases Risk Factors Survey 2007/08

Fact Sheet

Results for adults aged 15-64 years (incl. 95% CI) *(adjust if necessary)*	Both Sexes	Males	Females
Step 2 Physical Measurements			
Mean body mass index - BMI (kg/m^2)	**20.6** (20.1-21.0)	**20.4** (20.0-20.9)	**20.7** (20.3-21.1)
Percentage who are overweight or obese (BMI ≥ 25 kg/m^2)	**7.2%** (4.8-9.5)	**7.3%** (4.9-9.6)	**7.1%** (4.0-10.2)
Percentage who are obese (BMI ≥ 30 kg/m^2)	**1.7%** (0.9-2.5)	**1.1%** (0.2-2.0)	**2.4%** (1.2-3.6)
Average waist circumference (cm)		**74.9** (73.7-76.1)	**70.3** (68.9-71.8)
Mean systolic blood pressure - SBP (mmHg), excluding those currently on medication for raised BP	**125.7** (122.1-129.3)	**128.3** (124.6-132.0)	**122.8** (118.6-127.0)
Mean diastolic blood pressure - DBP (mmHg) , excluding those currently on medication for raised BP	**77.2** (74.8-79.6)	**77.6** (74.5-80.6)	**76.8** (74.6-79.0)
Percentage with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP)	**21.5%** (15.7-27.3)	**24.5%** (16.5-32.6)	**18.1%** (12.7-23.5)
Percentage with raised BP (SBP ≥ 160 and/or DBP ≥ 100 mmHg or currently on medication for raised BP)	**5.7%** (3.3-8.2)	**6.9%** (2.6-11.3)	**4.5%** (2.1-6.9)
Summary of combined risk factors • current daily smokers • less than 5 servings of fruits & vegetables per day • low level of activity (<600 MET* -minutes) • overweight or obese (BMI ≥ 25 kg/m^2) • raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP)			
Percentage with low risk (i.e. none of the risk factors included above)	**22.0%** (13.0-31.1)	**20.9%** (14.3-27.5)	**23.3%** (9.5-37.1)
Percentage with raised risk (at least three of the risk factors included above), aged 15 to 44 years old	**5.7%** (3.1-8.3)	**8.4%** (4.3-12.5)	**2.7%** (1.1-4.3)
Percentage with raised risk (at least three of the risk factors included above), aged 45 to 64 years old	**20.1%** (12.7-27.4)	**24.2%** (13.3-35.2)	**15.2%** (7.9-22.4)

**MET(= Metabolic equivalents)* is the ratio of a person's working metabolic rate relative to the resting metabolic rate. One MET is defined as the energy cost of sitting quietly, and is equivalent to a caloric consumption of 1 kcal/kg/hour.

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EXECUTIVE SUMMARY

BACKGROUND

Common and easily modifiable risk factors underlie most of the Non-Communicable Diseases (NCDs) and explain the vast majority of deaths at all ages relating to NCDs among men and women in all parts of the world. They include tobacco use, excessive alcohol consumption, physical inactivity and low intake of fruits and vegetables. These common behavioral risk factors contribute largely to high blood pressure, obesity, high blood glucose and cholesterol levels, which in turn cause major NCDs such as cardiovascular disease, cancer, diabetes mellitus and chronic lung diseases.

Nearly 52 percent of deaths and 44 percent of Burden of Diseases (BOD) in South-East Asia Region (SEAR) are related to NCDs. The major NCDs in the region are cardiovascular disorders, cancer, diabetes mellitus, chronic lung diseases and conditions arising from accidents and injuries.

Nepal has had opportunity to assess the burden of NCDs risk factors three times during a period of six years. First assessment was confined to capital city, Kathmandu. The survey clearly indicated that Nepal has high prevalence of risk factors for NCDs. Since the first survey was centered to the capital city, second survey was directed towards townships as well as rural areas. The second survey also indicated the same level of risk factors for NCDs. However, these findings of the survey could not represent national prevalence of the risk factors. Therefore, the third survey had been carried out to embrace the whole nation.

The third NCD risk factors survey, carried out in 2007/8, had objectives to estimate national distribution of NCD risk factors as a first step in a sequential process that aims to establish and maintain a comprehensive, integrated, systematic and sustainable population-based data collection system as part of the National Action Plan for the Prevention and Control of Non-communicable diseases in Nepal; to establish awareness and experience in NCD risk factors survey among different level of health managers and health workers that will improve the country capacity for NCD prevention and control program for the future, to develop plans and intervention as a follow up of FCTC ratification and to develop specific intervention in community mental health.

A cross sectional survey of individuals belonging to 15-64 years age group from 15 districts representing five developmental and three ecological regions was carried out in a span of three months, supported by trained health supervisors and health workers from both governmental and non governmental sides.

A multistage stratified sampling strategy was adopted to select the number of subjects required for the survey. A total of 4400 individuals were targeted for the survey but 4328 were covered in the entire survey. A response rate of 98.4 was achieved with a difference of 98.3 for men and 98.4 for women. Age and sex composition of the surveyed population was 44.1 for men and 55.9 for women. Weighing of the data was carried out as per the formula provided by the STEPS surveillance team, from WHO, Geneva.

Ethno-graphically 39.2 percent were Bahun and chhetri, 22.3 percent Newar, 28.6 percent Janjatis and 10 percent others.

Mean duration of formal education among respondents was 6.1 years for male and 3.6 years for women but 20 percent men and 51 percent women did not have any formal education.

Coming to the issue of employment, 3.5 percent of the total respondents were governmental, 5.9 percent non-governmental and 23.6 percent self employed and 67 percent were engaged in unpaid jobs.

Average national per capita income of Nepalese people was NRS 7690 (less than 100 US $ in 1995 and was increased to NRS 15162 (little less than 200 US $) in 2004. However, in this survey, mean per capita income of the surveyed population was NRS 5120.9

In this survey, tobacco use, excessive alcohol consumption, low intake of fruits and vegetables, physical inactivity, weight, height and blood pressure were taken as major variables. History of blood pressure and diabetes was also taken from the respondents. Major findings on these variables were summarised below.

TOBACCO USE

Current tobacco users (both smoke and smokeless forms) in population were 37.1 percent with a difference of 53.3 percent in men and 19.2 percent in women. Of them, 26.2 percent respondents were found to be currently smoking (35.5% men and 15.9 % women). Among current smokers, 23.8 percent (Men 31.2% and women 15.5%) were daily smokers. This indicates that once a person starts smoking, s/he continues it. A few may remain as occasional smokers. Mean age of the start of smoking was found to be 18.8 years for men and 12.9 years for women. Mean duration of smoking of smokers was 21.6 years with a sex variation of 21.1 for men and 22.8 for women. Altogether, 11.7 percent of respondents were found stopping smoking wherein 14.5 percent were men and 9.2 percent were women.

Of the total respondents, 18.6 percent consumed smokeless tobacco products. Among smokeless tobacco users, 31.2 percent were men whereas 4.6 percent were women. As in current smokers, 16.2 percent (men 26.9% and 4.7 % women) of the current smokeless tobacco users are daily and only 3.2 percent are occasional smokeless tobacco users. It also reveals that once a person initiates taking tobacco products, s/he uses daily. Proportion of respondents, quitting using of smokeless tobacco was 3.4 percent with a sex variation of 6.1 percent for men 1.2 percent for women.

Some 7.7 percent of the tobacco users were consuming the both forms of the tobacco products. It clearly shows that one third of the total population aged 15-64 years was taking a tobacco product which is an alarming public health threat.

ALCOHOL CONSUMPTION

One of the risk factors for NCDs is excessive use of alcohol. Out of total respondents, 28.5 percent were found to be currently consuming alcoholic drinks wherein almost one and half times more men (39.3%) than the women counter parts (16.5%). Regarding daily drinking, men were proportionately more than women 31.3 percent Vs.13.3 percent respectively. Mean number of standard drinks consumed during a drinking day was 4.5 which is higher than a normal one and men were found to be drinking more (4.8 standard drink) than women (3.6 standard drinks). Data reveals that among alcohol consumers one in three (32.3%) in men and one in ten in women were drinking harmful amount (>60gms of ethanol) of alcohol.

FRUIT AND VEGETABLE CONSUMPTION

Mean number of days Nepalese people consume fruits was found to be 2.1 days and was similar between two sexes, where as vegetable consumption was 5.1 days for men 5.3 days for women in a typical week. Looking at number of servings, of fruit and vegetables consumption, it was 1.8 for men and 1.6 for women in fruit consumption and 2.5 servings of vegetables for both sexes. More than five servings of fruit and vegetables is recommended for healthy living, but only 60.5 percent men and 63.5 percent women were currently consuming less than 5 servings of fruit and vegetables daily in Nepal.

PHYSICAL ACTIVITIES

A total of almost 95 percent population was found to be engaged in physical activity of either moderate or high level physical activity. Small proportion of less than 6 percent was engaged in low level of physical activity among both sexes. Mean minutes of physical activity among men was 270.6 minutes/day (4.5 hours), where as among women was 291.7 minutes/day (4.8 hours) and in both sexes it was 280.6/day minutes (4.6 hours) , that is more than recommended level of 150 minutes per week. Except in recreation related physical activity, work and transport related physical activity was found to be above the recommended level.

REPORTED PREVALENCE OF HIGH BLOOD PRESSURE

Around 9 percent of the population was found to have reported prevalence of high blood pressure as told by their health care professional. The proportion was little more among women compared to their men counter parts 10.2 percent Vs.8.4 percent respectively. But only one in two high blood pressure having individuals was taking anti-hypertensive medication. Women were relatively more in taking drugs for their high blood pressure than men. Four out of five high blood pressure having individual were receiving lifestyle related advices for the control of their high blood pressure and women were more to receive it compared to men.

Almost half of the population only received advices on physical activity, smoking and exercise. Around 10 percent hypertensive still receives care from traditional healers or use herbal medicines.

REPORTED PREVALENCE OF DIABETES

Little more than one in 10 Nepalese people is found to have diabetes where women are relatively more than men. Similarly more women use insulin to control their diabetes than men. Almost equal proportion of men (59.1%) and women (56.8%) use oral hypoglycaemic drugs. Similarly, 14.1 percent of diabetics were taking insulin. Nine out of ten diabetics appear to have received life style related advices but losing weight was poor compared to diet, exercise and smoking. Almost one in five Nepalese diabetic is seeking traditional medical care or using herbal medicine for the control of their diabetes.

PHYSICAL MEASUREMENT

Mean height of Nepalese male individual was found to be 160 cms whereas for women it was 150 cms. Similarly, weight was 53 for men and 47 Kg for women. Mean BMI for men was 20.4 kg/m^2 whereas for women it was 21 $kg/^{m2}$. Around 7 percent in both sexes were identified over weight or and 2.4 percent of women and 1.1 percent men were obese.

Mean systolic and diastolic blood pressure were 126 and 77 mm of Hg in both sexes with difference 128 and 78 mm of Hg among men and 123 and 77 mm of Hg among women respectively. Among men 24.5 percent and among women 18.1 percent had Systolic Blood Pressure (SBP) >140 & Diastolic Blood Pressure (DBP) >90 mm of Hg. According to WHO, cut off point to be said hypertension is systolic 140 and diastolic 90 mm of Hg. Only one in three hypertensive individuals were currently receiving antihypertensive drugs.

RAISED RISK FACTORS FOR NCD

Out of total respondents, 16 percent men and 15 percent women were without any risk factors for NCD in the population whereas more than 80 percent were having either one or more risk factors and it was true for both sexes.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This survey was carried out with the aim of establishing a continuous surveillance mechanism (surveillance system) to the major risk factors for Non Communicable Diseases, recognized worldwide.

Data revealed that prevalence of both behavioural (tobacco use, alcohol consumption, low intake of fruits and vegetables and physical inactivity) and intermediate (obesity, high blood pressure) risk factors for major Non Communicable Diseases are remarkably high in prevalence in the general population. Among adult aged 15-64 years, 37 percent consume tobacco products; 28.5 percent drink alcohol and 60.5 percent men and 63.5 percent women do not take recommended amount of fruits and vegetables. Prevalence of common behavioural risk factors varies among age groups and sex. Similarly, 7 percent of them are overweight and 24.5 percent of men and 18.2 percent of women are hypertensive. However,

only one in three hypertensive cases take antihypertensive measures. However, less than 6 percent of the adult population in country is involving in low level of physical activity.

Prevention and control of non-communicable diseases is a multifaceted and complex task for least developed countries like Nepal. It is mostly related with people's day to day behaviour, which takes a lot of time to change. Similarly, treatment, care and support for patients with NCDs is very expensive and not easily accessible to general people. However, it is an established fact that most common risk factors for NCDs such as tobacco use, excessive alcohol consumption, low intake of fruits and vegetables and physical inactivity and their consequences are easily modifiable and preventable. Therefore, as WHO has framed, priority for future interventions in establishing a public health surveillance system on NCDs should be focused on prevention and control of common and easily modifiable risk factors to prevent NCDs at large. At the same time, public health system should also be strengthened and scale up to improve health care to detect and treat or refer hypertensive, diabetics and overweight individuals.

Recommendations

Based on the survey findings, observation during field activities and interaction with local health stakeholders, the study team recommends the following points for consideration to develop and execute NCD surveillance system in Nepal.

General

- In the context of high prevalence of common and modifiable risk factors for NCDs, a national campaign for raising awareness on prevention and control of risk factors should be launched focusing on :
  - Control of tobacco production, distribution, consumption and demand reduction
  - Harmful effects of excessive alcohol consumption
  - Importance of daily vegetable and fruits intake
  - Promotion of physical activity both in urban and rural settings
- This report has prepared according to WHO prescribed format. Further analysis can be carried out to understand the risk factors level in different settings as for example urban versus rural, educated versus non-educated, etc. Further analysis of the findings should be carried out to further understand the risk factors and other associated factors

For Ministry of Health and Population (MoHP)

- The existing Nepal Health Sector Implementation Plan (2004-2009) neither recognized nor prioritized the programmes related to prevention and control of non-communicable diseases but the same document has explicitly documented that burden of NCDs as 42.1 percent. It is now increasing in trend. This research has also clearly showed that the risk factors for NCDs are highly prevalent in economically productive age group. So, ministry of health and population should immediately develop and endorse NCD prevention and control policy and also should establish the NCDs and their risk factors surveillance system.
  - Government has already ratified the WHO Framework Convention on Tobacco Control and initiated some forms of tobacco prevention and control activities. However, those activities are not adequate to implement the FCTC. So, Ministry of health and population should develop and implement a comprehensive FCTC implementation plan in coordination with other concerned ministries. Similarly,

MoHP should work together with other ministries to implement controlled production and distribution of alcohol

- ❖ Prevention and control of NCDs covers a wise range of sectors such as education, traditional medicine, agriculture and local governance. So, MoHP should work together with line ministries to integrate NCD prevention and control interventions.

For DOHS

- ❒ DoHS, major implementing department of MoHP should develop guidelines, protocol and a system to implement NCD policy and plans.
- ❒ All hypertensive and diabetics should have access to modern health facilities as well as develop on adequate awareness to utilize those facilities. In addition to change the life styles, community awareness on the importance of monitoring blood pressure, blood glucose and cholesterol should be carried out.
- ❒ DoHS should establish a NCD Section in Epidemiology Division to implement and monitor NCD related activities.

For Hospitals and health care providing facilities.

- ❒ Physicians and health workers are mostly trained on prevention and control of communicable diseases. They have inadequate knowledge and skills on prevention and control of NCDs. Thus, physicians and health workers should be trained and refreshed on prevention and control measures of NCDs.
- ❒ Regular scrutiny of risk factors in the general population should be carried out by physicians and health workers and as accordingly, they have to provide health education to the community people.

Chapter– 1

INTRODUCTION, METHODOLOGY AND PROCESS

BACKGROUND

Heart diseases, stroke, cancer, chronic respiratory diseases and diabetes are the major Non Communicable Diseases (NCD) in the world. NCDs are the major causes of death in almost all countries. Approximately 58 million deaths were expected to occur in 2005. Out of this, around 60 percent (35 million) was contributed by the NCDs. An additional 5 million deaths (9%) resulted from violence and injuries. Around 80 percent of NCDs deaths occur in low and middle-income countries and these deaths occur in equal numbers among men and women[1].

Out of the total estimated number of deaths in the south East Asia region for 2005, 7.9 million (54%) were NCD-related. NCDs are increasingly becoming a disease of poor and younger segments of the population. WHO projects that in the south East Asia region, over the next 10 years: 89 million people will die from NCDs. While deaths from infectious diseases, maternal and perinatal conditions, and nutritional deficiencies combined will decrease by 16 percent, deaths from NCDs will increase by 21 percent [1.]

The basis of NCD prevention is the identification of the major common risk factors and their prevention and control. From a primary prevention perspective, survey of the major risk factors known to cause the diseases is an appropriate starting point.

Annual health report 2002 explained that degenerative and non-communicable disease in Nepal accounted for 42 percent of the causes of all deaths and contributes 23 percent to the loss of all Disability Adjusted Life Years (DALY). It was also estimated that within 15 years degenerative and all other NCD would account for almost 30 percent of the DALY lost[2].

Nepal world Health Survey 2002 data revealed that the NCD deaths were 41.96 percent of all deaths. Similarly, Data in World Health Report 2003 had estimated NCDs deaths as 48.9 percent of the total deaths or 4.7/1000 population in Nepal.

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1 WHO. 2005. Preventing Chronic Diseases a vital investment. WHO

2 Cited from second long term health plan, Nepal

Nepal annual health report 2002 recorded NCDs as high as 8.17 percent of the total government hospital inpatient. NCD deaths accounted for 24.84 percent of the hospital deaths. Cardiovascular deaths were 44.38 percent and COPD were 37.38 percent of the hospital NCD deaths. It can also be estimated that NCDs prevail in the private and community hospitals as in government hospitals.

RISK FACTORS

Common and easily modifiable risk factors underlie most of the NCDs and explain the vast majority of deaths at all ages relating to NCD among men and women in all parts of the world. They include tobacco use, excessive alcohol consumption, physical inactivity and low intake of fruits and vegetables. These common behavioral risk factors contribute largely to high blood pressure, obesity, high blood glucose and cholesterol levels, which in turn causes the NCDs.

In 2003, a survey has been carried out in Kathmandu city using the STEPwise approach. The total Household was 1082 and 2030 samples were collected with 1010 men and 1020 women. Of the total respondents 33 percent were having either form of tobacco (smoke and smokeless). About half of the surveyed population (48%) had ever consumed alcohol in their lifetime, out of the men 59 percent and among women 26 percent were current alcohol consumers. Respondents had very low fruit and vegetable intake as compared to the required servings (≥5 servings of fruits and vegetables). Study also revealed that 73.56 percent of men and 90.98 percent of women were inactive. According to Physical measurement, 26.73 percent of men and 41.86 percent of women were found overweight with 24.75 percent of men and 31.22 percent of women in grade 1 overweight, about 10 percent of women were found grade 2 overweight. Among total respondents, 9.7 percent of men and 5.52 percent of women were underweight. According to WHO definitions, 38.71 percent of men and 30.19 percent of women were found in risk categories ranging from high normal to Grade 3 Hypertension.

Considering these alarming facts, Ministry of Health and Population in conjunction with WHO and SOLID Nepal had expanded the WHO STEPS survey for NCDs risk factors to three districts namely Lalitpur, Tanahu and Ilam in 2005. Summary table of the findings is below

Table A: Summary Table of the NCD risk factors Survey 2005 in three districts

Results for adults aged 15-64 years	**Both Sexes**		
Step 1: Tobacco Use	**Lalitpur**	**Ilam**	**Tanahu**
Percentage who currently smoke tobacco daily	19.5	15	26.9
Parentage who currently take smokeless tobacco daily	7.2	31.5	16.7
Percentage of daily tobacco users (both smoking and smokeless)	27	46.3	43.8
For those who smoke tobacco daily			
Average age started smoking	20	18.0	19
Average age of Smoking	24.7	29.9	27.5
Percentage smoking manufactured cigarettes	96.4	323	86.9
Step 2: Alcohol Consumption			

[3] Majority of the respondent in Ilam (67%) use hand rolled cigarettes (*Kankad).*

Results for adults aged 15-64 years	Both Sexes		
Percentage of ever drinkers	45	30.3	42.2
Percentage of current drinkers (who drank alcohol in the last 12 months)	43	29.8	41.3
Mean number of standard drinks consumed by current drinkers in the last week	3	3	5
Mean number of standard drinks consumed by current drinkers in any day while consumed	7	3	7
Step 1: Fruits and Vegetables Consumption in a typical week			
Mean number of servings of fruit consumed per day	1.6	2.8	2.4
Mean number of servings of vegetables consumed per day	1.7	3.3	2.3
Step 1: Physical Activity			
Percentage of physically inactive population in work related activity	69.9	41	46.7
Percentage of physically inactive population in Transport related activity	11.2	25	19.9
Percentage of physically inactive population in recreation related activity	92.7	77	90.3
History of raised blood pressure in the last 12 months	11.7	8	7.6
History of raised blood sugar in the last 12 months	4.7	0.8	0.9
Step 2 : Physical Measurement			
Mean Body Mass Index –BMI (Kg/m2)	23.8	21.4	22.5
Percentage who are overweight or obese (BMI ≥ 25 kg/m2)	20.9	11.8	20.2
Percentage who are Obese (BMI ≥ 30kg/m2)	0.4	1.2	4.3
Mean Systolic Blood pressure- SBP (mmHg)	129.1	129.4	130.5
Mean diastolic blood pressure -DBP (mmHg)	80.5	78.8	84
Percentage with raised blood pressure (SBP≥ 140 and or DBP ≥ 90 mmHg)	13.9	12.5	15.3
percentage with raised blood pressure (SBP≥ 170 and or DBP ≥ 100 mmhg)	3.15	2.6	2.6

This table also proved that there was high prevalence of NCD risk factors in three districts as in Kathmandu metropolis. So, it can be said that Nepal has high prevalence of NCD risk factors. However, both the studies did not nationally represent the prevalence of the risk factors in Nepal. Importantly, Nepal has equipped to conduct WHO STEPwise survey and built the confidence to establish a good national surveillance system in Nepal. Therefore, MOHP in 2007 conducted a national survey of NCD risk factors using WHO STEPwise Approach.

According to the World Health Organization report (Globocan 2000) the tobacco related disease mortality in Nepal due to lung cancer was 39.9/100,000 on men population and 7.5/100,000 on Women population and Oral and pharynx Cancer was 51.8/100,000 in men and in Women 23.2/100.000. In the 2005 report of the Nepal Cancer Registry, lung cancer proportion was 14.3 percent of the new hospital patients in six hospitals participating in cancer registry in Nepal. This information shows that Cancer mortality and morbidity, is already a health problem in Nepal.

OBJECTIVES

- To estimate the national distribution of NCD risk factors, as a first step in a sequential process that aims to establish and maintain a comprehensive, integrated, systematic and sustainable population-based data collection system as part of the National Action Plan for the Prevention and Control of Non-communicable diseases in Nepal.
- To establish awareness and experience in NCD RF survey among different level of health manager and health workers that will improve the country capacity for NCD prevention and control program for the future
- To estimate tobacco use prevalence for specific plans and intervention as a follow up of FCTC ratification
- To estimate alcohol use prevalence for specific intervention in community mental health.

STUDY DESIGN

Design

A cross sectional survey with a sample of sufficient size with a power to detect changes in population level of the risk factors for selected NCDs was conducted using the WHO STEPwise approach.

Eligibility criteria

Men and Women 15-64 years of age, who were willing to participate and also the permanent residents (at least from 6 months) of the study area were eligible to be included in the study.

Exclusion criteria

Individuals in institutionalized settings e.g. in hotels, motels, hospitals, nursing homes and other institutions and also the temporary residents of the study area were being excluded from the study. A burning conflict and emergency sites were also excluded. Individuals, who were mentally disabled, were also excluded. If person was not available during the field stay of the field team, s/he was not included. If an individual refused to take part in, was also excluded

SAMPLING DESIGN

Sample Size Calculation

It was aimed to determine the level of NCD risk factors (smoking, alcohol, physical inactivity, nutrition, obesity and hypertension) and for Urban-men, Urban –Women, Rural-men, and Rural-Women population in the broad age group of 15-64 years.

Studies conducted in three districts (Ilam, Tanahu and Lalitpur) showed variation in the levels of above risk factors. Smoking had been taken as the primary outcome variable for the purpose of sample size calculation. The prevalence of smoking in the above four target population was more than 10 percent. Therefore, the sample size required was based on the following:

Anticipated prevalence of smoking = 10.0% (= p)
Allowable error = 3 (= d) i.e. (7% to 13%)
Confidence level = 95%
Design effect = 2.5 (deff)
Non-response = 10% (nr)

$$\text{Sample size} = n = (z^2_{1\text{-alpha}/2} * p\,(100-p)/d^{2)} * \text{deff} * (1+\text{nr})$$
$$= (4.10.90/3.3) * 2.5 * 1.10$$
$$= 400 * 2.5 * 1.1$$
$$= 1100 \text{ per target population}$$

Thus, the sample size for

Urban Men	= 1100
Urban Women	= 1100
Rural Men	= 1100
Rural Women	= 1100

In this way, the total sample size for all sample population was 4400 for all age group 15–64 years by men and Women.

Sampling Strategy

A multistage stratified sampling strategy was adopted to select the number of subjects required for the survey.

1. At the first stage of sampling, districts in the country were considered as the Primary Sampling Units (PSUs). All the 75 districts of Nepal were listed according to the regions. Using the method of PPS, 15 out of total 75 districts i.e. 20% districts were selected. Out of the 15 selected districts, all the 15 districts had rural population. However, 12 districts had urban population too i.e., three districts had only rural population. Selected 15 districts represented almost 24 percent of total target population.

Table B: Selected Districts for the nationally representative WHO STEPwise survey, 2007 Nepal

Sub Eco Zone	Eco Belt	Dev Region	Districts	Sample population	Urban	Rural
Central Hill	Hill	CDR	MAKAWANPUR	216087	Yes	Yes
Valley	Hill	CDR	BHAKTAPUR	145410	Yes	Yes
Valley	Hill	CDR	LALITPUR	224747	Yes	Yes
Central Tarai	Terai	CDR	CHITAWAN	278477	Yes	Yes
Central Tarai	Terai	CDR	MAHOTTARI	306998	Yes	Yes
Eastern Tarai	Terai	EDR	MORANG	504612	Yes	Yes
Eastern Tarai	Terai	EDR	SIRAHA	317978	Yes	Yes
Far Western Tarai	Terai	FWDR	KANCHANPUR	208159	Yes	Yes
Western Hill	Hill	WDR	BAGLUNG	144296	Yes	Yes

Sub Eco Zone	Eco Belt	Dev Region	Districts	Sample population	Urban	Rural
Western Hill	Hill	WDR	PALPA	143560	Yes	Yes
Western Tarai	Terai	WDR	NAWAL PARASI	312934	Yes	Yes
Eastern Hill	Hill	EDR	KHOTANG	122856	No	Yes
Eastern Hill	Hill	EDR	TEHRATHUM	63542	No	Yes
Far Western Hill	Hill	FWDR	DADELDHURA	65937	Yes	Yes
Mid Western Mountain	Mountain	MWDR	MUGU	17243	No	Yes
				3072836		

Wards within the selected districts were considered as Secondary Sampling Units (SSUs) and households[4] within the selected wards were considered as Tertiary Sampling Units (TSUs).

Urban and Rural setting

Out of 15 districts, 12 districts had mixed (Urban and Rural) setting and remaining 3 districts had only rural setting. So, 12 districts represented urban and 15 districts represented rural setting in the country.

2. For selecting 2,200 persons in the age range of 15-64 years from rural population; and 2,200 people in the age range of 15-64 years from urban population, wards (village) in the rural population and wards in the urban population in the selected districts were taken as units of sampling at the second stage i.e. the Secondary Sampling Units (SSUs). Selection of wards (villages) in the rural area and selection of wards in the urban area was done separately, using the method of Proportionate to Population Size (PPS).

3. A list of wards and their population in the 15 selected districts as per the order of selection was prepared. Out of 6699 rural wards (village) in the 15 selected districts, 75 wards (village) were selected as per PPS method. One person per household (as per the KISH method) was selected for the study. The number of households per selected ward was determined by allocating 2,200 subjects, proportionate to the size of the selected ward. It would be ensured that approximately equal numbers of men and Women were enrolled in the study. The required number of household from the selected wards were selected randomly using the household list available at the ward level as per the census 2001

4. The strategy for selecting 75 wards out of 217 Wards from selected districts with urban population (12 out of 15 selected districts had urban population) was the same as in the rural area (described above).

[4] Centre Bureau of Statistic, Nepal has defined as Household is a family sharing one kitchen and residing at the selected site at least for six month.

Table C: Selected Rural Wards and Individuals to be interviewed by sex

Cluster	District code	Districts	VDC	Ward	Total Popn (15-64)	Total Women Popn (15-64)	Total Men Popn (15-64)	Individuals to be interviewed taken from a ward	Women	Men
1	1	Makwanpur	Bhimfedi	5	362	203	160	16	9	7
2	1	Makwanpur	Faparbari	9	1006	498	508	46	22	24
3	1	Makwanpur	Kulekhani	3	218	110	107	10	5	5
4	1	Makwanpur	PadamPokhari	8	1124	572	552	51	25	26
5	1	Makwanpur	Sukaura	2	255	133	122	12	6	6
6	2	Bhaktapur	Duwakot	4	330	153	177	15	7	8
7	2	Bhaktapur	Sudal	4	551	283	268	25	13	12
8	3	Lalitpur	Devichour	6	126	60	67	6	3	3
9	3	Lalitpur	Khokana	5	252	121	131	11	5	6
10	3	Lalitpur	Sunakothi	5	877	461	416	40	20	19
11	4	Chitawan	Bagauda	7	405	232	174	18	10	8
12	4	Chitawan	Darechok	4	1672	749	924	76	33	43
13	4	Chitawan	Jagatpur	4	620	343	277	28	15	13
14	4	Chitawan	Korak	6	83	43	40	4	2	2
15	4	Chitawan	Padampur	7	491	246	245	22	11	11
16	4	Chitawan	Shaktikhor	7	522	268	255	24	12	12
17	5	Mahottari	BanauliDonauli	3	265	122	143	12	5	7
18	5	Mahottari	Bramarpura	3	505	271	235	23	12	11
19	5	Mahottari	Etaharwakatti	6	515	234	280	23	10	13
20	5	Mahottari	Hathilet	2	407	200	207	18	9	10
21	5	Mahottari	Laximiniya	5	428	203	225	19	9	10
22	5	Mahottari	Meghanath Gorahanna	4	350	174	176	16	8	8
23	5	Mahottari	Raghunathpur	8	327	144	184	15	6	9
24	5	Mahottari	Shreepur	5	345	165	180	16	7	8
25	5	Mahottari	Vagaha	1	508	257	252	23	11	12
26	6	Morang	Bahuni	7	464	251	214	21	11	10
27	6	Morang	Belbari	3	2474	1304	1169	112	58	54
28	6	Morang	Dangihat	3	501	260	240	23	12	11
29	6	Morang	Govindapur	6	960	513	448	44	23	21
30	6	Morang	Itahara	2	1368	706	661	62	31	31
31	6	Morang	Katahari	7	1333	638	695	61	28	32
32	6	Morang	Letang	7	1162	623	539	53	28	25
33	6	Morang	Mrigauliya	4	813	426	386	37	19	18
34	6	Morang	Rangeli	1	1102	522	580	50	23	27
35	6	Morang	Sisabanibadahara	1	259	125	134	12	6	6
36	6	Morang	Tankisinuwari	1	1407	658	748	64	29	35
37	6	Morang	Warangi	4	241	122	119	11	5	6
38	7	Siraha	Arnamalalpur		531	263	267	24	12	12

Cluster	District code	Districts	VDC	Ward	Total Popn (15-64)	Total Women Popn (15-64)	Total Men Popn (15-64)	Individuals to be interviewed taken from a ward	Women	Men
39	7	Siraha	Bishnupurkatti	9	548	259	289	25	12	13
40	7	Siraha	Fulbariya	2	622	303	318	28	13	15
41	7	Siraha	Inarwa	2	625	307	318	28	14	15
42	7	Siraha	Kharukyanhi	2	402	204	197	18	9	9
43	7	Siraha	MaheshpurGamharia	7	248	120	128	11	5	6
44	7	Siraha	PipraPra.Dha	3	267	133	133	12	6	6
45	7	Siraha	Sisawani	7	357	169	188	16	7	9
46	8	Kanchanpur	Beldandi	1	933	481	452	42	21	21
47	8	Kanchanpur	Dekhatbhuli	5	555	271	284	25	12	13
48	8	Kanchanpur	Krishnapur	2	2767	1385	1381	126	61	64
49	8	Kanchanpur	Pipaladi	9	2134	1067	1067	97	47	50
50	8	Kanchanpur	Sreepur	6	1119	572	547	51	25	25
51	9	Baglung	Bhakunde	3	143	77	65	6	3	3
52	9	Baglung	Darling	4	340	200	141	15	9	7
53	9	Baglung	Khunga	9	310	168	141	14	7	7
54	9	Baglung	Righa	2	335	187	147	15	8	7
55	10	Palpa	Bodhapokharathok	2	331	190	140	15	8	6
56	10	Palpa	Galdha	9	215	106	109	10	5	5
57	10	Palpa	Khyaha	4	150	103	49	7	5	2
58	10	Palpa	Siddheshwor	7	184	103	79	8	5	4
59	11	Nawalparasi	Baidauli	9	278	139	139	13	6	6
60	11	Nawalparasi	Devachuli	1	1370	781	588	62	35	27
61	11	Nawalparasi	Gaidakot	9	627	327	300	28	15	14
62	11	Nawalparasi	Kawaswoti	6	862	466	396	39	21	18
63	11	Nawalparasi	Manari	3	247	126	122	11	6	6
64	11	Nawalparasi	Panchanagar	1	397	223	175	18	10	8
65	11	Nawalparasi	Ramnagar	1	1657	880	775	75	39	36
66	11	Nawalparasi	Shivmandir	8	2041	1109	932	93	49	43
67	11	Nawalparasi	ThuloKhairatawa	2	401	186	215	18	8	10
68	12	Khotang	Buipa	2	356	195	161	16	9	7
69	12	Khotang	Faktang	2	104	59	45	5	3	2
70	12	Khotang	Nerpa	9	187	103	84	9	5	4
71	12	Khotang	Yamkha	3	177	93	84	8	4	4
72	13	Terhathum	Myanglung	9	377	206	172	17	9	8
73	14	Dadeldhura	Ajayameru	8	310	165	145	14	7	7
74	14	Dadeldhura	Jogbuda	9	1251	635	615	57	28	29
75	15	Mugu	ShreeNagar	6	95	51	44	4	2	2
					48482	**24808**	**23672**	**2200**	**1100**	**1100**

Table D: Selected Urban Wards and Individuals to be interviewed by sex

Cluster	District Code	Districts	Municipality	Ward	Total population (15-64)	Total Women Population (15-64)	Total Men Population (15-64)	Total Individual to be interviewed	Women	Men
1	1	Makwanpur	Hetauda N.P.	2	3671	1748	1922	29	14	15
2	1	Makwanpur	Hetauda N.P.	4	6805	3264	3541	54	27	27
4	1	Makwanpur	Hetauda N.P.	6	3407	1711	1696	27	14	13
5	1	Makwanpur	Hetauda N.P.	10	3829	1782	2047	30	15	15
6	2	Bhaktapur	Bhaktapur N.P.	1	3408	1732	1677	27	14	13
7	2	Bhaktapur	Bhaktapur N.P.	4	3885	1906	1979	31	16	15
8	2	Bhaktapur	Bhaktapur N.P.	6	2020	1015	1005	16	8	8
9	2	Bhaktapur	Bhaktapur N.P.	9	1621	810	811	13	7	6
10	2	Bhaktapur	Bhaktapur N.P.	12	2627	1320	1307	21	11	10
11	2	Bhaktapur	Bhaktapur N.P.	15	3318	1618	1700	26	13	13
12	2	Bhaktapur	Bhaktapur N.P.	17	4459	2113	2346	35	17	18
13	2	Bhaktapur	Madhyapur Thimi N.P.	5	1198	584	614	9	5	5
14	2	Bhaktapur	Madhyapur Thimi N.P.	10	1294	642	652	10	5	5
15	2	Bhaktapur	Madhyapur Thimi N.P.	14	1481	691	790	12	6	6
16	2	Bhaktapur	Madhyapur Thimi N.P.	16	3201	1510	1691	25	12	13
17	3	Lalitpur	Lalitpur N.P.	1	4964	2139	2830	39	18	21
18	3	Lalitpur	Lalitpur N.P.	2	7322	3432	3891	58	28	29
19	3	Lalitpur	Lalitpur N.P.	3	7447	3567	3879	59	29	29
20	3	Lalitpur	Lalitpur N.P.	4	7681	3772	3906	61	31	29
21	3	Lalitpur	LalitpurN.P.	6	4447	2093	2354	35	17	18
22	3	Lalitpur	LalitpurN.P.	8	5149	2457	2692	41	20	20
23	3	Lalitpur	LalitpurN.P.	9	5695	2755	2939	45	23	22
24	3	Lalitpur	LalitpurN.P.	11	2967	1440	1526	23	12	12
25	3	Lalitpur	LalitpurN.P.	13	4588	2231	2356	36	18	18
26	3	Lalitpur	LalitpurN.P.	14	8072	3996	4072	64	33	31
27	3	Lalitpur	LalitpurN.P.	15	7947	3668	4282	63	30	32
28	3	Lalitpur	LalitpurN.P.	16	3706	1840	1864	29	15	14
29	3	Lalitpur	LalitpurN.P.	18	4841	2357	2483	38	19	19
30	3	Lalitpur	LalitpurN.P.	20	4564	2166	2398	36	18	18
31	3	Lalitpur	LalitpurN.P.	22	5960	2657	3307	47	22	25
32	4	Chitawan	BharatpurN.P.	1	3074	1407	1668	24	12	13
33	4	Chitawan	BharatpurN.P.	3	1966	925	1042	15	8	8
34	4	Chitawan	BharatpurN.P.	5	2907	1454	1453	23	12	11
35	4	Chitawan	Bharatpur N.P.	7	3558	1747	1811	28	14	14
36	4	Chitawan	Bharatpur N.P.	9	3276	1616	1660	26	13	13
37	4	Chitawan	Bharatpur N.P.	10	10056	4676	5382	79	39	41
38	4	Chitawan	Bharatpur N.P.	11	6806	3314	3492	54	27	26
39	4	Chitawan	Bharatpur N.P.	13	2044	1044	999	16	9	8
40	4	Chitawan	Ratnanagar N.P.	2	2479	1209	1268	20	10	10
41	4	Chitawan	Ratnanagar N.P.	6	968	489	478	8	4	4
42	4	Chitawan	Ratnanagar N.P.	11	1256	663	594	10	5	4
43	5	Mahottari	Jaleshwor N.P.	5	1509	730	779	12	6	6

Cluster	District Code	Districts	Municipality	Ward	Total population (15-64)	Total Women Population (15-64)	Total Men Population (15-64)	Total Individual to be interviewed	Women	Men
44	5	Mahottari	JaleshworN.P.	13	1320	611	709	10	5	5
45	6	Morang	Biratnagar N.P.	2	3440	1643	1796	27	14	14
46	6	Morang	Biratnagar N.P.	4	6791	3218	3572	54	27	27
47	6	Morang	Biratnagar N.P.	5	6522	3108	3412	51	26	26
48	6	Morang	Biratnagar N.P.	6	7342	3427	3915	58	28	30
49	6	Morang	Biratnagar N.P.	7	8564	4002	4562	68	33	34
50	6	Morang	Biratnagar N.P.	9	1342	589	753	11	5	6
51	6	Morang	Biratnagar N.P.	11	6140	2862	3278	48	24	25
52	6	Morang	Biratnagar N.P.	13	6917	3202	3716	55	26	28
53	6	Morang	Biratnagar N.P.	14	2280	1050	1231	18	9	9
54	6	Morang	Biratnagar N.P.	16	6497	3036	3461	51	25	26
55	6	Morang	Biratnagar N.P.	17	3118	1420	1699	25	12	13
56	6	Morang	Biratnagar N.P.	19	5468	2487	2983	43	21	23
57	6	Morang	Biratnagar N.P.	20	4625	2192	2432	36	18	18
58	6	Morang	Biratnagar N.P.	22	5117	2443	2673	40	20	20
59	7	Siraha	Lahan N.P.	3	1840	838	1003	15	7	8
60	7	Siraha	Lahan N.P.	8	1630	746	884	13	6	7
61	7	Siraha	Siraha N.P.	3	1041	543	499	8	4	4
62	7	Siraha	Siraha N.P.	9	1725	835	888	14	7	7
63	8	Kanchanpur	Mahendranagar N.P.	4	2828	1299	1527	22	11	12
64	8	Kanchanpur	Mahendranagar N.P.	6	3480	1711	1769	27	14	13
65	8	Kanchanpur	Mahendranagar N.P.	9	3038	1484	1554	24	12	12
66	8	Kanchanpur	Mahendranagar N.P.	11	1916	997	919	15	8	7
67	8	Kanchanpur	Mahendranagar N.P.	15	1756	870	887	14	7	7
68	8	Kanchanpur	Mahendranagar N.P.	18	6022	2843	3177	47	23	24
69	9	Baglung	Kalika N.P.	3	1777	913	861	14	8	7
70	9	Baglung	Kalika N.P.	10	854	465	390	7	4	3
71	10	Palpa	Tansen N.P.	7	485	251	234	4	2	2
72	11	Nawalparasi	Ramgram N.P.	1	969	488	481	8	4	4
73	11	Nawalparasi	Ramgram N.P.	8	1061	539	522	8	4	4
74	14	Dadeldhura	Amargadhi N.P.	3	870	473	398	7	4	3
75	14	Dadeldhura	Amargadhi N.P.	11	786	446	342	6	4	3
					279033	**133317**	**145712**	**2200**	**1100**	**1100**

N.P. =*Nagarpalika (Municipality)*

DATA COLLECTION

Questionnaire Design and Data collection

The WHO STEPwise approach to surveillance had been adopted to develop this surveillance structure, with a focus on the core behavioral risk factors as outlined within the framework of STEP 1 and 2.

Behavioral Questionnaire

STEPS Questionnaire V2.0 was utilized for this survey. Additional questionnaire in tobacco use and alcohol consumption had been put on to collect further information, which was required for TFI and Mental Health Programme. The questionnaire was translated into *Nepali* and back translated into *English* ensuring consistency in phrasing of questions so that the responses would not generate a bias. Respondents did not receive any incentives to participate – enticing participation by offering incentives tends to generate a bias as respondents in poor urban and rural areas tend to respond in the affirmative, assuming that such replies would be linked to rewards. Our previous experience with community interviews was encouraging and our culture where hospitality is a norm, does not allow incentives as part of such initiatives. (*See annex for questionnaire*)

Physical Measurement

In physical measurement (STEP 2), Height, Weight, Waist circumference, and Blood Pressure were taken. Devices ID were maintained strictly. Measuring Tape for the measurement of waist circumference, weighing scale for taking weight and stadiometre (Height Measuring Board) or equivalent to stadiometre for height measurement were purchased locally. OMRON digital blood pressure machine were hired from SEARO for blood pressure recording. The three readings at three minutes difference were taken. All three readings were taken for analysis. A detail of the physical measurement procedure, written in WHO STEPS Surveillance Manual Section 3.4, was strictly followed.

Components of the questionnaire

In this survey, the STEPS Questionnaire VERSION 2.0 (Latest Version so far) was applied. However, following components were carefully considered on the questionnaire.

Table E: Components of Questionnaire and Physical Measurement

	Core	Expanded
Risk factors at Step 1		
Demography	Age, (25-64 years), sex, education (years), urban/rural	15-24 yrs, ethnicity, highest level of education, occupation, household income
Tobacco	% current daily smokers (+ frequency, duration % ex-smokers (daily) mean age of starting	Amount, time since quitting, type of tobacco consumed
Alcohol	% who consume alcohol currently and in past	Quantity: average volume, binge drinking
Nutrition	% who eat high/low serving of fruits and vegetables	Dietary patterns
Physical inactivity	% sedentary during occupation and non-occupation physical activity related to transport patterns	

Added risk factors at Step 2

Obesity	Height, weight, waist	
Blood pressure	mean levels of systolic and diastolic blood pressure	% on treatment for raised blood pressure (diet, drugs) History of high Blood pressure & diabetes

Pilot Testing

STEP Instruments (Questionnaire and equipments) were pilot tested before going to the survey. The sites for pilot test were Kathmandu Metropolis ward number 8 as an urban ward and Gokarna VDC ward number 2 for rural ward. Both of them were places selected other than the originally purposed ones, but of the similar kind. A feedback meeting was carried out after the test and the obtained feedback were incorporated to finalize the instrument.

Information Collection

One person between 15-64 years of age in each selected household was interviewed. Data were collected through face-to-face interviews with the help of a structured questionnaire. Informed consent was taken from the respondents before each interview. In the face-to-face interview, the interviewer had maintained the respondent's interest, and allayed anxiety if it was aroused. Collected data were sent to the district health office through supervisors maintaining its confidentiality. Finally, all data were centralized in SOLID Nepal office and further management was carried out.

FIELD TEAM

Field Team constituted at least with one statistician, one medical doctor involved in research and trained in STEPwise approach, and at least 5 supervisors and 10 interviewers (5 men and 5 Women). There were 15 groups altogether. Interviewers were selected from local health institutes and supervisors were selected centrally but they worked with local interviewers until completing the field work.

Training of interviewers, supervisor and Data Entry Person

All data collectors were extensively trained in taking informed consent, administering the questionnaire, and interview procedures. A 5 days training for interviewers and 2 days training for supervisors was conducted. Training for Interviewers was conducted in four sites i.e. Kanchanpur in the far west, Chitwan in the middle, Lalitpur in the central and Dhanusa (Lalaghadh) in the eastern part of the country.

Supervisor training was carried out at central level. For the central region, supervisors and interviewers were trained in centre. Both for supervisors and interviewers, training guides were prepared on the basis of STEP guidelines. Question to Question guide was translated into Nepali for interviewers.

Maintaining the quality of data

There were Show Cards of glasses to quantify the alcohol content and pictures of fruit and vegetables to quantify the numbers of servings. Supervisor had to attend at least 25 percent sample of interviews and should check the filled up questionnaire thoroughly. Ten percent of the questionnaire had re-interviewed and the result checked and compared to the interviewer result. The results were discussed immediately to improve the future quality of the interview. Non-response was recorded properly. If a selected person of the household was not available during home visit, field team had given an appointment. They visited for two times and those visits were recorded in the tracking form. If the selected person could not interview even in second visit, s/he was taken as non-response. Individual, who refused to take part in, were recorded as refusal.

Individual interviewed enrolled in to STEP 2 that means interviewers took his/her height in cm, weight in kilogram (Kg), Waist in Centimetre (cm) and Blood pressure in Millimetre of Mercury (mmHg). Weighing scale, measuring tape and height scale were procured from the local market and for the Blood pressure measurement; Digital blood pressure machines (Omron) were borrowed from SEARO. Those Omron Digital Blood Pressure Machines were backed to SEARO after completion of the field work. The equipments calibrated time to time.

DATA MANAGEMENT

Data manually edited by supervisors and transported to SOLID Nepal Office. SOLID Nepal had trained data entry person on how to handle the data. Three days intensive training for data entry persons was conducted. A detailed field manual was developed and distributed to the field officers.

Trained data entry person entered the data using software EPI data 3.1. Confidentiality of data ensured. Data were thoroughly edited and double entry was carried out to see the consistencies in the data.

DATA ANALYSIS

Data was analyzed using Epi-info 2002 and SPSS. Adjustment for multiple sampling levels, editing for response errors and inconsistencies, weighting to reduce bias and provide representative prevalence estimates were carried out.

Ethical Approval for the survey

This study followed Nepal Health Research Council's Ethical guidelines, which emphasizes on respect to study subjects, their justice, informed consent and control of possible risks to the subjects in the study. Informed consent was obtained from each perspective study subject. There was no risk to the subject as there was no clinical intervention in the study. Supervisors and enumerators were trained on making informed consent, steps in interview and physical measurements. If the subject was found having

non-communicable disease or problem such as Hypertension during our survey, s/he was referred to near by health institutions with referral slip.

Importantly, the proposal was submitted to Nepal Health Research Council, an authorized national body to look after the ethical issues in health research, and obtained final approval. The NHRC ethical guideline was fully respected.

Confidentiality

A commitment to confidentiality was ensured in the consent forms and training exercise. Supervisors and interviewers were trained on how to maintain privacy and confidentiality. Questionnaires were collected from the field staff and stowed away safely by the supervisors. The supervisors enclosed the data in envelopes and sent to SOLID Nepal Office where data were kept very safely. Computer systems were password protected.

The survey phase

There were important lessons learned from the 2003 and 2005 experience of NCD RF survey implementation in Nepal. Improvement of district and community capacity was an important intended effect with the maximum involvement of district stakeholders. Involving districts and community for the preparation, data collection and dissemination of the survey results will also improve districts' ownership and NCD Risk Factor programme sustainability.

From the administrative point of view, the research project was divided into three phases to cross the present biennium (2006-07) and continue with the next phase in the next biennium (2008-09). The NCDRF survey 2007 conducted in 2007-2008 with the breakdown as follows:

1. Preparation/training/pilot testing (2007) with piloted instruments, supervisor and interviewer training report as deliverables
2. Data collection and Data analysis (2007) with interim report of data analysis as deliverables
3. Final reporting and dissemination (2008) with final report and follow up plans as deliverables

The budget for 2008 was included in the WHO Regular Budget for Nepal as well as Government of Nepal Budget, while the preparation and data collection phase was supported by the WHO SEARO budget from NCD, Tobacco initiative and mental health programme.

Chapter– 2

RESULTS

SAMPLING AND RESPONSE PROPORTIONS

Collecting information from the entire population to draw a definite conclusion for the information-collected area is obviously preferable but it is neither feasible nor cost effective. Therefore, a sample survey is usually conducted. Using appropriate statistical method, nearly accurate information can be collected. In addition, in order to reach into a valid conclusion response rate plays a vital role in sample survey; higher the response rate better will be the accuracy in representing the surveyed area. The scenario of response in this report is described below in table 1. (The method used here in this survey is described in the methodology section of this report).

Table 1: Summary results for overall response proportions

Response proportions											
Age Group (years)	**Men**				**Women**				**Both Sexes**		
	Eligible	Responded			Eligible	Responded			Eligible	Responded	
	n	n	%		n	n	%		n	n	%
15-24	497	488	98.2		553	545	98.6		1050	1033	98.4
25-34	392	385	98.2		603	594	98.5		995	979	98.4
35-44	396	390	98.5		559	553	98.9		955	943	98.7
45-54	327	323	98.8		457	447	97.8		784	770	98.2
55-64	327	321	98.2		289	282	97.6		616	603	97.9
15-64	1939	**1907**	98.3		2461	**2421**	98.4		4400	**4328**	98.4

As proposed, it was decided that proportion of men and Women respondent would be 1:1 and thus the eligible sample size would be 2200 men and 2200 Women making a total of 4400 samples.

While using Kish method for selecting individual at household level in field setting, it did not yield the ratio of M:F respondent as proposed. It became 1939 men and 2461 Women. Taking in account the non response, the total respondents were 4328 Men =1907 and women 2421. The response rate is calculated on the basis of the age and sex distribution of the respondent obtained as in tracking form and not as proposed M=2200 and F=2200.

Household tracking form was filled by supervisors during field work. The information fill in the tracking form was used to calculate the response rate.

Because of use of Kish method for selection of individual at household level, men to Women ratio was not 1:1, rather it was 0.79: 1.

On average, 98.4 percent of the respondents (98.3 % of men and 98.4% of Women) had provided information regarding STEP 1 and STEP 2. Proportion of non response rate was 1.7 percent. STEP 3 was not carried out in the survey.

1. DEMOGRAPHIC INFORMATION

Age and sex

This report intends to report the total procedure carried out and the results of the survey as suggested by WHO STEPwise approach in NCD surveillance. As per the suggestion, the indicators for demographic information were of two types as core indicator and expanded indicators. Age (25-64 years) sex, education and rural or urban inhabitation were designated core indicators where as 15-24 years of age, ethnicity, highest level of education, occupation and household income were considered for expanded indicators in this survey.

Table 2: Summary information by age group and sex of the respondents

Age group and sex of respondents								
Age Group (years)	Men			Women			Both Sexes	
	n	%		n	%		n	%
15-24	488	25.6		545	22.5		1033	23.9
25-34	385	20.2		594	24.5		979	22.6
35-44	390	20.5		553	22.8		943	21.8
45-54	323	16.9		447	18.5		770	17.8
55-64	321	16.8		282	11.6		603	13.9
15-64	**1907**	**44.1**		**2421**	**55.9**		**4328**	**100.0**

Of 4328 respondents, 44.1 percent were men and 55.9 percent were women. Age wise distribution of the respondents showed highest proportion in the age 15-24 years (23.9%) followed by 25-34 years (22.6%) and least in the age 55-64 years (13.9%).

This variation in age wise distribution of respondent is because of the distribution of the total population in the surveyed area.

Ethnicity

More than 103 different ethnic groups live in Nepal (CBS, 2003). Some of the ethnic groups live in a scattered manner where as other live in clusters. Whatever area of the survey was conducted, the number and proportion of ethnic groups covered represent the available ethnic group in the respective survey site.

Table 3: Summary results for the ethnicity of the respondents

Age Group (years)	Ethnic group of respondents				
	Both Sexes				
	N	Brahmin/Chhetri (%)	Newar (%)	Adibasi/Janajati (%)	Other (%)
15-24	947	25.0	19.4	24.6	25.6
25-34	893	20.8	23.3	23.3	23.6
35-44	881	22.3	23.8	20.6	21.4
45-54	719	17.9	18.5	17.5	18.6
55-64	553	13.9	14.9	13.9	10.8
15-64	**3993**	**39.2**	**22.3**	**28.6**	**10.0**

The respondents were asked about their ethnic group and according to their response, four in 10 respondents (39.2%) were Brahmin/Chhetri followed by Adibasi/ Janajati (28.6%), Newar (22.3%) and rest of others (10.0%). Population of Brahmin /Chhetri in the country is highest and are considered the privileged group of population in the country. According to census 2001, Brahmin/Chhetri were 28 percent, Newar 5.5 percent and Adibasi/Janajati were 40 percent. The significant proportions of the other categories were (Muslim, Dalits, and unidentified Terai groups). Some of the respondents denied expressing their ethnic identity.

Education

Level of education of a person plays vital role in disease prevention and health promotion. It is equally important for the health of family members, neighbours or members in their communities. This is more so in the management of chronic diseases. Educated individuals can read health message, understand it and can do what has been suggested. Therefore, educational level was included in this survey and perhaps is the reason for inclusion in NCD surveillance.

Table 4: Mean number of years of education among respondents

Age Group (years)	Mean number of years of education					
	Men		Women		Both Sexes	
	n	Mean	n	Mean	n	Mean
15-24	488	7.5	545	6.5	1033	7.0
25-34	385	7.7	594	4.0	979	6.1
35-44	390	5.7	553	1.3	943	3.5
45-54	323	3.4	447	0.6	770	2.0
55-64	321	2.1	282	0.5	603	1.5
15-64	1907	6.1	2421	3.6	4328	4.9

All respondents were asked about number of years they spent in schools. The number of years spent in schools by the respondents did not include the pre-school years. On average men spent 6.1 years in schools and it was 3.6 years for Women and in average, 4.9 years for both sexes. Age group disaggregated data showed the highest number of schooling in the age group 15-24 years for both sexes. Women in the age group 35 -44 years spent less than 2 years in school whereas men in the same age category spent almost 5 years in

school. It was clear that the higher the age group, the lesser the number of years spent in education was observed.

An encouraging fact that can be seen in the table is "younger the age, greater is the number of years in schooling" which means more and more younger people are continuing school for longer duration of time. Moreover, this is true for both the sexes. It indicates that older people had less access to education and might have less health awareness and younger people might have better understanding of their health. It will be easier to launch NCD prevention and control activities among young people compared to older ones

Table 4.1: Highest level of education achieved by the survey respondents

Highest level of education								
Age Group (years)	**Men**							
	n	**% No formal schooling**	**% Less than primary school**	**% Primary school completed**	**% Secondary school completed**	**% Higher secondary school completed**	**% College/ University completed**	**% Post graduate degree completed**
15-24	487	5.5	7.0	33.3	25.1	20.9	7.0	1.2
25-34	384	12.5	10.7	28.4	18.0	14.3	12.5	3.6
35-44	389	17.7	12.9	24.7	21.6	10.5	9.5	3.1
45-54	323	30.3	18.6	23.8	14.2	6.5	5.3	1.2
55-64	320	44.7	13.4	15.6	12.8	5.9	4.1	3.4
15-64	**1903**	**20.2**	**12.0**	**26.0**	**19.0**	**12.5**	**7.8**	**2.5**
Age Group (years)	**Women**							
	n	**% No formal schooling**	**% Less than primary school**	**% Primary school completed**	**% Secondary school completed**	**% Higher secondary school completed**	**% College/ University completed**	**% Post graduate degree completed**
15-24	545	17.1	10.8	31.6	22.0	13.8	4.4	0.4
25-34	592	40.5	10.1	20.9	16.4	7.1	3.5	1.4
35-44	552	61.2	9.4	11.6	9.1	4.2	3.4	1.1
45-54	446	74.4	8.1	7.0	6.7	2.2	1.1	0.4
55-64	282	84.0	3.2	4.6	5.0	1.1	0.7	1.4
15-64	**2417**	**51.3**	**8.9**	**16.7**	**12.9**	**6.3**	**2.9**	**0.9**
Age Group (years)	**Both Sexes**							
	n	**% No formal schooling**	**% Less than primary school**	**% Primary school completed**	**% Secondary school completed**	**% Higher secondary school completed**	**% College/ University completed**	**% Post graduate degree completed**
15-24	1032	11.6	9.0	32.4	23.5	17.2	5.6	0.8
25-34	976	29.5	10.3	23.9	17.0	9.9	7.1	2.3
35-44	941	43.3	10.8	17.0	14.2	6.8	6.0	1.9
45-54	769	55.9	12.5	14.0	9.9	4.0	2.9	0.8
55-64	602	63.1	8.6	10.5	9.1	3.7	2.5	2.5
15-64	**4320**	**37.6**	**10.3**	**20.8**	**15.6**	**9.1**	**5.1**	**1.6**

Level of education plays important role in the behaviour of individual. Thus, the highest level of education, the respondents had completed, was asked. A gender differential was observed in the number of years spent in formal education.

One in five men (20.2%), one in two Women (51.3%) and almost one in three (37.6%) respondents had not received any formal schooling. Two in three men respondents had completed at least primary education while almost one in three Women respondents had completed at least primary education.

Only four (3.8%) in 100 Women had completed graduate level of education. Compared to men, it is almost 3 times less. Women respondents in the 15-24 years category who did not have any formal schooling were three times more then men respondent in the same age group. It clearly shows that there is still a gender disparity in education, which may result a significant difference in access to and utilization of health services, education and information.

Employment status

Chronic diseases require management for long time which in turn demands more resources. Employed people with regular earning can manage chronic diseases better compared to unemployed. In order to assess situation of employment among NCD sufferers or people at risk of NCD, employment status was introduced in this survey as an expanded indicator. Following tables show the employment situation among Nepalese people.

Table: 5 Proportion of respondents in paid employment and those who are unpaid

Age Group (years)	Employment status				
	Men				
	n	% Government employee	% Non-government employee	% Self-employed	% Unpaid
15-24	486	1.9	7.2	18.7	72.2
25-34	380	5.0	19.7	49.7	25.5
35-44	389	8.0	12.9	58.1	21.1
45-54	321	13.1	5.0	46.7	35.2
55-64	320	4.1	2.8	34.4	58.8
15-64	**1896**	**6.0**	**9.8**	**40.4**	**43.8**

Age Group (years)	Employment status				
	Women				
	n	% Government employee	% Non-government employee	% Self-employed	% Unpaid
15-24	543	0.4	2.2	6.6	90.8
25-34	585	1.4	5.3	13.3	80.0
35-44	550	2.7	2.9	12.9	81.5
45-54	438	1.8	1.8	10.5	85.8
55-64	278	1.1	1.1	5.0	92.8
15-64	2394	1.5	2.9	10.2	85.3

Employment status					
Age Group (years)	Both Sexes				
	n	% Government employee	% Non-government employee	% Self-employed	% Unpaid
15-24	1029	1.1	4.6	12.3	82.0
25-34	965	2.8	11.0	27.7	58.5
35-44	939	4.9	7.0	31.6	56.4
45-54	759	6.6	3.2	25.8	64.4
55-64	598	2.7	2.0	20.7	74.6
15-64	4290	3.5	5.9	23.6	67.0

Providing options respondents were asked about which of the options best described their main work status over the last 12 months in table 5.

Two in three respondents were involved in unpaid works. A sex differential was observed in the proportion of people involved in unpaid works. Women involved in the unpaid works were almost double the proportion of men respondents.

Proportion of men respondents involved in government services was four times higher than Women government employees.

Similarly proportion of men respondents involved in self employed category was four times more than the proportion of Women counterparts. Unpaid work involved the domestic chores, students, volunteer work in agricultural fields etc.

Table: 6 Proportion of respondents in unpaid work

Unpaid work and unemployed							
Age Group (years)	Men						
	n	% Non-paid	% Student	% Home-maker	% Retired	Unemployed	
						% Able to work	% Not able to work
15-24	351	0.7	33.8	5.7	0.0	1.1	0.4
25-34	97	1.8	4.6	9.4	0.2	0.9	0.4
35-44	82	1.5	0.4	10.6	1.1	1.5	0.4
45-54	113	0.8	0.2	17.4	2.5	1.6	0.6
55-64	188	1.1	0.2	30.7	8.1	0.7	1.3
15-64	831	4.0	37.9	45.6	6.6	4.0	1.9

Unpaid work and unemployed							
Age Group (years)	Women						
	n	% Non-paid	% Student	% Home-maker	% Retired	Unemployed	
						% Able to work	% Not able to work
15-24	493	0.1	25.1	32.9	0.1	0.1	0.0
25-34	468	0.2	1.1	81.6	0.0	0.0	0.0
35-44	448	0.0	0.8	83.4	0.2	0.2	0.0
45-54	376	0.0	0.2	75.5	0.8	0.2	0.2
55-64	258	0.2	0.2	55.2	1.1	0.4	0.7
15-64	2043	0.1	11.0	87.9	0.5	0.2	0.2

Unpaid work and unemployed							
Age Group (years)	Both Sexes						
	n	% Non-paid	% Student	% Home-maker	% Retired	Unemployed	
						% Able to work	% Not able to work
15-24	844	0.8	58.9	38.6	0.1	1.2	0.4
25-34	565	1.9	5.7	91.0	0.2	0.9	0.4
35-44	530	1.5	1.1	94.0	1.3	1.7	0.4
45-54	489	0.8	0.4	92.8	3.3	1.8	0.8
55-64	446	1.3	0.4	85.9	9.2	1.1	2.0
15-64	2874	**1.3**	**18.8**	**75.7**	**2.3**	**1.3**	**0.7**

Of the one third respondents who were involved in unpaid works (M=43.8%, W=85.3 % and B=67.0 %), further segregations was done. The highest proportion of unpaid works was home workers. One in three unpaid men respondents were (37.9%) students compared to 11 percent of Women and comprised to become 18.8 percent among both sexes. Almost 9 in ten unpaid Women respondents (87.9%) were homemakers. Almost 6 percent of men and less than 1 percent of Women were unemployed. Almost 7 percent of men and less than 1 percent of Women respondents had retired from job.

Though domestic works like washing, cleaning, food making, child keeping are increasingly receiving attention as paid work even if those involved do not bring cash in. But money saved is money earned. In Nepal, the concept has not yet been recognized for which it is regarded as an unpaid job.

Annual income

Nepal is still one of the low income countries. Per capita income is lower than $300. Around 40 percent people are below the poverty line. Assessing annual income and comparing it with people at risk of NCD would help prepare plan for NCD prevention and health promotion. Since many people were unable to give exact amount of their earning, the survey management team decided to give figures in terms of quintiles than the exact amount.

Table 7: summary of mean annual income of participant and their household earnings by quintile

Mean annual per capita income					
n		Mean			
2684		NRS 5120.9			
Estimated household earnings					
n	% Quintile 1: Under NRS 4003.	% Quintile 2: NRS 4003-6727	% Quintile 3: NRS 6727-9697	% Quintile 4: NRs 9697-14917	% Quintile 5: Over 14917
1162	*22.4*	*29.1*	*14.6*	*10.5*	*8.0*

Table 7 shows the income level of the respondents. Mean per capita income of households was calculated by asking the annual income of household and number of people in the household. Mean reported per capita annual income of respondents in local currency was found to be NRS 5120.9 which is equivalent to $ 68.25 (exchange rate of $1= NRs 75). To those respondents who could not state the exact amount of earnings in amount

were asked to say the interval of income. Proportions of the respondents who fall under the 1st quintile were 22.4 percent followed by almost 30 percent in the 2nd quintiles. Less than one in five (18.5%) of respondents were above the third quintile. The basis of quintile has been taken from the Centre Bureau of Statistics, Nepal.

2. TOBACCO USE

Tobacco use in any form has not yet been demonstrated to have beneficial effect on human health scientifically. People use tobacco either for fun initially and become addicted in later days. Tobacco contains hundreds of chemicals that are proved to be harmful to human health. Risk of neoplasm, obstructive lung diseases and ischemic heart disease is significantly higher among tobacco user than non users and is true for passive smoking as well.

Nepal has had a long history of massive use of tobacco among general population. Despite governmental, non-government efforts on reducing tobacco use, the rate of reduction in tobacco use is slow. Tobacco use either in the form of smoking, chewing or keeping tobacco dusts between lips and gums, has been in practice in Nepal. This survey for non communicable diseases surveillance in Nepal included a number of aspects of tobacco use. Smoking as a form of tobacco use, use of smokeless tobacco, age of initiation, mean duration of using tobacco, age of tobacco cessation were included. The figures are given as below:

Table 8: Current smokers among all respondents

Percentage of current smokers										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**% Current smoker**	**95% CI**		**n**	**% Current smoker**	**95% CI**		**n**	**% Current smoker**	**95% CI**
15-24	51	20.9	1.2-40.7		8	3.3	1.6-8.1		59	12.5	0.5-24.5
25-34	108	25.8	16.5-35.1		35	8.7	3.1-14.2		143	18.1	11.7-24.6
35-44	141	53.3	39.0-67.6		71	17.0	9.3-24.6		212	34.5	25.4-43.5
45-54	132	48.8	37.3-60.2		92	34.0	24.3-43.6		224	41.2	32.1-50.3
55-64	126	60.0	43.5-76.5		70	53.7	27.8-79.7		196	57.6	39.8-75.4
15-64	**558**	**35.5**	**25.6-45.4**		**276**	**15.**	**10.7-21.2**		**834**	**26.2**	**18.8-33.6**

All respondents were asked about their smoking habit. They were asked whether they smoked any type of smoking products such as cigarettes, cigars, or pipes currently. Current smokers were defined as those who were consuming smoking products. On average, 35.5 percent of men, 15.9 percent of women and 26.2 percent of all respondents were current smokers. Significant difference was observed in the proportion of men and Women smokers (M=35.5% CI 25.6-45.4 W= 15.9% CI 10.7-21.2 and Both = 26.2% CI 18.8-33.6). Men smokers in 15-24 years age group were almost 6 times (20.9%) more than women smokers (3.3%) of same age group. In total also, about One in 10 (12.5% CI 0.5-24.5) of the respondents in the 15-24 years age group smoked while almost six in ten respondents of the 55-64 years age group (57.6% CI 39.8-75.4) smoked tobacco. Similarly, Only 3.3 percent (CI 1.6-8.1) of the women in the 15-24 years age group were current smokers while as more than one in two (53.7% CI 27.8-79.7) women in the 55-64 years age group (57.6%) were current smokers. It means the higher age group, higher the numbers of

current smokers were observed. It might be a positive impact of the information, education and services related to tobacco control initiatives.

Table 9: Smoking status of all respondents

Smoking status							
Age Group (years)	**Men**						
	n	**Current smoker**				**% Does not smoke**	**95% CI**
		% Daily	**95% CI**	**% Non-daily**	**95% CI**		
15-24	488	15.8	4.9-36.5	5.1	0.9-9.3	79.1	59.3-98.8
25-34	385	22.7	13.0-32.4	3.1	0.7-5.6	74.2	64.9-83.5
35-44	390	47.1	32.7-61.6	6.2	1.3-11.0	46.7	32.4-61.0
45-54	323	43.9	29.3-58.6	4.8	0.3-9.9	51.3	39.8-62.7
55-64	321	59.0	42.2-75.9	1.0	0.1-1.9	40.0	23.5-56.5
15-64	1907	31.2	20.8-41.7	4.3	2.1-6.4	64.5	54.6-74.4

Smoking status							
Age Group (years)	**Women**						
	n	**Current smoker**				**% Does not smoke**	**95% CI**
		% Daily	95% CI	% Non-daily	95% CI		
15-24	545	3.2	1.6-8.0	0.1	0.1-0.3	96.7	91.9-100
25-34	594	8.1	2.6-13.6	0.6	0.2-1.4	91.3	85.8-96.9
35-44	553	16.7	9.2-24.2	0.3	0.3-1.0	83.0	75.4-90.7
45-54	447	33.0	23.9-42.2	0.9	0.2-2.1	66.0	56.4-75.7
55-64	282	52.6	26.1-79.1	1.1	0.2	46.3	20.3-72.2
15-64	2421	15.5	10.3-20.7	0.4	0.1-0.8	84.1	78.8-89.3

Smoking status							
Age Group (years)	**Both Sexes**						
	n	**Current smoker**				**% Does not smoke**	**95% CI**
		% Daily	**95% CI**	**% Non-daily**	**95% CI**		
15-24	1033	9.8	2.2-21.8	2.7	0.3-5.1	87.5	75.5-99.5
25-34	979	16.1	9.6-22.7	2.0	0.6-3.3	81.9	75.4-88.3
35-44	943	31.3	22.9-39.7	3.1	0.5-5.8	65.5	56.5-74.6
45-54	770	38.4	28.3-48.4	2.8	0.3-5.4	58.8	49.7-67.9
55-64	603	56.5	38.3-74.8	1.0	0.3-1.8	42.4	24.6-60.2
15-64	4328	23.8	16.3-31.3	2.5	1.1-3.8	73.8	66.4-81.2

Table 9 shows the result of smoking habit of respondents. Those who currently smoked were asked further whether they smoked daily or occasionally. Higher proportion of the current smokers was daily consumers. Among current smokers almost one in four (23.8%) of the respondents were daily smokers (M=31.2% and W=15.5%) and 2.5 % of respondents (M= 4.3 and W= 0.4%) were non daily smokers. The findings reveal that once person starts smoking, s/he continues and becomes habituated.

Almost three in four (73.8%) of respondents did not smoke. Age and sex wise segregation showed that 96.7 % of the Women respondents in the age 15-24 years did not smoke. Almost 5 in 10 Women (52.6%) and 6 in 10 men (59%) of the 55-64 age group were smokers.

The greater concentration of non smokers was found in the lower age groups and highest in the 15-24 years age group (87.5 % with CI 75.5-99.5). But still significant proportion i.e. One in five men of the 15-24 years age group are smokers and it is almost 3 in 100 among Women of same age group.

This shows that prevalence of smoking in lower age groups and specially in Women was decreasing and once people get in to habit of smoking, they are likely to be daily consumers than to be occasional or non daily smokers.

Table: 10 Percentage of current daily smokers among smokers

Current daily smokers among smokers										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**% Daily smokers**	**95% CI**		**n**	**% Daily smokers**	**95% CI**		**n**	**% Daily smokers**	**95% CI**
15-24	31	75.6	43.1-100		7	97.6	91.4-100		38	78.4	51.6-100.2
25-34	86	88.0	77.3-98.6		32	93.4	83.8-100		118	89.1	81.0-97.3
35-44	120	88.4	79.2-97.6		70	98.2	94.5-10o		190	90.9	83.7-98.1
45-54	118	90.1	78.4-100		86	97.3	94.1-100.		204	93.1	86.4-99.8
55-64	114	98.4	96.7-100.		65	97.9	95.0-100.		179	98.2	96.5-99.9
15-64	469	87.9	80.6-95.3		260	97.2	94.9-99.6		729	90.6	84.8-96.4

The proportion of respondents who currently smoked (26.6%) was segregated age and sex wise. Among the smokers, 9 out of ten of them (90.6%) were daily smokers of which men were 87.9% and Women were 97.2%. Proportion of daily smokers increased with increasing age.

Table: 11 Percentage of smokers who use manufactured cigarettes among daily smokers.

Manufactured cigarette smokers among daily smokers										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**% Manu-factured cigarette smoker**	**95% CI**		**n**	**% Manu-factured cigarette smoker**	**95% CI**		**n**	**% Manu-factured cigarette smoker**	**95% CI**
15-24	30	98.4	94.3-100-		4	22.4	21.4-66.3		34	86.4	60.6-100.0
25-34	76	74.9	44.8-100		17	74.3	46.5-100		93	74.8	49.7-99.9
35-44	92	82.2	66.8-97.7		37	43.1	14.1-72.0		129	71.4	53.1-89.8
45-54	101	83.4	65.4-100.		56	57.7	25.7-89.6		157	72.1	49.8-94.4
55-64	96	88.5	79.0-97.9		46	36.5	5.1-78.1		142	69.7	50.0-89.3
15-64	395	85.7	73.4-98.0		160	47.7	22.8-72.6		555	73.9	61.5-86.3

Daily smokers were asked what type of smoking products they consumed. On average, three in four respondents (73.9% CI 61.5-86.3) consumed manufactured cigarettes. Proportion of men respondents who consumed manufactured cigarette (85.7%CI 73.4-98.0)

differed significantly to the proportion of Women who consumed manufactured cigarette (47.7%, CI 22.8-72.6). Proportion of smokers consuming manufactured cigarette was higher in younger age group than older age group and higher among men than in Women in individual age categories.

Table: 12 Mean amount of tobacco used by daily smokers per day, by type

Mean amount of tobacco used by daily smokers by type									
Age Group	**Men**								
(years)	**n**	**Mean # of manu-factured cig.**	**95% CI**	**n**	**Mean #of hand-rolled cig.**	**95% CI**	**n**	**Mean # of pipes of tobacco**	**95% CI**
15-24	31	5.1	3.8-6.5						
25-34	78	8.3	2.6-14.1	3	9.1	--	4	6.3	--
35-44	92	8.4	6.4-10.4	2	10.5	--	2	2.2	--
45-54	103	7.8	4.7-10.8	4	41.8	--	3	3.5	--
55-64	96	10.7	5.4-16.0	4	6.3	--	4	8	--
15-64	400	8.1	6.1-10.1	13	15.3*	--	13	5.6*	--

Mean amount of tobacco used by daily smokers by type									
Age Group	**Men**								
(years)	**n**	**Mean # of other type of tobacco**	**95% CI**	**n**	**Mean # of Bidi.**	**95% CI**	**n**	**Mean #of Cigar**	**95% CI**
15-24				1	1	--			
25-34	1	0	---	7	13.2	5.3-21.1	2	1.2	3.4-5.7
35-44	2	2.5	0.8-4.3	23	9.9	8.5-11.3	1	2	--
45-54	1	2	---	13	12.3	9.3-15.3	2	8.5	3.7-13.2
55-64	1	0	---	13	5.3	3.9-6.6	2	4.5	2.2-6.8
15-64	5	1.1*	1.7-4.0	57	10.7	6.5-14.8	7	3.1*	0.7-6.8

Mean amount of tobacco used by daily smokers by type									
Age Group	**Women**								
(years)	**n**	**Mean # of manu-factured cig.**	**95% CI**	**n**	**Mean #of hand-rolled cig.**	**95% CI**	**n**	**Mean # of pipes of tobacco**	**95% CI**
15-24	4	4.3	0.7-8.0						
25-34	17	5.4	3.2-7.7	2	1	1.0-1.1			
35-44	37	7.2	5.3-9.0	4	4.8	0.3-9.3			
45-54	56	7.1	4.7-9.5	5	5.8	5.2-6.4	3	1.6	0.5-2.8
55-64	46	5.4	4.2-6.7	3	4.2	3.7-4.7	5	4	4.0-4.0
15-64	160	6.4	5.0-7.8	14	4.4*	1.3-7.5	8	3.9*	3.4-4.4

** Data are not statistically significant as size is small.*

Age Group	Women								
(years)	n	Mean # of other type of tobacco	95% CI	n	Mean # of Bidi	95% CI	n	Mean # of Cigar	95% CI
15-24				3	4.9	4.8-5.1			
25-34				12	11	1.5-20.4			
35-44				26	5	3.4-6.6			
45-54	1	10	--	23	7.7	3.4-12.0			
55-64				13	9.4	4.7-14.1			
15-64	1	10	--	77	7.1	4.5-9.6			

Mean amount of tobacco used by daily smokers by type												
Age Group (years)	Both Sexes											
	n	Mean # of manu-factured cig.	95% CI	n	Mean #of hand-rolled cig.	95% CI	n	Mean # of pipes of tobacco	95% CI	n	Mean # of other type of tobacco	95% CI
15-24	35	5.1	3.7-6.5	-		-	-	-	-			
25-34	95	7.7	2.8-12.6	5	5.2	2.1-12.4	4	6.3		1	0.0	--
35-44	129	8.2	6.5-9.9	6	5.0	0.8-9.2	2	2.2		2	2.5	0.8-4.3
45-54	159	7.5	5.3-9.8	9	14.3	-1.8-30.4	6	2.9		2	3.4	1.7-8.5
55-64	142	9.7	5.0-14.4	7	5.9	2.0-9.8	9	4.3		1	0.0	--
15-64	560	7.8	6.0-9.5	27	8.2	0.3-16.1	21	4.3		6	1.5	1.7-4.6

Mean amount of tobacco used by daily smokers by type						
Age Group (years)	Both Sexes					
	n	Mean # of Cigar.	95% CI	n	Mean #of Bidi.	95% CI
15-24				4	4.9	4.6-5.2
25-34	2	1.2	2.8-5.1	19	12.7	6.1-19.4
35-44	2	2.2	1.4-2.9	49	8.0	6.6-9.3
45-54	3	7.8	3.5-12.1	36	9.4	6.8-12.1
55-64	2	4.5	2.8-6.3	26	7.5	5.1-9.9
15-64	9	3.1	-0.1-6.2	134	8.8	6.8-10.9

Daily smokers were asked about the mean amount of smoking products they consumed daily. On average, respondents consumed 8 sticks of manufactured and hand rolled cigarettes and 9 sticks of bidi daily. Consumption of hand rolled cigarettes, bidi and other forms of smoking products was less in younger age groups. The number of smokers consuming different type of smoking products other than manufactured cigarettes and bidi were comparatively less. Mean consumption of bidi was highest among 55-64 years age group which was 9.4.

Table 13: Mean age of initiation of smoking, in years, among daily smokers

Mean age started smoking										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	Mean age	95% CI		n	Mean age	95% CI		**n**	**Mean age**	**95% CI**
15-24	31	15.5	14.6-16.3		6	12.9	11.3-14.6		37	15.1	14.2-15.9
25-34	84	17.5	15.5-19.4		26	20.2	16.8-23.7		110	18.0	16.1-19.9
35-44	116	18.7	16.3-21.1		63	18.0	14.5-21.4		179	18.5	16.5-20.5
45-54	110	21.1	17.2-25.0		79	19.4	15.3-23.4		189	20.3	17.6-23.0-
55-64	103	21.1	18.5-23.7		54	34.1	15.0-53.3		157	26.0	16.2-35.8
15-64	444	18.8	17.7-19.9		228	12.9	11.3-14.6		672	20.0	17.7-22.4

The respondents who said they smoked daily were further asked about their smoking history. They were asked about their age when they first initiated smoking daily. It was found that the respondents started at the age of 20 years on average with confidence interval of 17.7 to 22.4 years. Mean age of initiation of smoking among men was 19 year whereas among women it was 13 years. Findings suggest that women initiate smoking earlier than men. It is also interesting that mean age for smoking initiation for both sexes is 20 years. It may be due to weighing effect.

Table 14: mean duration of smoking, in years, among daily smokers

Mean duration of smoking										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**Mean duration**	**95% CI**		**n**	**Mean duration**	**95% CI**		**n**	**Mean duration**	**95% CI**
15-24	31	5.1	3.6-6.6		6	9.3	7.9-10.6		37	5.7	4.4-7.0
25-34	84	12.6	10.8-14.3		26	9.6	6.3-12.9		110	12.0	10.2-13.8
35-44	116	21.0	17.6-24.5		63	21.6	16.9-26.4		179	21.2	18.4-24.1
45-54	110	28.2	23.8-32.6		79	28.4	23.5-33.3		189	28.3	25.1-31.5
55-64	103	36.8	33.2-40.5		54	25.3	6.9-43.8		157	32.5	22.2-42.8
15-64	**444**	**21.1**	**16.9-25.2**		**228**	**22.9**	**17.7-28.1**		**672**	**21.6**	**17.4-25.8**

The mean duration of smoking among daily smokers was calculated for individual age group and for sexes showed that on average respondents of 55-64 age group smoked for 32 years CI (22.2-42.8). Sex differential was observed though not found significant (M= 36.8 years CI 33.2-40.5 and W= 25.3 years CI 6.9-43.8).

On average, men respondents smoked for 21.1 years and women smoked for 22.9 years. However, this statistics can be misleading as the age group of the population might influence the number of years an individual consume cigarette. Since, we have almost 47% of respondent in the 15-34 years age group.

Significant difference was observed in the mean duration between men and Women of 15-24 years age group. On average men had spent 5.1 years CI 3.6-6.6 and Women had smoked for 9.3 years CI 7.9-10.6. This showed that Women started smoking earlier than

men counterparts, even earlier than 15 years of age. This figure coincides with the figure observed in table no 14.

Table: 15: Percentage of ex-daily smokers among all respondents

Ex-daily smokers among all respondents										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**% ex daily smokers**	**95% CI**		**n**	**% ex daily smokers**	**95% CI**		**n**	**% ex daily smokers**	**95% CI**
15-24	17	4.5	0.2-8.8		2	0.3	0.2-0.8		19	2.3	0.1-4.6
25-34	24	10.5	3.9-17.2		15	1.7	0.1-3.4		39	6.2	2.9-9.5
35-44	46	19.9	8.7-31.2		42	27.7	4.7-50.7		88	24.8	9.1-40.4
45-54	54	29.5	9.5-49.4		46	19.6	9.9-29.4		100	24.0	15.7-32.2
55-64	94	62.2	43.8-80.7		49	25.5	11.4-39.6		143	46.4	36.6-61.1
15-64	235	14.5	10.5-18.6		154	9.2	3.9-14.5		389	11.7	8.6-14.8

Respondents who had smoked daily in past and had quitted sometime in the past were asked about their past smoking status. On average 14.5 % of men respondents and 9.2 % of women respondents and 11.7 % among both sexes had smoked daily in the past.

This proportion of respondents does not include those who continue smoking at present. Trend of quitting smoking was found to increase as age progressed on. Only 2.3 % (CI 0.1-4.6) of the respondents had quitted smoking in the age group 15-24 years while the proportion rose to 46.4% (CI 36.6-61.1) in 55-64 age group in both sexes. The proportion of quitters was higher in men than women. The data showed that once women started smoking, they are less likely to quit smoking than their men counterparts are.

Table 16: Mean duration, in years, since ex-daily smokers quit smoking daily

Mean years since cessation										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**Mean years**	**95% CI**		**n**	**Mean years**	**95% CI**		**n**	**Mean years**	**95% CI**
15-24	17	2.3	0.5- 4.1		0	-	-		17	2.3	0.5- 4.1
25-34	24	5.1	4.1- 6.0		15	8.5	2.9- 14.1		39	5.5	4.3- 6.8
35-44	46	7.8	5.8- 9.8		42	6.4	0.2- 13.0		88	6.8	1.9- 11.7
45-54	54	8.8	4.2- 13.4		46	7.7	5.2- 10.2		100	8.3	5.9- 10.6
55-64	94	17.8	11.9-23.7		49	11.5	5.2- 17.9		143	16.3	11.4-21.2
15-64	235	9.7	6.3- 13.0		152	7.5	3.1- 11.8		387	8.8	6.2- 11.4

The ex- daily smokers were asked about the time duration since they last quitted smoking. On average respondent had quitted smoking 9 years ago. Men respondents had quitted smoking since 9.7 years and women had quitted 7.5 years ago. Respondents of 55-64 years age group had quitted smoking daily 16 years ago. Women of this age group quitted 6 years later than their men counter parts. But, this difference was not found to be significant statistically.

Table 17: Percentage of current users of smokeless tobacco among all respondents

Current users of smokeless tobacco										
Age Group (years)	Men				Women				Both Sexes	
	n	% Current users	95% CI		n	% Current users	95% CI		n	% Current users	95% CI
15-24	60	23.5	4.4-42.5		2	0.3	0.3-0.9		62	12.4	0.6-24.1
25-34	121	28.9	18.5-39.3		20	2.5	0.7-4.4		141	17.1	11.0-23.2
35-44	129	38.8	22.4-55.1		32	6.5	2.5-10.6		161	22.0	12.4-31.7
45-54	131	49.0	32.1-65.8		33	14.1	4.1-24.2		164	31.2	19.3-43.2
55-64	104	29.0	12.6-45.3		20	7.1	0.2-14.1		124	20.5	8.9-32.1
15-64	545	31.2	23.5-38.8		107	4.6	2.1-7.2		652	18.6	14.0-23.2

All respondents were asked about their habit of consuming smokeless tobacco products. Smokeless tobacco products include snuff, chewing tobacco, betel etc. Current users were defined as those who are consuming any of the smokeless tobacco products at present (both daily and non daily)

Out of total respondents, 18.6% of them consumed smokeless tobacco products. Significant difference was observed in the prevalence of smokeless tobacco consumption between men and women (M= 31.2% with CI 23.5-38.8 and W= 4.6 CI 2.1- 7.2.). Men were almost 7 times more likely to consume smokeless products compared to women.

Proportion of smokeless tobacco consumers increased with age till the 45-54 years age group and was found to decrease at 55-64 years age group in both sexes.

Table 18: Status of using smokeless tobacco among all respondents

Smokeless tobacco use							
Age Group (years)	Men						
	n	Current user				% Does not use smokeless tobacco	95% CI
		% Daily	95% CI	% Non-daily	95% CI		
15-24	472	10.6	3.7-17.4	13.2	7.9-34.4	76.2	56.9-95.5
25-34	354	29.7	19.0-40.4	1.5	0.2-2.8	68.8	58.2-79.3
35-44	338	42.3	31.8-52.8	7.1	4.5-18.7	50.6	35.6-65.6
45-54	289	51.2	34.3-68.0	1.3	0.4-3.0	47.5	30.9-64.1
55-64	285	30.3	12.9-47.7	0.7	-0.6-2.0	69.0	51.5-86.6
15-64	**1738**	**26.9**	**20.7-33.2**	**6.7**	**2.0-15.4**	**66.4**	**58.9-73.9**

Smokeless tobacco use							
Age Group (years)	**Women**						
	n	**Current user**				**% Does not use smokeless tobacco**	**95% CI**
		% Daily	**95% CI**	**% Non-daily**	**95% CI**		
15-24	538	0.3	0.3-0.9	--	--	99.7	99.1-100.
25-34	576	2.3	0.8-3.9	0.4	0.3-1.0	97.3	95.4-99.3
35-44	528	6.8	2.6-11.0	0.2	0.1-0.4	93.1	88.8-97.4
45-54	425	15.2	4.8-25.6	0.1	0.1-0.4	84.7	74.3-95.1
55-64	267	7.7	0.0-15.4	0.0	0.0-0.1	**0.0-0.3**	84.5-99.9
15-64	2334	4.7	2.2-7.3	0.1	**0.0-0.3**	95.1	92.5-97.8

Smokeless tobacco use							
Age Group (years)	**Both Sexes**						
	n	**Current user**				**% Does not use smokeless tobacco**	**95% CI**
		% Daily	**95% CI**	**% Non-daily**	**95% CI**		
15-24	1010	5.6	1.7-9.5	6.9	5.0-18.7	87.5	75.6-99.4
25-34	930	17.3	10.8-23.8	1.0	0.1-1.9	81.7	75.3-88.1
35-44	866	22.2	15.0-29.5	3.2	2.1-8.4	74.6	64.3-84.8
45-54	714	32.9	21.2-44.6	0.7	0.1-1.6	66.4	54.8-77.9
55-64	552	21.6	9.0-34.2	0.4	0.4-1.2	77.9	65.2-90.7
15-64	4072	16.2	12.1-20.3	3.5	1.0-8.1	80.3	75.5-85.0

Current smokeless tobacco users were further classified as daily users and non daily users. Daily users were those who had consumed any of the smokeless tobacco products at least once a day and non daily users were those who consumed smokeless tobacco products occasionally. Almost one on four men (26.9%), five in 100 women and 16 in 100 among both sexes were daily smokeless tobacco users. Non daily users were 6.7 % in men 0.1% in women and 3.5 among both sexes.

Proportion of daily users was 4.6 times greater than non-daily users. Men respondents were 4 times likely to be daily users compared to non daily users while women respondents were 47 times more likely to be daily users than non daily users. However, conclusion can not be drawn as explained because there is small number of respondents.

Proportion of daily users was found to be increasing with increasing age till age 45-54 years than decreases in the age group 55-64 years in both the sexes.

Ninety-five percentage of women respondents and 66.4 percent of men respondents did not consume smokeless tobacco. Proportion of non users was the highest among women of 15-24 years age group (99.7%) which means smokeless tobacco users were virtually absent (0.3%) in same age group while it was 23.8 percent among the men counterpart.

Table 19: Percentage of ex-daily users of smokeless tobacco among all respondents

Ex-daily smokeless tobacco users										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**% Ex daily users**	**95% CI**		**n**	**% Ex daily users**	**95% CI**		**n**	**% Ex daily users**	**95% CI**
15-24	10	20.6	5.0-36.1		3	2.3	2.4-7.0		13	17.1	3.5-30.7
25-34	11	10.3	1.1-19.4		2	2.2	2.6-7.1		13	8.8	1.0-16.5
35-44	21	26.1	6.6-45.5		9	78.5	45.7-100		30	36.0	12.3-59.7
45-54	21	15.7	3.1-28.2		6	10.3	7.0-27.6		27	14.7	3.9-25.4
55-64	25	27.4	4.4-50.5		5	6.7	7.4-20.8		30	23.5	3.7-43.3
15-64	88	6.1	2.9-9.2		25	1.17	0.18-2.52		**113**	3.4	1.9-4.8

Respondents who used to consumed smokeless tobacco daily in past but do not use currently were defined as the ex daily users. They were asked whether they had ever use smokeless tobacco such as snuff, chewing tobacco, betel daily in the past. On average, 3.4 percent of all respondents were ex-daily smokeless tobacco users of which 6.1 percent were men and 1.2 percent was women. Age and sex wise segregation showed that proportion of ex daily users were highest in the 35-44 yrs age group among women and 55-64 yrs age group in men.

Table 20 : Mean times per day smokeless tobacco used by smokeless tobacco users per day, by type

Mean times per day smokeless tobacco used by daily smokeless tobacco users by type												
Age Group (years)	**Men**											
	n	**Chewing tobacco**	**95% CI**	**n**	**Betel, quid**	**95% CI**	**n**	**Gutkha**	**95% CI**	**n**	**Gul**	**95% CI**
15-24	50	6.2	4.6-7.9	1	1.0	--	9	3.5	2.6-4.4			
25-34	112	9.5	5.5-13.5	5	2.9	2.7-3.1	10	4.9	0.1-9.7			
35-44	120	6.5	5.0-8.1	6	2.2	1.8-2.6	9	3.9	3.3-4.5	1	3	---
45-54	123	6.9	4.4-9.3	6	3.1	1.0-7.2						
55-64	101	6.0	3.9-8.0	4	2.1	1.7-2.5	1	5.0	----			
15-64	506	7.2	5.7-8.8	22	2.5	0.9-4.1	29	4.3	2.2-6.3	1	3	---

Mean times per day smokeless tobacco used by daily smokeless tobacco users by type												
Age Group (years)	**Women**											
	n	**Chewing tobacco**	**95% CI**	**n**	**Betel, quid**	**95% CI**	**n**	**Gutkha**	**95% CI**	**n**	**Gul**	**95% CI**
15-24	2	2.2	1.6-2.9									
25-34	18	5.6	3.4-7.8				1	1	--			
35-44	30	8.1	3.6-12.6				1	6	--			
45-54	31	5.3	4.3-6.4				--	--	--			
55-64	18	8.0	2.4-13.6				1	3	--			
15-64	99	6.4	4.6-8.1				3	4.6	1.3-10.5			

Mean times per day smokeless tobacco used by daily smokeless tobacco users by type												
Age Group (years)	**Both sexes**											
	n	**Chewing tobacco**	**95% CI**	**n**	**Betel, quid**	**95% CI**	**n**	**Gutkha**	**95% CI**	**n**	**Gul**	**95% CI**
15-24	52	6.1	4.5-7.8	1	1.0	--	9	3.5	2.6-4.3			
25-34	130	9.2	5.5-13.0	5	2.9	2.7-3.1	11	4.8	0.2-9.4			
35-44	150	6.8	5.2-8.4	6	2.2	1.8-2.6	10	4.1	3.5-4.8	1	3	--
45-54	154	6.5	4.6-8.4	6	3.1	1.0-7.2						
55-64	119	6.3	4.4-8.2	4	2.1	1.7-2.5	2	4.4	3.0-5.8			
15-64	605	7.1	5.7-8.5	22	2.5	0.9-4.1	32	4.3	2.4-6.2	1	3	--

Smokeless tobacco users were inquired about the type and frequency of smokeless tobacco products they used. On average respondents chewed tobacco 7 times a day (M= 7 times and W= 6 times). Consumption of chewing tobacco was highest among men of 25-34 yrs age group (9.5 times) and 35-44 years age group among Women (9.2 times)

Women of 15-24 years age group consumed less tobacco than other age groups. Women respondents did not consume Betel, quid and Gul. On average respondents consumed gutkha 4 times a day and betel / quid two times a day.

Table21: Percentage of daily and current (daily plus non-daily) tobacco users, includes smoking and smokeless, among all respondents

Daily tobacco users										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**% Daily users**	**95% CI**		**n**	**% Daily users**	**95% CI**		**n**	**% Daily users**	**95% CI**
15-24	75	25.9	7.2-44.6		8	3.2	1.6-8.1		83	15.0	2.7-27.3
25-34	178	45.8	37.0-54.7		43	9.4	4.0-14.8		221	29.5	23.0-36.1
35-44	221	71.0	59.6-82.4		92	19.5	11.0-28.0		313	44.3	34.9-53.7
45-54	211	80.3	68.7-91.8		114	45.7	32.8-58.6		325	62.6	51.3-74.0
55-64	190	76.4	62.3-90.6		81	58.3	33.8-82.8		271	69.4	55.4-83.3
15-64	875	50.8	42.2-59.4		338	18.8	12.8-24.7		1213	35.6	28.5-42.6

Current tobacco users										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**% Current users**	**95% CI**		**n**	**% Current users**	**95% CI**		**n**	**% Current users**	**95% CI**
15-24	91	28.5	10.2-46.8		9	3.3	1.5-8.2		100	16.4	4.1-28.7
25-34	196	48.2	39.9-56.5		48	10.3	4.7-15.9		244	31.2	25.1-37.4
35-44	237	75.8	65.2-86.4		93	19.6	11.1-28.1		330	46.7	36.8-56.6
45-54	221	81.4	70.4-92.5		119	46.4	33.5-59.4		340	63.6	52.7-74.5
55-64	198	77.4	63.5-91.3		86	59.3	35.2-83.5		284	70.4	56.7-84.0
15-64	943	53.3	45.2-61.4		355	19.2	13.2-25.2		1298	37.1	30.2-44.1

Tobacco users were those who consumed both smoking and smokeless tobacco products. Current users were those who consumed tobacco products at present and daily tobacco users were those who consumed at least one type of tobacco product at least once

in a day. More than one in three respondents (37.1%) were current tobacco users. One in two men (53.3% CI 45.2-61.4) was current tobacco user, which significantly differed from the proportion of current tobacco user among women, which was 19.2 percent with CI 13.2-25.2). Men respondents were three times more likely to be current tobacco users than women respondents.

One in two men (50.8% CI 42.2-59.4) and one in five women (18.8% CI 12.8-24.7) were daily tobacco users. Significant difference was observed in the proportion of smokers between the sexes.

Highest proportion of both current and daily tobacco users were of the age group 45-54. Almost three in 10 men respondents and less than 4 in 100 respondents in age group 15-24 were tobacco users.

Viewing the two tables above we can conclude that once people start consuming tobacco products they are less likely to remain occasional users.

3. ALCOHOL CONSUMPTION

The relationship between alcohol consumption and health and social outcome is complex and multidimensional. According to series of recent meta-analyses, average volume of alcohol consumption was linked to more than 60 disease conditions, which include liver cirrhosis, several cancers (lever, laryngeal, esophageal and oropharyngeal cancers), injuries and haemorrhagic strokes(5). There is increasing evidence that patterns of drinking are relevant to health as well as volume of alcohol consumed, binge drinking being hazardous. Worldwide, alcohol causes 3.2 percent of death (1.8 million) and 4 percent of DALYs (58.3 million). Besides the direct effects of intoxication and addiction resulting in alcohol use disorders, alcohol is estimated to cause about 20-30 percent of each of the disorders namely oesophageal cancer, liver cancer, cirrhosis of the liver, homicide, epilepsy and motor vehicle accidents.(6)

Nepalese population uses alcoholic beverages for a variety of reasons. Some use it in the from of culture whereas other use it for fun as an amusement. But continued use of alcohol develops dependency in one hand and deleterious effect on human health on the other.

Since alcohol is one of the established risk factor for non-communicable diseases, its use, usage pattern and dose at any given day matters for health and was included in the NCD surveillance survey

Alcohol consumption has been regarded as one of the important behavioral risk factor. Amount of alcohol consumed is calculated in terms of standard drinks. One standard drink of alcohol contains 8-13 grams of alcohol. Depending upon the concentration of alcohol content, different types of drinks are available in the market. Consumption of locally brewed alcohol is prevalent in Nepal. For survey purpose standardization of amount of alcohol content has been done. All respondents were asked about their alcohol

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5. *WHO, Non-communicable Diseases and Mental Health* Framework, Surveillance of risk factors for noncommunicable diseases *WHO, 2002.*
6. *WHO,* The world Health Report 2002, Reducing the risks, Promoting Healthy Life, *WHO, 2002.*

consumption habit. Tables below show the alcohol consumption behavior of the respondents.

Table 22: Alcohol consumption status of all respondents

Alcohol consumption status							
Age Group (years)	**Men**						
	n	**% Current drinker (last 30 days)**	**95% CI**	**% Drank in last 12 months, not current**	**95% CI**	**% Abstainer**	**95% CI**
15-24	488	25.4	5.6-45.1	13.0	4.3-21.7	61.4	43.5-79.8
25-34	385	38.4	27.5-49.3	11.9	6.8-17.0	49.7	37.5-61.9
35-44	390	48.4	32.8-63.9	13.6	0.6-26.6	38.0	27.1-49.0
45-54	323	53.6	33.6-73.7	5.5	1.5-9.4	41.0	21.4-60.4
55-64	321	55.8	37.2-74.4	7.1	0.8-13.4	37.1	20.2-54.4
15-64	**1907**	**39.3**	**27.7-51.0**	**11.1**	**5.7-16.6**	**49.6**	**39.2-59.9**

Alcohol consumption status							
Age Group (years)	**Women**						
	n	**% Current drinker (last 30 days)**	**95% CI**	**% Drank in last 12 months, not current**	**95% CI**	**% Abstainer**	**95% CI**
15-24	545	6.4	0.8-11.9	7.5	1.6-13.5	86.1	76.5-95.7
25-34	594	16.2	6.3-26.2	5.5	1.1-9.9	78.3	67.1-89.5
35-44	553	23.9	10.2-37.6	6.3	2.2-10.3	69.9	54.9-84.8
45-54	447	31.6	14.0-49.1	5.6	0.9-12.1	62.9	43.1-82.6
55-64	282	17.9	4.6-31.2	2.9	0.0-5.8	79.2	64.0-94.3
15-64	**2421**	**16.5**	**8.9-24.1**	**6.2**	**2.2-10.2**	**77.3**	**67.8-86.9**

Alcohol consumption status							
Age Group (years)	**Both Sexes**						
	n	**% Current drinker (last 30 days)**	**95% CI**	**% Drank in last 12 months, not current**	**95% CI**	**% Abstainer**	**95% CI**
15-24	1033	16.2	4.7-27.8	10.4	4.8-15.9	73.4	61.5-85.3
25-34	979	28.5	19.9-37.0	9.0	5.4-12.7	62.5	53.4-71.6
35-44	943	35.6	23.0-48.3	9.8	3.1-16.5	54.5	42.6-66.5
45-54	770	42.4	24.8-59.9	5.5	0.6-10.4	52.1	33.7-70.5
55-64	603	41.1	29.9-52.2	5.5	1.4-9.6	53.5	43-63.9
15-64	**4328**	**28.5**	**20.3-36.7**	**8.8**	**4.9-12.7**	**62.7**	**54.1-71.3**

Respondents were asked whether they had consumed different types of alcohol such as beer, wine, spirits, fermented cider or home brewed alcohol within the past 12 months. Those who had consumed in past 12 months were considered as ever drinkers and those

who had consumed some type of alcohol in past 30 days were considered current drinkers. Abstainers were those who had not consumed alcohol in past 12 months.

Table 22 shows the alcohol consumption status. Proportion of respondents who had consumed alcohol in past 30 days was 28.5 percent. Significant difference was observed in the proportion of men and women current drinkers (M=39.3% CI 27.7-51.0 and W= 16.5% CI 8.9-24.1). As the age increased, the proportion of current drinkers also increased. This trend was opposite for the case of occasional drinkers. As the age increased, the proportion of occasional drinkers decreased.

Almost six in ten respondents (62.7%) were abstainers, sex wise segregation showed significant difference. One in two (49.6% with CI 39.2-59.9) men was abstainer while it was three in four women (77.3% with CI 67.8-86.9).

Table 23: Frequency of alcohol consumption in the last year among those respondents who have drank in the last 12 months

Frequency of alcohol consumption in the last 12 months											
Age Group (years)	**Men**										
	n	**% Daily**	**95% CI**	**% 5-6 days p. week**	**95% CI**	**% 1-4 days p. week**	**95% CI**	**% 1-3 days p. month**	**95% CI**	**% < once a month**	**95% CI**
15-24	152	37.6	2.8-78.1	0.7	0.8-2.1	2.9	1.1-6.9	2.7	0.2-5.7	56.1	19.3-92.8
25-34	206	11.3	2.3-20.3	3.6	0.6-7.7	24.5	10.8-38.2	15.2	5.8-24.6	45.5	33.9-57.0
35-44	214	29.8	10.6-48.9	4.7	1.2-8.1	20.3	0.2-40.4	8.0	1.7-14.2	37.4	20.0-54.7
45-54	154	50.8	37.4-64.1	3.4	1.3-8.2	20.8	6.4-35.3	4.6	0.0-9.2	20.4	7.9-32.8
55-64	149	30.5	10.2-50.8	1.1	0.1-2.3	5.2	0.9-11.4	18.9	2.9-35.0	44.3	15.5-73.0
15-64	**875**	**31.3**	**16.0-46.5**	**2.6**	**1.2-3.9**	**14.2**	**5.7-22.8**	**9.2**	**5.3-13.2**	**42.7**	**31.0-54.4**

Frequency of alcohol consumption in the last 12 months											
Age Group (years)	**Women**										
	n	**% Daily**	**95% CI**	**% 5-6 days p. week**	**95% CI**	**% 1-4 days p. week**	**95% CI**	**% 1-3 days p. month**	**95% CI**	**% < once a month**	**95% CI**
15-24	43	7.5	9.8-24.8	0.7	1.0-2.4	----	----	1.1	1.4-3.6	90.7	72.5-108.9
25-34	108	1.3	1.4-4.0	1.2	0.6-3.0	9.1	8.9-27.2	15.8	7.8-39.3	72.6	47.7-97.4
35-44	120	8.6	1.3-15.8	1.8	0.8-4.4	15.3	2.6-33.1	3.0	0.0-6.1	71.4	55.0-87.8
45-54	101	31.9	16.1-47.8	7.4	5.0-19.8	14.1	3.8-32.0	9.0	2.5-15.5	37.6	17.3-57.8
55-64	62	13.9	2.8-30.5	2.5	2.8-7.8	23.7	14.5-62.0	23.8	2.3-49.8	36.2	16.4-55.9
15-64	**434**	**13.3**	**4.1-22.5**	**2.9**	**0.5-6.3**	**11.0**	**1.9-23.8**	**8.2**	**1.5-14.9**	**64.7**	**50.3-79.0**

Frequency of alcohol consumption in the last 12 months											
Age Group (years)	**Both Sexes**										
	n	**% Daily**	**95% CI**	**% 5-6 days p. week**	**95% CI**	**% 1-4 days p. week**	**95% CI**	**% 1-3 days p. month**	**95% CI**	**% < once a month**	**95% CI**
15-24	195	30.1	3.1-63.3	0.7	0.4-1.8	2.2	0.8-5.2	2.3	0.0-4.6	64.7	33.7-95.8
25-34	314	8.7	2.5-14.9	2.9	0.1-6.0	20.5	9.0-32.0	15.4	6.4-24.3	52.5	43.1-61.8
35-44	334	22.5	10.3-34.7	3.7	1.1-6.2	18.5	4.6-32.5	6.3	1.5-11.0	49.1	37.8-60.4
45-54	255	43.3	31.3-55.4	5.0	0.0-10.0	18.2	8.7-27.7	6.3	2.5-10.2	27.2	15.1-39.2
55-64	211	27.6	9.8-45.4	1.3	0.1-2.7	8.4	0.8-17.7	19.8	5.6-34.0	42.8	18.4-67.3
15-64	**1309**	**26.1**	**14.6-37.5**	**2.7**	**1.3-4.0**	**13.3**	**6.5-20.0**	**8.9**	**5.0-12.8**	**49.0**	**39.1-59.0**

Those respondents who had drinking experiences in past 12 months were further asked about the frequency of the alcohol intake at least one drink in past 12 months. The frequency of drinking was categorized. One in every four respondent (26.1%) were daily drinkers, Women were two times less likely to become daily drinkers than men respondents (M= 31.3% and W= 13.3%). The proportion of alcohol consumer who drank less than once in a month were more among women than men (M= 42.7% and W= 64.7%). Age wise distribution of daily drinkers showed highest proportion of daily drinkers among men (50.8%) and women (31.9%) respondents of the 45-54 years age group. Proportion of respondents who drank 5-6 days in a week was small (2.7%) than those who drank 1-4 days a week. The data shows that most current drinkers were daily drinkers and who drank at least once a week and very few of them were drinking occasionally.

Table 24: Number of standard drinks consumed on a drinking day among those respondents who have drank in the last 12 months.

Number of standard drinks consumed on a drinking day											
Age Group (years)	**Men**										
	n	**% 1 drink**	**95% CI**	**% 2-3 drinks**	**95% CI**	**% 4-5 drinks**	**95% CI**	**% 6+ drinks**	**95% CI**	**Mean # of standard drinks**	**95% CI**
15-24	152	31.0	4.8-57.1	20.4	4.9-35.8	9.4	0.8-18.0	39.2	0.7-79.2	4.6	2.6-6.6
25-34	205	8.0	3.0-13.0	34.0	18.5-49.6	26.2	13.4-39.1	31.7	18.7-44.7	5.5	4.0-7.1
35-44	213	4.6	-0.5-9.6	31.4	14.3-48.5	41.1	20.2-62	22.9	5.3-40.5	5.1	4-6.2
45-54	154	2.2	-0.6-5.0	42.4	22.7-62.2	27.6	10.4-44.7	27.8	16.8-38.8	5.2	4.4-6
55-64	149	30.0	-3.7-63.4	37.6	12.3-62.8	22.4	0.2-44.6	10.1	1.3-19	3.3	2.1-4.4
15-64	**873**	**16.1**	**8.9-23.3**	**31.6**	**20.7-42.5**	**24.1**	**13.9-34.2**	**28.3**	**15.8-40.8**	**4.8**	**3.9-5.7**

Number of standard drinks consumed on a drinking day											
Age Group (years)	**Women**										
	n	**% 1 drink**	**95% CI**	**% 2-3 drinks**	**95% CI**	**% 4-5 drinks**	**95% CI**	**% 6+ drinks**	**95% CI**	**Mean #of standard drinks**	**95% CI**
15-24	43	41.7	3.3-86.8	55.3	7.7-100	2.8	2.9-8.4	0.2	0.3-0.7	1.9	1.3-2.6
25-34	108	62.1	36.6-87.6	27.5	3.8-51.2	9.8	0.3-19.9	0.7	0.7-2	1.8	1.2-2.4
35-44	119	30.5	11.2-49.8	52.6	35.5-69.7	14.3	6.2-22.4	2.6	2.1-7.3	5.7	1.6-13.3
45-54	100	14.4	1.4-27.4	57.9	34.2-81.7	22.7	6.5-38.9	4.9	2.8-12.7	4.6	1.3-7.8
55-64	61	20.1	2.2-38.1	65.3	41.4-89.1	14.6	2.3-31.5			2.7	2.1-3.3
15-64	**431**	**34.4**	**17.6-51.2**	**50.7**	**36.5-64.8**	**12.9**	**8.5-17.3**	**2.0**	**0.6-3.5**	**3.6**	**1.0-6.2**

Number of standard drinks consumed on a drinking day											
Age Group (years)	**Both Sexes**										
	n	**% 1 drink**	**95% CI**	**% 2-3 drinks**	**95% CI**	**% 4-5 drinks**	**95% CI**	**% 6+ drinks**	**95% CI**	**Mean # of standard drinks**	**95% CI**
15-24	195	33.7	15.2-52.2	29.1	10.0-48.2	7.8	1.0-14.6	29.5	0.0-65.2	3.9	2.1-5.8
25-34	313	22.1	10.3-33.9	32.3	18.8-45.8	22.0	12.0-32.0	23.6	11.4-35.8	4.6	3.1-6.0
35-44	332	13.2	4.4-22.0	38.5	26.9-50.0	32.2	17.1-47.3	16.1	4.6-27.6	5.4	2.7-8.1
45-54	254	7.0	0.2-13.7	48.5	37.8-59.1	25.7	16.6-34.8	18.9	11.9-25.9	5.0	3.5-6.4
55-64	210	28.2	-0.3-56.7	42.4	20.7-64.1	21.1	2.5-39.6	8.4	1.7-15.1	3.2	2.2-4.1
15-64	**1304**	**21.3**	**15.4-27.3**	**37.0**	**26.4-47.7**	**20.9**	**10.4-31.2**	**20.8**	**10.4-31.2**	**4.5**	**3.4-5.5**

Those respondents who had drunk alcohol in last 12 months were asked about the amount of alcohol they drank. The amount of various types of alcohol consumed by responded was converted into number of standard drinks. One standard drink of alcohol contains 8-13 grams of alcohol. In this survey, 10 grams was considered one standard drink.

Average number of drinks consumed by the respondents was calculated for those who had drunk alcohol in past 12 months. Proportion of ever drinkers who drank 2-3 standard drinks was highest (M= 31.6 %, W= 50.7% and B= 37%). Respondents who drank more than 5 standard drinks were one in five (20.8%). Drinking more than 5 standards for men and 4 standards for women is considered as dangerous cut-off point for health. Significant difference was observed in the proportion of men and women drinkers who drank 6+ drinks in average. Men drinker were 14 times more likely to be drinking 6+ drinks than women drinkers (M=28.3% CI 15.8-40.8 and W= 2.0% CI 0.6-3.5).

Mean standard drink was calculated for all age groups and for both sexes. On average respondents consumed 4.5 standard drinks which was 4.6 standard drinks for men and 3.6 for Women. Mean standard drink was highest in the age group 35-44 years age in both sexes. Number of standard drinks increased with age till 44-54 years age group and decreased in the age 55-64 yrs.

Table 25: Frequency and quantity of drinks consumed in the last 7 days by current (last 30 days) drinker, grouped into three categories

Frequency and quantity of drinks consumed in the last 7 days							
Age Group (years)	**Men**						
	n	**% Drank on 4+ days**	**95% CI**	**% 5+ drinks on any day**	**95% CI**	**% 20+ drinks in 7 days**	**95% CI**
15-24	488	72.4	43.2-100	10.4	3.3-24.2	65.2	28.8-100
25-34	385	28.4	8.2-48.5	18.9	1.4-39.2	18.1	2.2-38.4
35-44	390	9.3	3.8-14.7	18.9	0.1-38.0	16.5	3.0-36.0
45-54	323	34.8	20.4-49.2	41.8	21.0-62.7	32.0	11.7-52.2
55-64	321	27.4	6.0-48.7	19.2	3.7-34.6	13.7	3.5-23.9
15-64	**1907**	**36.1**	**22.2-50.1**	**21.2**	**9.1-33.3**	**65.2**	**15.3-46.1**

Frequency and quantity of drinks consumed in the last 7 days							
Age Group (years)	**Women**						
	n	**% Drank on 4+ days**	**95% CI**	**% 4+ drinks on any day**	**95% CI**	**% 15+ drinks in 7 days**	**95% CI**
15-24	545	21.8	5.7-49.4	21.1	0.0-42.1	28.7	4.9-62.3
25-34	594	14.4	1.3-27.5	13.7	1.6-25.7	12.2	0.8-23.6
35-44	553	44.9	19.0-70.9	48.8	21.9-75.6	49.3	25.4-73.3
45-54	447	15.1	3.5-26.7	20.8	3.6-38.0	11.2	0.1-22.3
55-64	282	37.5	1.3-76.3	59.9	30.2-89.6	37.8	1.4-77.1
15-64	**2421**	**26.0**	**15.8-36.2**	**30.5**	**22.6-38.5**	**26.6**	**15.2-38.0**

Frequency and quantity of drinks consumed in the last 7 days			
Age Group (years)	**Both Sexes**		
	n	**% Drank on 4+ days**	**95% CI**
15-24	1033	62.9	33.7-92.1
25-34	979	24.8	8.4-41.2
35-44	943	21.7	9.6-33.7
45-54	770	27.3	20.9-33.7
55-64	603	29.1	10.8-47.4
15-64	**4328**	**33.3**	**22.8-43.8**

Out of current drinkers, who consumed alcohol in past 30 days, those who drank in the week preceding the survey were asked about the frequency and quantity of alcohol they consumed. Proportion of respondents who drank 4+ days in the week preceding the survey was one in three (33.3%) which was 36.1% for men and 26% for women.

Almost three in four (72.4%) men among current drinkers of 15-24 years age group drank 4+ days in the week preceding the survey while it was one in five (21.8%) for Women.

Men current drinkers of 35-44 years who had drank 4+ days a week preceding survey were least (9.3%) among respondents of all age group and both sex.

Quantity of drinking was also assessed in terms of standard drinks. Average number of drinks among men respondents who drank more than 5 standard drinks was 21% and women who drank 4+ drinks in the week preceding the survey were 30 %.

Table 26: Percentage of current (last 30 days) drinker engaging in hazardous and harmful drinking in the last 7 days

Hazardous and harmful drinking in the last 7 days							
Age Group (years)	**Men**						
	n	**% harmful drinking**	**95% CI**	**% hazardous drinking**	**95% CI**	**% <40g pure alcohol per day**	**95% CI**
15-24	41	58.0	3.9-100	3.0	2.7-8.8	38.9	12.1-90.0
25-34	108	13.2	0.6-25.8	7.9	1.4-14.3	78.9	65.1-92.8
35-44	131	36.2	13.5-58.9	6.4	0.3-12.6	57.4	36.0-78.7
45-54	101	39.0	19.0-59.1	8.1	1.3-17.5	52.8	31.8-73.9
55-64	102	7.6	0.2-15.1	8.4	3.0-19.9	83.9	71.9-96.0
15-64	**483**	**32.3**	**11.9-52.6**	**6.6**	**3.2-10.1**	**61.1**	**41.9-80.3**

Hazardous and harmful drinking in the last 7 days							
Age Group (years)	**Women**						
	n	**% harmful drinking**	**95% CI**	**% hazardous drinking**	**95% CI**	**% <20g pure alcohol per day**	**95% CI**
15-24	5	----	----	5.7	7.6-18.9	94.3	81.1-100
25-34	30	2.3	1.4-6.1	19.9	6.9-46.6	77.8	49.4-100
35-44	48	4.9	1.7-11.5	22.4	6.8-38.1	72.6	59.6-85.6
45-54	47	23.7	3.6-51.1	26.8	8.5-45.1	49.4	30.0-68.9
55-64	32	6.0	7.0-19.0	15.6	1.8-33.0	78.4	56.5-100.
15-64	**162**	**9.9**	**1.6-18.2**	**20.4**	**9.3-31.5**	**69.7**	**58.7-80.7**

Respondents who were current drinkers were asked the amount of alcohol they consumed in each of the past 7 days. The amount of drink they consumed was categorized in to harmful and hazardous drinking.

Harmful drinking is defined as ≥60g of pure alcohol on average per day for men and ≥40 g for women. Hazardous drinking is defined as 40-59.9g of pure alcohol on average per day for men and 20-39.9g for women.

Proportion of men current drinkers those who consumed harmful drinking were 32.3 percent and 6.6 percent of the men drinkers consumed amount equivalent to hazardous drinking. Almost three in five (58%) men of 15-24 years age group consumed harmful alcohol while among 55-64 years age group, only 7.6 percent of the respondents consumed harmful drinking, which was almost nine times less. However, it was not found to be

statistically different. The proportion of respondents who drank less than 40 grams of alcohol among men was 61.1 percent.

Among women, almost one in ten (9.9%) of them had consumed harmful drinking in past 7 days while one in five women drank hazardous amount of alcohol. Seven in ten women drank less than 20 grams of alcohol per day. The highest proportion (23.7%) of women taking harmful drinking were in the age 45-54 years and proportion of women taking hazardous drinking was also highest in the same age group compared to the proportion of hazardous drink consumers in other age groups.

Proportion of consumption of harmful drinking and proportion of hazardous drinking in all age group increased with age till 45-54 years and sharply fall in the age group 55-64. Sex wise comparison showed that proportion of harmful and hazardous drinking was least in the 15-24 age group in women but proportion of young men consuming harmful drinks is the comparatively very high.

Almost one in ten women (9.9%) and more than three in ten (32.3%) among men consumed harmful amount of alcohol. Men were three times more likely to drink harmful amount than their women counterparts. Similarly the amount of consumption of hazardous drinking showed women were three times more likely to drink hazardous amount than their men counterparts how ever the deferential of amount of drinking according to sex was not statistically significant.

Table 27: Largest number of drinks consumed during a single occasion in the last 12 months among last 12 month drinker

Mean maximum number of drinks consumed on one occasion in the last 12 months											
Age Group (years)	**Men**				**Women**				**Both Sexes**		
	n	**Mean maximum number**	**95% CI**		**n**	**Mean maximum number**	**95% CI**		**n**	**Mean maximum number**	**95% CI**
15-24	152	6.6	4.6-8.6		43	2.9	2.1-3.6		195	5.7	3.8-7.6
25-34	206	9.5	7.7-11.2		108	3.5	2.1-4.8		314	7.9	6.1-9.7
35-44	214	10.2	7.3-13.2		120	3.1	2.7-3.4		334	7.8	5.9-9.7
45-54	154	9.6	7.1-12.0		101	3.9	3.0-4.8		255	7.3	5.7-9.0
55-64	149	6.3	3.8-8.9		62	3.7	2.8-4.6		211	5.9	3.9-7.8
15-64	875	8.4	6.9-9.8		434	3.4	3.0-3.7		1309	6.9	5.8-8.0

All the ever drinkers, those who had at least once consumed alcohol in past 12 months were asked about the largest amount of drink they had consumed on a single occasion. Average number of mean standard drinks consumed by all ever drinkers (both sexes) was 6.9 which was 8.4 for men and 3.4 for Women.

Consumption of mean number of drinks was highest in the 35-44 yeas age group among men, 45-54 years age group in Women and among both sexes in the age group of 25-34 years.

Significant difference was observed between the mean number of the standard drinks by men and women drinkers (M= 8.4 CI 6.9-9.8 and W= 3.4 CI 3.0-3.7). Similarly, significant difference was observed between men and women among all age group except 55-64 years.

Table 28: Mean number of days in the past 12 months on which consumer drank five or more drinks during a single occasion

Five or more drinks on a single occasion			
Age Group (years)	**Men**		
	n	**Mean number of days**	**95% CI**
15-24	64	10.9	0.7-21.2
25-34	129	47.5	8.9-86.1
35-44	148	53.8	6.4-114.1
45-54	112	90.8	35.3-146.3
55-64	98	42.7	26.8-58.6
15-64	**551**	**47.8**	**19.0-76.5**

All men ever drinkers were asked about the number of days they drank the amount of alcohol equal to or more than 5 standard drinks in a single occasion. Five standard drinks are considered to be cut off point for men, beyond which the consumption is considered dangerous for health. Mean number of days in which the respondents had drunk more than 5 standard drinks in single occasion was 48 days. The mean number of days was highest in the 45-54 years age groups.

The mean number of days increased with increase in age and declined in the age 55-64 years. It suggests that as the age increases, the proportion of ever drinkers consuming larger amount of drink also increased till certain age and start decreasing after 55.

Once people reached in late fifties, their consumption pattern (frequency, amount, number of days also start to decline.). Late fifties and earlier 60s are considered the age when old age start. This is formal retiring age for government employees. Because of several factors, the individual might have less access to social gathering where people drink.

Table 29: Mean number of days in the past 12 months on which consumer drank four or more drinks during a single occasion

Four or more drinks on a single occasion			
Age Group (years)	**Women**		
	n	**Mean number of days**	**95% CI**
15-24	6	30.8	28.1-33.4
25-34	16	27.1	3.6-50.5
35-44	30	33.7	2.1-65.3
45-54	25	58.5	6.6-110.5
55-64	18	8.7	2.3-15.0
15-64	95	38.1	17.2-59.0

Among women ever drinkers who had drank in past 12 months number of days they had consumed more than 4 standard drinks in single occasion were asked. On average, women ever drinkers had drunk more than 4 standard drinks for 38 days.

Mean number of days was found to be highest in the 45-54 years age group (58.5 days). Largest amount of standard drink consumed in single occasion (table 27) and consumption of harmful and hazardous drink was also highest in the same age group. Mean

number of days in past 12 months when women had consumed more than 4 standard drinks sharply declined in the 55-64 age group and it was least in the same age group. The sharp decline in pattern of drinking (frequency and amount) in women ever drinkers was observed to be similar to men counter part. It might be attributed to the change in life style.

4. FRUIT AND VEGETABLE CONSUMPTION

Health status of an individual depends on his or her dietary pattern to a great extent. Genetics and environment are secondary players in health development. Fruit and vegetables are important components of healthy diet. Accumulating evidence suggests that they could help prevent major diseases such as cardiovascular diseases and certain cancers principally of the digestive systems.

Low intake of fruit and vegetables is estimated to cause about 19 percent gastrointestinal cancer, and about 31 percent of ischemic heart diseases and 11 percent stroke worldwide. Overall 2.7 million (4.9%) deaths and 26.7 million (1.8%) DALYs are attributable to low fruit and vegetable intake (7).

In this study, the participants were asked about the intake pattern and amount of green vegetables and fruits. All kinds of fruit (fresh, canned, dried and frozen) eaten at mealtimes or for snacks were included in the fruit intake. Fruit juice is excluded.

Similarly, this survey assessed not only the fruit and vegetable intake status of 15-64 years age group of people but also the dietary use of fat. Saturated fat is a risk factor for dyslipedemia and atherosclerosis and consequently the cardiovascular ill health. Fat is considered safe if it provides 30 percent of total Calories needed for daily requirement and is further safe if saturated and mono/poly unsaturated fat are proportionately mixed. Nepalese people use both vegetable oil and fat. Following tables provide nutritional statuses and use of fat in cooking proposes.

Table 30: mean number of days fruit and vegetables consumed

Mean number of days fruit consumed in a typical week										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**Mean number of days**	**95% CI**		**n**	**Mean number of days**	**95% CI**		**n**	**Mean number of days**	**95% CI**
15-24	488	2.1	1.4-2.9		545	2.4	1.7-3.1		1033	2.3	1.6-2.9
25-34	385	2.1	1.7-2.5		594	2.3	1.5-3.0		979	2.2	1.7-2.7
35-44	390	1.9	1.5-2.4		553	1.7	1.0-2.4		943	1.8	1.3-2.3
45-54	323	2.4	1.5-3.2		447	2.2	1.3-3.2		770	2.3	1.4-3.2
55-64	321	2.0	1.4-2.7		282	1.2	0.5-2.0		603	1.7	1.2-2.3
15-64	1907	2.1	1.6-2.6		2421	2.1	1.5-2.8		4328	2.1	1.6-2.7

[7] *WHO,* The world Health Report 2002, Reducing the risks, Promoting Healthy Life, *WHO, 2002*

Mean number of days vegetables consumed in a typical week										
Age Group (years)	**Men**			**Women**			**Both Sexes**			
	n	**Mean number of days**	**95% CI**	**n**	**Mean number of days**	**95% CI**	**n**	**Mean number of days**	**95% CI**
15-24	488	4.7	3.9-5.5	545	5.4	4.8-6.1	1033	5.1	4.4-5.7
25-34	385	5.5	5.1-5.9	594	5.5	5.2-5.9	979	5.5	5.2-5.8
35-44	390	5.4	5.0-5.8	553	5.1	3.7-6.4	943	5.2	4.5-6.0
45-54	323	5.6	4.9-6.3	447	5.8	5.4-6.1	770	5.7	5.2-6.2
55-64	321	4.9	3.4-6.4	282	4.3	2.0-6.6	603	4.7	2.9-6.5
25-64	1907	5.1	4.6-5.7	2421	5.3	4.7-6.0	4328	5.2	4.7-5.8

Table 30 displays the fruit and vegetable consumption pattern (amount and number of days). Taking in reference a typical week, number of days the respondents consumed vegetables and fruits were asked. Mean number of days men and women consumed fruit was not found to be different and the slight difference in the mean number of days respondents consumed vegetables was found which was also not different statistically.

WHO has recommended for consuming 5 servings (400 grams) of fruits and vegetables daily, which prevents from degenerative diseases and cancers. One serving of fruit and vegetable is equivalent to 80 grams of fruit and vegetable content. A serving of fruit was equivalent to a middle sized fruits like banana, apple etc, half a cup of cut pieces of fruits and half a cup of fruit juice. Similarly a serving of vegetable was equivalent to a cup of raw vegetable or a half cup of cooked leafy vegetables

Fruits and vegetables need to be a component of every day meal menu because vitamins and minerals are to be supplied every day. In this study, an exploration was made on frequency of fruit and vegetable consumption. Looking at fruit consumption, Nepalese people were found to consume fruits two days per week in average and were true for both the sexes whereas they consumed vegetables for five days a week.

Table 31: Mean number of fruit, vegetable, and combined fruit and vegetable servings on average per day

Mean number of servings of fruit on average per day										
Age Group (years)	**Men**			**Women**			**Both Sexes**			
	n	**Mean number of servings**	**95% CI**	**n**	**Mean number of servings**	**95% CI**	**n**	**Mean number of servings**	**95% CI**
15-24	488	1.9	1.2-2.6	545	1.9	1.4-2.4	1033	1.9	1.4-2.4
25-34	385	1.7	1.3-2.2	594	1.5	1.1-1.9	979	1.6	1.2-2.0
35-44	390	1.8	1.4-2.1	553	1.2	0.7-1.8	943	1.5	1.1-1.9
45-54	323	1.6	1.1-2.1	447	1.7	1.0-2.3	770	1.6	1.1-2.2
55-64	321	1.6	1.2-1.9	282	0.8	0.3-1.4	603	1.3	0.9-1.7
15-64	1907	1.8	1.4-2.1	2421	1.6	1.1-2.0	4328	1.7	1.3-2.1

Mean number of servings of vegetables on average per day										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**Mean number of servings**	**95% CI**		**n**	**Mean number of servings**	**95% CI**		**n**	**Mean number of servings**	**95% CI**
15-24	488	2.3	1.9-2.7		545	2.5	2.0-2.9		1033	2.4	2.0-2.7
25-34	385	2.5	2.1-2.9		594	2.6	2.3-2.9		979	2.5	2.2-2.9
35-44	390	2.7	2.3-3.1		553	2.3	1.6-3.0		943	2.5	2.1-2.9
45-54	323	2.7	2.4-2.9		447	2.8	2.3-3.3		770	2.7	2.4-3.1
55-64	321	2.3	1.6-3.1		282	2.1	0.9-3.3		603	2.3	1.3-3.2
15-64	1907	2.5	2.1-2.8		2421	2.5	2.1-2.9		4328	2.5	2.1-2.8

Mean number of servings of fruit and/or vegetables on average per day										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**Mean number of servings**	**95% CI**		**n**	**Mean □□mbe of servings**	**95% CI**		**n**	**Mean number of servings**	**95% CI**
15-24	488	4.2	3.1-5.2		545	4.4	3.5-5.3		1033	4.3	3.4-5.1
25-34	385	4.2	3.5-4.9		594	4.1	3.4-4.7		979	4.1	3.6-4.7
35-44	390	4.5	3.9-5.0		553	3.5	2.4-4.7		943	4.0	3.3-4.7
45-54	323	4.3	3.6-4.9		447	4.4	3.3-5.5		770	4.4	3.5-5.2
55-64	321	3.9	2.9-4.9		282	3.0	1.3-4.7		603	3.5	2.3-4.8
15-64	1907	4.2	3.5-4.9		2421	4.0	3.2-4.9		4328	4.1	3.4-4.8

The tables above (table no 31) show the practice of consuming fruits and vegetable among all respondents. Respondents were asked to remember a typical week and asked them to remember the amount of fruits and vegetable they consumed on those days. The amount of fruits and vegetables they consumed was equated with the standard amount known as servings according to guideline. It was done separately for fruits and vegetable and was combined.

Average number of servings of fruits was found to be equal for men and Women and thus no significant difference was observed among the age groups as well.

On average 1.8 servings of fruits and 2.5 servings of vegetable, making it 4.1 of the total serving per day was calculated for consumption among both sexes. The calculated amount was found to be less than WHO's recommended level of 5 servings per day.

It is not only the frequency of fruit consumption that matters but quantity is much more important. It is for this reason, quantity of fruit consumption was also assesses during this study. Generally 80 grams of fruit is considered a serving and an adult individual is supposed to consume five servings of fruit a day. In this study, 1.7 servings of fruit was found to be consumed in a typical day and there was no meaningful differences between sexes.

Similarly, quantity of vegetable consumption was also assessed during this study. Generally 80 grams of vegetable is considered a serving and an adult individual is supposed

to consume five servings of vegetable per day. In this study, 2.5 servings of vegetable was found to be consumed in a typical day and there was no differences between the sexes

Since fruits and vegetables mainly provide vitamins, minerals and fibers, combined consumption of these items fulfilling the required amount on daily basis is acceptable for health development. Table 31 provides the figures on combined consumption of fruit and vegetables where almost equal number of servings is seen to be consumed by the both the sexes. Looking at the consumption at population level, it appears that Nepalese people consume only 80 percent of the daily requirement because minimum of five servings a day is what is called the daily requirement.

Table 32: Frequency of fruit and/or vegetable consumption.

Number of servings of fruit and/or vegetables on average per day									
Age Group (years)	**Men**								
	n	**% no fruit and/or vegetables**	**95% CI**	**% 1-2 servings**	**95% CI**	**% 3-4 servings**	**95% CI**	**% ≥5 servings**	**95% CI**
15-24	488	0.6	0.2-1.5	30.5	9.6-51.3	27.7	16.0-39.4	41.2	25.3-57.1
25-34	385	2.7	1.4-6.8	17.9	9.8-29.0	41.9	30.1-53.6	37.5	20.8-54.3
35-44	390	0.1	0.1-0.3	16.2	7.6-24.7	40.9	29.5-52.4	12.8	31.2-54.4
45-54	323	1.3	0.9-3.5	18.5	4.8-32.3	39.0	29.3-48.6	41.2	26.5-56.0
55-64	321	1.5	0.2-3.3	29.6	6.3-52.9	36.5	17.2-55.9	32.3	17.7-46.9
15-64	**1907**	**1.2**	**0.3-2.1**	**23.7**	**11.6-35.8**	**35.5**	**28.2-42.8**	**39.5**	28.1-51.0

Number of servings of fruit and/or vegetables on average per day									
Age Group (years)	**Women**								
	n	**% no fruit and/or vegetables**	**95% CI**	**% 1-2 servings**	**95% CI**	**% 3-4 servings**	**95% CI**	**% ≥5 servings**	**95% CI**
15-24	545	1.8*	0.0-4.3	18.8	7.2-30.4	39.5	33.4-45.5	40.0	23.5-56.4
25-34	594	1.4*	0.0-2.7	23.4	11.7-35.1	33.4	23.8-43.0	41.8	27.5-56.2
35-44	553	13.0*	0.0-35.0	23.0	11.4-34.6	35.1	21.1-49.1	29.0	12.4-45.6
45-54	447	1.3*	0.0-2.9	23.5	10.4-36.5	37.2	22.8-51.6	38.0	18.3-57.7
55-64	282	24.1*	0.0-64.6	16.9	5.3-28.5	36.3	13.7-59.0	22.7	4.5-40.8
15-64	**2421**	5.6*	0.0-14.4	21.1	12.7-29.5	36.8	29.5-44.1	36.5	22.0-51.1

Number of servings of fruit and/or vegetables on average per day									
Age Group (years)	**Both Sexes**								
	n	**% no fruit and/or vegetables**	**95% CI**	**% 1-2 servings**	**95% CI**	**% 3-4 servings**	**95% CI**	**% ≥5 servings**	**95% CI**
15-24	1033	1.2*	0.0-2.4	24.9	11.1-38.6	33.4	26.3-40.5	40.6	27.2-53.9
25-34	979	2.1*	0.0-4.5	20.4	11.3-29.5	38.1	28.6-47.6	39.5	25.3-53.6
35-44	943	6.8*	0.0-19.0	19.7	11.0-28.4	37.9	28.3-47.5	35.6	23.9-47.3
45-54	770	1.3*	0.0-3.1	21.1	9.5-32.6	38.1	29.9-46.2	39.6	23.5-55.6
55-64	603	10.3*	0.0-27.2	24.6	12.0-37.3	36.5	17.9-55.0	28.6	13.9-43.3
15-64	**4328**	3.3*	0.0-7.4	22.5	14.1-30.8	36.1	29.7-42.5	38.1	26.4-49.8

** Data are statistically not significant.*

Respondents answers to the number of days they consumed fruits and vegetable in a typical week and the amount of consumption was used to calculate the average amount of consumption. The amount of consumption was equated with the standard servings. The proportion of respondents who had consumed five or more than 5 serving were 38.1 percent. Proportion of men who consume five or more servings of fruits and vegetable is slightly more than proportion of women consuming five or more serving but this difference was not statistically significant. The proportions of respondents who do not consume any vegetables or fruits in a day were 3.3 percent which was only 1.2 percent for men and 6.5 for women but it is not significantly different.

Table 33: Percentage of those eating less than five servings of fruit and/or vegetables on average per day

Less than five servings of fruit and/or vegetables on average per day										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**% < five servings per day**	**95% CI**		**n**	**% < five servings per day**	**95% CI**		**n**	**% < five servings per day**	**95% CI**
15-24	488	58.8	42.9-74.1		545	60.0	43.6-76.5		1033	59.4	46.1-72.8
25-34	385	62.5	45.7-79.2		594	58.2	43.9-72.5		979	60.5	46.4-74.7
35-44	390	57.3	45.6-68.9		553	71.0	54.4-87.6		943	64.4	52.7-76.1
45-54	323	58.8	44.0-73.5		447	62.1	42.3-81.8		770	60.5	44.4-76.5
55-64	321	67.7	53.1-82.3		282	77.3	59.2-95.5		603	71.4	56.7-86.2
15-64	1907	60.5	49.0-71.9		2421	63.5	48.9-78.1		4328	61.9	50.2-73.6

The average amount of fruits and vegetable consumption was calculated and equated with standard servings per day. The proportion of respondents consuming fruits and vegetables less than and equal to or more than 5 servings was calculated. On average, three in five (61.5%) respondents had consumed fruits and vegetables below the recommended level of 5 servings.

Table 34: type of oil or fat most often used for meal preparation in households (presented only for both sexes because results are for the household not individuals

Type of oil or fat most often used for meal preparation in household												
n (house-holds)	**% Vege-table oil**	**95% CI**	**% Fat**	**95% CI**	**% Butter**	**95% CI**	**% Banspati ghee***	**95% CI**	**% None used**	**95% CI**	**% Other**	**95% CI**
4315	91.5	84.0-99.1	0.2	0.2-0.7	6.3	1.0-13.6	0.2	0.1-0.4	1.0	0.2-1.8	0.7	0.2-1.6

Table 34 shows figures on proportion of families using different types of fat sources for meal preparation. Basically there are two types of fat, one from the animal source and the other is from vegetable. Generally, fat from vegetable is considered safe from health point of view as it contains less amount of saturated fat. But while making vegetable oil into vegetable ghee, it is hydrogenated and made more saturated. Therefore, vegetable oil and hydrogenated oil, butter and animal fat combined is compared here. More than 90%, population was found to be using pure vegetable oil, and around 6% using animal or

hydrogenated oil. It is encouraging that significant proportion of population is using vegetable oil which is good for NCD prevention.

5. PHYSICAL ACTIVITY

There is no internationally agreed definition or measure of physical activity. Therefore, a number of direct and indirect data sources and a range of survey instruments and methodologies were used to estimate activity levels. Conventionally physical activity is considered in three major settings i.e. physical activity at work, at transport and at leisure hours.

Most data were available for leisure time activity, with fewer direct data available on occupational activity and activity relating to transport and domestic tasks. Almost all report estimates the physical inactivity among young people aged 15 year and above. The global estimates for physical inactivity among adults is 17 percent ranging from 11 to 24 percent across sub regions. Estimates for prevalence of some but insufficient activity (< 2.5 hours per week of moderate activity) ranged from 31 to 51 percent with a global average of 41 percent (8).

Physical activity reduces the risk of cardiovascular diseases, some cancers and type 2 diabetes. In general physical activity improves glucose metabolism, reduces body fat and lowers blood pressure. Physical activity may reduce the risk of colon cancer by effects on prostaglandins, reduced intestinal transit time and higher antioxidant levels. Physical activity is also associated with lower risk of breast cancer which may be the result of effects on hormonal metabolism (9).

Physically inactive peoples are more vulnerable to non-communicable diseases compared to physically active individuals. In addition, physically inactive people gain body weight and further increase the risk of non-communicable diseases. Overall physical inactivity was estimated to cause 1.9 million deaths and 19 million DALYs globally. Physical inactivity is estimated to cause, globally, about 10-16 percent of cases each of breast cancer, colon and rectal cancers and diabetes mellitus and about 22 percent of Ischemic Heart Diseases.

Since around 80 percent Nepalese people are involved in agricultural farming, they are believed to be physically active. No assessment of physical activity has been carried out in the past and this exercise of assessing magnitude of risk factors for non-communicable diseases highlights the current scenario of physical activity among Nepalese people.

Following tables show the current picture of physical activity in Nepalese societies.

[8] *WHO,* The world Health Report 2002, Reducing the risks, Promoting Healthy Life, *WHO, 2002*

[9] *ibid*

Table 35: Percentage of respondents classified into three categories of total physical activity

Level of total physical activity							
Age Group (years)	**Men**						
	n	**% Low**	**95% CI**	**% Moderate**	**95% CI**	**% High**	**95% CI**
15-24	488	2.6	0.6-4.6	97.4	95.4-99.4	82.8	74.7-90.9
25-34	385	5.6	1.7-9.6	64.4	90.4-98.3	84.3	77.5-91.1
35-44	390	8.2	2.6-13.7	91.8	86.3-97.4	86.0	78.5-93.5
45-54	323	5.4	1.3-9.5	94.6	90.5-98.7	79.8	67.3-92.2
55-64	321	7.8	1.5-14.0	92.2	86.0-98.5	81.6	70.8-92.4
15-64	**1907**	**5.2**	**2.9-7.4**	**94.8**	**92.6-97.1**	83.1	78.6-87.6

Level of total physical activity							
Age Group (years)	**Women**						
	n	**% Low**	**95% CI**	**% Moderate**	**95% CI**	**% High**	**95% CI**
15-24	545	4.1	1.1-7.0	95.9	93.0-98.9	84.2	74.7-93.7
25-34	594	6.3	3.4-9.1	93.7	90.9-96.6	84.8	77.8-91.7
35-44	553	6.5	2.4-10.7	93.5	89.3-97.6	87.4	81.1-93.8
45-54	447	7.2	1.3-13.2	92.8	86.8-98.7	85.3	76.5-94.1
55-64	282	9.5	3.2-15.8	90.5	84.2-96.8	56.8	25.6-88.0
15-64	**2421**	**5.9**	**3.3-8.5**	**94.1**	**91.5-96.7**	**82.8**	**75.1-90.4**
Level of total physical activity							
Age Group (years)	**Both Sexes**						
	n	**% Low**	**95% CI**	**% Moderate**	**95% CI**	**% High**	**95% CI**
15-24	1033	3.3	1.3-5.4	96.7	94.6-98.7	83.5	76.0-91.0
25-34	979	5.9	3.0-8.8	94.1	91.2-97.0	84.5	78.4-90.6
35-44	943	7.3	3.6-11.0	92.7	89.0-96.4	86.8	81.1-92.4
45-54	770	6.3	2.3-10.3	93.7	89.7-97.7	82.6	74.6-90.6
55-64	603	8.4	3.7-13.2	91.6	86.8-96.3	71.9	58.8-85.1
15-64	**4328**	5.5	3.4-7.7	**94.5**	**92.3-96.6**	82.9	78.0-87.9

All respondents were asked if they involved in physical activity of any intensity regarding activity at work, travelling and recreation. The total amount of time they spent in different activities was classified as low, moderate and high according to the time and intensity of the activities they did. The amount of energy spent in doing certain typical physical activities was taken to calculate the MET value. The calculated MET value was used to categorise the physical activity done by the respondents in to low (<3 MET value), moderate (3-6 MET value) and high level (> 6 MET value) of physical activity.

For the purpose of convenience and uniformity, list of possible vigorous activity, moderate activities and low physical activities were listed. Questions were asked to respondent whether they had been involved in vigorous activities (that substantially increased in breathing and heart rate) at least for 10 minutes, or they had been involved in moderate intensity activities (that increased in breathing and heart rate slightly) for at least 10 minutes and or they have been involved in physical activities that did not increased any

heart rate or breathing and were related to activities such as table work, reading books, working on computers etc.

Table 35 shows figures on physical activity as percentage of the respondents. Figures given in the tables are independent and can not add to each other to make 100 percent. Data shows that smaller proportion of population seems to be involved in low physical activity. Encouraging proportion of population comprising almost 95 percent was found to be involved in moderate physical activity and 83 percent in high level of physical activity. The involvement in high intensity physical activities was found to be increased till 35-44 years and gradually falling down. High proportion of fall was observed in the 55-64 yrs group Findings suggest that most of the Nepalese people do sufficient level of physical activities to keep them healthy.

Table 36: Mean minutes of total physical activity on average per day

Mean minutes of total physical activity on average per day										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**Mean minutes**	**95% CI**		**n**	**Mean minutes**	**95% CI**		**n**	**Mean minutes**	**95% CI**
15-24	488	263.8	199.1-328.6		545	282.4	228.5-336.2		1033	272.7	226.5-318.9
25-34	385	273.8	233.0-314.6		594	305.0	263.2-346.7		979	287.8	253.0-322.5
35-44	390	296.8	258.2-335.4		553	304.8	256.1-353.5		943	301.0	263.3-338.6
45-54	323	280.0	241.1-318.9		447	327.2	272.8-381.5		770	304.0	269.4-338.6
55-64	321	240.6	196.2-285.0		282	207.2	126.6-287.9		603	227.6	176.4-278-8
15-64	**1907**	270.6	240.8-300.4		**2421**	291.7	248.5-334.9		**4328**	280.6	251.6-309.6

The respondents involvement in all 3 categories of work (work related, transport related and recreation related) was combined to calculate the mean amount of time spent in physical activity in a typical day. Data shows that the respondents spent 280.6 minutes (4.67 hours) in moderate to high intensity physical activities, which was 270.6 minutes for men respondents and 291.7 minutes for Women. On average women spent 21 minutes, more in physical activities than their men counterparts but there was no statistical significance observed. Respondents of 55-64 years age group and 15-24 years age group spent less than average time in physical activities.

Table 37: Mean minutes spent in work-, transport- and recreation-related physical activity on average per day

Mean minut*es of work-re*lated physical activity on average per day										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**Mean minutes**	**95% CI**		**n**	**Mean minutes**	**95% CI**		**n**	**Mean minutes**	**95% CI**
15-24	488	179.3	103.9-254.8		545	229.6	179.8-279.4		1033	203.5	155.2-251.7
25-34	385	205.5	169.8-241.3		594	257.0	225.8-288.3		979	228.6	201.6-255.6
35-44	390	237.6	210.0-265.2		553	250.5	211.0-290.0		943	244.3	215.9-272.7
45-54	323	226.0	181.0-270.9		447	266.6	220.7-312.5		770	246.7	215.6-277.7
55-64	321	191.5	158.2-224.9		282	161.6	92.3-230.8		603	179.9	138.4-221.4
15-64	**1907**	202.0	173.9-230.2		**2421**	239.0	202.0-276.1		**4328**	219.6	195.8-243.4

Mean minutes of transport-related physical activity on average per day										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**Mean minutes**	**95% CI**		**n**	**Mean minutes**	**95% CI**		**n**	**Mean minutes**	**95% CI**
15-24	488	56.5	44.5-68.6		545	46.2	33.8-58.6		1033	51.6	42.0-61.2
25-34	385	54.8	37.0-72.7		594	44.6	29.8-59.4		979	50.2	34.7-65.8
35-44	390	54.2	37.5-70.9		553	51.6	37.3-66.0		943	52.9	38.6-67.1
45-54	323	50.1	33.7-66.6		447	54.4	35.0-73.7		770	52.3	36.4-68.2
55-64	321	45.0	20.3-69.7		282	43.6	25.5-61.6		603	44.4	25.4-63.5
15-64	**1907**	53.5	40.5-66.5		**2421**	47.9	35.4-60.5		**4328**	50.9	38.7-63.1

Mean minutes of recreation-related physical activity on average per day										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**Mean minutes**	**95% CI**		**n**	**Mean minutes**	**95% CI**		**n**	**Mean minutes**	**95% CI**
15-24	488	28.0	9.9-46.0		545	6.6	0.1-13.1		1033	17.7	6.3-29.1
25-34	385	13.5	2.7-24.2		594	3.4	0.3-7.0		979	8.9	1.4-16.5
35-44	390	5.0	1.9-8.2		553	2.7	0.3-5.0		943	3.8	1.5-6.2
45-54	323	3.9	0.6-7.2		447	6.2*	0.0-0.1		770	5.0	0.7-9.4
55-64	321	4.1	0.2-8.0		282	2.1	0.5-3.7		603	3.3	0.7-5.9
15-64	**1907**	15.0	5.5-24.5		**2421**	4.8	0.8-8.8		**4328**	10.2	3.5-16.9

Table 37 explains about the mean time spent in different physical domains. Data show that in work related physical activity people spent 220 minutes(3.67 hours) per day in an average but not significantly different in sexes and age group. They spent 60 minutes (one hour) in transport related physical activity where as during leisure, they spent only 15 minutes in physical activity. It means most of the time during leisure they involved in sedentary activities.

Table 38: Median minutes of total physical activity on average per day

Median minutes of total physical activity on average per day										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**Median minutes**	**Inter-quartile range (P25-P75)**		**n**	**Median minutes**	**Inter-quartile range (P25-P75)**		**n**	**Median minutes**	**Inter-quartile range (P25-P75)**
15-24	488	411.4	107.1- 822.9		545	480.0	171.4- 960.0		1033	462.9	137.1- 925.7
25-34	385	411.4	80.0- 840.0		594	505.7	126.4- 960.0		979	480.0	120.0- 960.0
35-44	390	480.0	102.9- 960.0		553	514.3	120.0- 960.0		943	480.0	120.0- 960.0
45-54	323	471.4	102.9- 942.9		447	480.0	120.0- 891.4		770	480.0	102.9- 925.7
55-64	321	480.0	120.0- 960.0		282	360.0	17.1- 822.9		603	411.4	68.6- 857.1
15-64	1907	445.7	102.8- 908.5		2421	480.0	120.0- 960.0		4328	480	120.0- 960.0

To further analyze the distribution pattern of time spent in physical activities, median time spent in physical activities was also calculated. And figures show that 480 minutes was found to be the median minutes of physical activity carried out each day where it was 446 for men and 480 for Women.

Table 39: Median minutes spent on average per day in work-, transport- and recreation-related physical activity

Median minutes of work-related physical activity on average per day									
Age Group (years)	**Men**			**Women**			**Both Sexes**		
	n	**Median minutes**	**Inter-quartile range (P25-P75)**	**n**	**Median minutes**	**Inter-quartile range (P25-P75)**	**n**	**Median minutes**	**Inter-quartile range (P25-P75)**
15-24	488	68.6	0.0-180.0	545	137.1	47.1-240.0	1033	120.0	17.1-226.1
25-34	385	120.0	10.4-267.9	594	180.0	60.0-300.0	979	171.4	51.4-300.0
35-44	390	145.7	20.0-300.0	553	180.0	60.0-300.0	943	180.0	34.3-300
45-54	323	137.1	17.1-265.7	447	171.4	38.6-274.3	770	154.3	33.8-270.0
55-64	321	120.0	0.0-240.0	282	105.0	7.5-197.1	603	120.0	2.9-231.4
15-64	1907	120.0	8.6-248.6	2421	171.43	51.4-265.7	4328	137.1	30.0-257.1

Median minutes of transport-related physical activity on average per day									
Age Group (years)	**Men**			**Women**			**Both Sexes**		
	n	**Median minutes**	**Inter-quartile range (P25-P75)**	**n**	**Median minutes**	**Inter-quartile range (P25-P75)**	**n**	**Median minutes**	**Inter-quartile range (P25-P75)**
15-24	488	34.6	25.7-60.0	545	25.7	4.3-51.4	1033	30.0	12.9-60.0
25-34	385	30.0	3.6-60.0	594	21.4*	0.0-51.4	979	25.7*	0.0-60.0
35-44	390	30.0	8.6-60.0	553	25.7*	0.0-60.0	943	30.0	5.7-60.0
45-54	323	30.0*	0.0-60.0	447	20.0*	0.0-60.0	770	25.7*	0.0-60.0
55-64	321	30.0	7.1-60.0	282	20.0*	0.0-51.4	603	25.7*	0.0-60.0
15-64	1907	30.0	8.6-60.0	2421	25.71	0.0-51.4	4328	30.0	30.0-60.0

Median minutes of recreation-related physical activity on average per day									
Age Group (years)	**Men**			**Women**			**Both Sexes**		
	n	**Median minutes**	**Inter-quartile range (P25-P75)**	**n**	**Median minutes**	**Inter-quartile range (P25-P75)**	**n**	**Median minutes**	**Inter-quartile range (P25-P75)**
15-24	488	6.4	0.0-51.1	545	0.0*	0.0- 0.0	1033	0.0*	0.0- 17.1
25-34	385	0*	0.0-0.0	594	0.0*	0.0- 0.0	979	0.0*	0.0- 0.0
35-44	390	0*	0.0-0.0	553	0.0*	0.0- 0.0	943	0.0*	0.0- 0.0
45-54	323	0*	0.0-0.0	447	0.0*	0.0- 0.0	770	0.0*	0.0- 0.0
55-64	321	0*	0.0-0.0	282	0.0*	0.0- 0.0	603	0.0*	0.0- 0.0
15-64	1907	0*	0.0-11.4	2421	0.0*	0.0- 0.0	4328	0.0*	0.0-0.0

**Data are statistically not significant.*

Median time spent in physical activities was calculated for work related, transport related and recreation related domains separately (Table 39). The men respondents spent less than 120.0 minutes or 2 hours in work related activities, 30 minutes or half an hour in transport related and did not spent any time in recreation related activities. Women spent 171.43 minutes (2.85 hours) in work, 25.71 minutes in transport and do not spent any time in recreation related physical activities. Men respondents of the 15-24 years age group were

only involved in the recreation related activities. No significant age group and sex wise variation was observed in work related and transport related physical activities except 15-24 years age group among men.

Table 40: Percentage of respondents classified as doing no work-, transport- or recreational-related physical activity

No work-related physical activity										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**% no activity at work**	**95% CI**		**n**	**% no activity at work**	**95% CI**		**n**	**% no activity at work**	**95% CI**
15-24	488	14.6	8.5-20.7		545	6.3	1.5-11.0		1033	10.6	5.5-15.7
25-34	385	13.8	5.2-22.4		594	6.3	2.4-10.3		979	10.4	4.4-16.5
35-44	390	9.8	3.4-16.1		553	6.3	2.0-10.6		943	8.0	4.0-11.7
45-54	323	15.0	2.3-27.7		447	7.8	0.2-16.9		770	11.3	3.1-19.5
55-64	321	17.2	5.0-29.4		282	10.3	2.5-18.0		603	14.5	5.3-23.7
15-64	**1907**	**14.0**	**8.9-19.1**		**2421**	**6.9**	**2.7-11.0**		**4328**	**10.6**	**6.4-14.8**
No transport-related physical activity										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**% no activity for transport**	**95% CI**		**n**	**% no activity for transport**	**95% CI**		**n**	**% no activity for transport**	**95% CI**
15-24	488	6.5	1.9-11.1		545	17.0	4.8-29.1		1033	11.5	5.7-17.3
25-34	385	23.0	11.0-34.9		594	26.3	12.8-39.8		979	24.4	15.7-33.2
35-44	390	15.8	5.5-26.2		553	20.0	7.5-23.5		943	18.0	7.3-28.6
45-54	323	22.3	8.1-36.4		447	29.6	14.2-45.0		770	26.0	12.0-39.9
55-64	321	31.7	6.8-56.6		282	20.3	5.2-36.4		603	27.5	7.2-47.8
25-64	**1907**	**16.7**	**8.7-24.9**		**2421**	**21.7**	**9.-33.6**		**4328**	**19.0**	**9.9-28.3**
No recreation-related physical activity										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**% no activity at recreation**	**95% CI**		**n**	**% no activity at recreation**	**95% CI**		**n**	**% no activity at recreation**	**95% CI**
15-24	488	53.1	35.8-70.3		542	87.7	79.9-95.6		1030	69.7	58.3-81.0
25-34	385	78.4	69.3-88.4		593	94.8	90.0-99.7		978	86.0	79.3-92.7
35-44	389	90.0	83.3-96.6		553	95.7	92.5-99.0		942	93.0	88.9-97.0
45-54	323	94.3	90.3-98.3		446	92.7	85.8-99.7		769	93.5	88.6-98.4
55-64	319	94.9	90.9-98.9		281	95.8	92.4-99.3		600	95.2	91.7-98.8
15-64	**1904**	**75.2**	**67.9-82.5**		**2415**	**92.1**	**87.3-96.9**		**4319**	**83.2**	**77.2-89.2**

Tables 40 shows figures of respondents who are involved in no or lower than recommended level of physical activity during their work. Men are found to be more inactive compared to their women counter parts at work related domains.

Similarly, physical activity during their transport to and from the work sites was also asked and calculated. Findings suggested that men are found to be more active compared to

their women counter parts (16.7 vs. 21.7) respectively. As usual, younger age population was found to be relatively more active compared to the other age groups.

During leisure time men are found to be more active compared to their women counter parts. As imagined, older age population was found to be relatively more inactive for men and women compared to the young ones.

Table 41: Percentage of work, transport and recreational activity contributing to total activity

Composition of total physical activity							
Age Group (years)	**Men**						
	n	**% Activity from work**	**95% CI**	**% Activity for transport**	**95% CI**	**% Activity during leisure time**	**95% CI**
15-24	360	64.1	53.9-74.3	31.7	23.6-39.9	29.5	22.6-36.3
25-34	296	75.3	68.1-82.6	32.6	24.6-40.6	28.8	18.3-39.3
35-44	311	79.4	74.7-84.1	25.8	21.2-30.4	24.8	12.8-36.7
45-54	248	82.4	77.5-87.4	31.0	17.0-45.1	28.6	18.8-38.4
55-64	240	86.0	79.6-92.4	35.3	19.4-51.2	30.6	17.6-43.5
15-64	1455	74.1	68.3-79.9	31.2	25.4-37.1	29.1	22.9-35.2

Composition of total physical activity							
Age Group (years)	**Women**						
	n	**% Activity from work**	**95% CI**	**% Activity for transport**	**95% CI**	**% Activity during leisure time**	**95% CI**
15-24	465	80.5	76.9-84.0	25.0	19.3-30.7	22.9	15.1-30.7
25-34	525	85.1	81.4-88.8	21.5	16.4-26.7	18.8	13.0-24.7
35-44	478	82.9	79.2-86.5	22.9	18.1-27.7	34.1	27.8-40.3
45-54	373	84.2	79.2-89.2	27.2	19.0-35.4	33.7	13.6-53.8
55-64	213	77.3	69.5-85.0	31.9	25.1-38.7	34.0	20.4-47.6
15-64	2054	82.2	78.7-85.6	24.8	20.1-29.5	25.5	18.0-33.1

Composition of total physical activity							
Age Group (years)	**Both Sexes**						
	n	**% Activity from work**	**95% CI**	**% Activity for transport**	**95% CI**	**% Activity during leisure time**	**95% CI**
15-24	825	72.3	66.9-77.7	28.7	22.7-34.7	28.2	23.0-33.4
25-34	821	79.9	74.8-85.1	27.7	21.3-34.2	27.2	19.0-35.3
35-44	789	81.2	77.4-85.0	24.3	20.5-28.1	27.7	18.8-36.6
45-54	621	83.4	79.0-87.7	29.2	21.4-37.0	31.5	18.6-44.5
55-64	453	82.4	76.8-88.0	33.9	23.9-43.8	31.7	19.4-44.0
15-64	3509	78.1	73.9-82.2	28.3	23.6-32.9	28.3	24.0-32.5

Table 41 shows composition of total physical activities of target population. Of the total physical activity, 78 percent is contributed by work related activities whereas 28 percent by transport related activities. Leisure hour activities contribute around 28% of the total activities. The sum total of proportion appears more than 100 % is due to multiple responses.

Table 42: Percentage of respondents not engaging in vigorous physical activity

No vigorous physical activity										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**% no vigorous activity**	**95% CI**		**n**	**% no vigorous activity**	**95% CI**		**n**	**% no vigorous activity**	**95% CI**
15-24	488	78.2	68.1-88.2		545	97.8	96.1-99.4		1033	87.6	81.9-93.2
25-34	385	86.2	76.3-96.2		594	99.2	98.1-100.0		979	92.0	86.1-98.0
35-44	390	96.8	93.2-100.0		553	98.7	97.4-100.0		943	97.8	95.5-100.0
45-54	323	98.9	97.7-100.0		447	97.7	95.2-100.0		770	98.3	96.6-100.0
55-64	321	99.3	98.5-100.0		282	99.9	99.7-100.0		603	99.5	99.0-100.0
15-64	1907	88.2	83.0-93.4		545	97.8	96.1-99.4		4328	93.0	89.8-96.3

MET value of greater than 6 is called a vigorous physical activity. Looking at the vigorous activity of Nepalese people, it is observed that majority of them (93%) did not involve in vigorous level of activities. Men were little more active than women.

Table 43: Minutes spent in sedentary activities on a typical day

Minutes spent in sedentary activities on average per day					
Age Group (years)	**Men**				
	n	**Mean minutes**	**95% CI**	**Median minutes**	**Inter-quartile range (P25-P75)**
15-24	486	554.2	439.4-669.0	600	420-750
25-34	384	571.0	525.7-616.3	540	420-780
35-44	387	550.2	495.0-605.4	540	420-690
45-54	322	589.7	558.1-621.3	600	480-720
55-64	320	575.5	454.3-696.7	600	420-780
15-64	1899	564.7	504.7-624.8	660	480-780

Minutes spent in sedentary activities on average per day					
Age Group (years)	**Women**				
	n	**Mean minutes**	**95% CI**	**Median minutes**	**Inter-quartile range (P25-P75)**
15-24	542	568.9	503.2-634.5	600	480-720
25-34	591	549.8	510.7-588.8	600	420-690
35-44	545	500.2	383.2-617.1	480	360-675
45-54	442	568.5	507.3-629.8	540	480-720
55-64	279	628.3	580.8-675.7	600	540-750
15-64	2399	557.3	512.6-602.0	660	**510-780**

Minutes spent in sedentary activities on average per day					
Age Group (years)	**Both Sexes**				
	n	**Mean minutes**	**95% CI**	**Median minutes**	**Interquartile range (P25-P75)**
15-24	1028	561.2	489.6-632.9	600	420-720
25-34	975	561.5	533.8-589.1	600	420-720
35-44	932	524.4	454.4-594.4	540	360-690
45-54	764	578.9	537.7-620.1	600	480-720
55-64	599	595.9	516.7-675.2	600	480-780
15-64	4298	561.2	512.8-609.6	660	**510-780**

Table 43 shows figures on time spent on sedentary work (minutes /day) among Nepalese peoples. Median time of sedentary work was 660 minutes (11 hours) per day. Sedentary works mean the work which is performed usually in sitting position or using minimum physical efforts such as office work, work on computers, teaching, etc.

6. BLOOD PRESSURE AND DIABETES HISTORY

History of High blood pressure

Blood pressure generally means the lateral pressure exerted by blood flowing in the arteries on the arterial wall. It is usually expressed in terms of pressure during contraction and dilatation of the heart. Blood pressure during contraction is called systolic and in dilatation, diastolic. Systolic blood pressure is said to be within normal limit if it is between 90-140 millimetre of mercury (mmHg) and diastolic ranging from 60 to 90 mmHg . The individual having low blood pressure are said to live longer but can create problem if one faces diarrhoeal diseases and accidents involving bleeding. Considering high blood pressure, it is one of the biggest problems in terms of non communicable diseases prevalence. Stroke and heart attack are closely related to high blood pressure. In this survey, respondents are asked about their history of hypertension and its management.

Following tables provide the variables used and their prevalence.

Table 44: Raised blood pressure diagnosis and treatment results among all respondents

Raised blood pressure diagnosed by doctor or health worker in last 12 months										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**% diagnosed**	**95% CI**		**n**	**% diagnosed**	**95% CI**	**n**	**% diagnosed**	**95% CI**
15-24	6	8.4	0.3-17.1		5	13.6	4.9-32.1	11	11.2	0.1-22.4
25-34	13	25.7	4.1-47.3		15	16.7	4.6-28.8	28	20.7	10.1-31.3
35-44	23	16.1	7.2-24.9		39	18.3	9.3-27.3	62	17.3	11.9-22.7
45-54	32	24.7	6.4-42.9		54	39.0	14.2-63.7	86	32.5	15.7-49.3
55-64	44	25.3	8.6-41.9		45	12.5	4.8-20.2	89	18.2	9.5-8.1
15-64	118	8.4	5.4-11.4		158	10.2	5.8-14.5	**276**	**9.3**	**6.7-11.9**

Currently taking blood pressure drugs prescribed by doctor or health worker										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**% taking meds**	**95% CI**		**n**	**% taking meds**	**95% CI**		**n**	**% taking meds**	**95% CI**
15-24	2	6.6	6.1-19.2		1	0.5	0.7-1.7		3	2.9	2.2-7.9
25-34	3	3.0	2.6-1.7		6	12.0	3.0-27.0		9	8.5	0.4-17.4
35-44	13	23.5	8.5-45.4		16	13.3	4.9-21.8		29	17.3	7.0-27.5
45-54	22	25.5	0.2-50.8		35	54.7	30.6-78.9		57	43.5	23.1-63.8
55-64	33	41.4	19.4-63.4		35	19.4	5.0-33.8		68	27.9	11.7-44.0
15-64	73	38.6	19.3-57.9		93	50.0	32.2-67.8		**166**	**44.9**	32.9-56.9

Reported prevalence of high blood pressure was found to be 9.3 percent (CI 6.7-11.9) population. Sex disparity was identified as 8.4 percent for men and 10.2 percent for Women with CI as 5.4-11.4, 5.8-14.5 respectively. Age wise hypertension prevalence indicated that 25-34 years age group men population happened to have the highest prevalence i.e. 25.7 percent where as 45-54 years age group women population was found to have highest prevalence i.e. 39 percent. Lowest prevalence of reported hypertension 8.4 percent among men was confined to the age group 15-24 years whereas it was among 55-64 years age group 12.5 percent among women.

Modality of management of hypertension depends upon the level of measured blood pressure. Co-morbidity, presence/ absence of risk factors and complications play role in management. This survey also looked at use of medication for hypertension and revealed that less than half (44.9%) of the total hypertensive were found to have currently taking drugs against their hypertension. Comparing gender disparity, men were taking drugs against their hypertension relatively less than their women counter parts i.e. 38.6% vs. 50 % respectively.

Table 45: Percentage of respondents who received lifestyle advice from a doctor or health worker to treat raised blood pressure

Advised by doctor or health worker to have special prescribed diet										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**%**	**95% CI**		**n**	**%**	**95% CI**		**n**	**%**	**95% CI**
15-24	3	4.3	4.0-12.7		4	13.5	7.5-34.4		7	10.3	3.7-24.2
25-34	9	10.0	1.1-21.1		12	15.9	2.2-29.7		21	13.9	4.2-23.5
35-44	20	19.4	7.9-30.8		32	17.2	7.7-26.7		52	17.9	11.4-24.5
45-54	29	38.0	16.4-59.6		50	41.3	13.8-68.8		79	40.1	19.7-60.6
55-64	33	28.3	8.8-47.8		41	12.2	5.0-19.3		74	17.8	9.4-26.2
15-64	94	60.9	35.6-86.2		139	91.7	86.2-97.3		233	77.9	65.8-90.0

Advised by doctor or health worker to lose weight										
Age Group	**Men**				**Women**				**Both Sexes**	
(years)	**n**	**%**	**95% CI**		**n**	**%**	**95% CI**		**n**	**%**	**95% CI**
15-24	2	6.9	6.5-20.4		2	2.0	1.2-5.3		4	4.0	1.8-9.9
25-34	7	13.6	1.7-25.5		5	5.6	0.7-11.8		12	8.8	2.3-15.3
35-44	9	10.0	1.5-18.4		23	19.9	5.1-34.8		32	15.9	6.2-25.7
45-54	25	33.7	10.7-56.7		40	60.5	34.6-86.3		65	49.7	28.6-70.8
55-64	26	35.8	14.2-57.3		27	12.0	3.7-20.2		53	21.5	8.6-34.5
15-64	69	36.5	18.3-54.7		97	44.1	24.2-64.0		166	40.7	26.1-55.3
Advised by doctor or health worker to stop smoking										
Age Group	**Men**				**Women**				**Both Sexes**	
(years)	**n**	**%**	**95% CI**		**n**	**%**	**95% CI**		**n**	**%**	**95% CI**
15-24	2	6.9	4.0-17.7		0	-	-		2	3.8	2.0-9.7
25-34	5	19.3	7.6-46.1		2	1.2	1.4-3.9		7	11.3	4.8-27.4
35-44	15	21.5	8.4-34.7		13	9.2	0.5-18.9		28	16.1	6.6-25.6
45-54	21	37.1	13.0-61.2		24	73.8	46.6-101.0		45	53.3	30.6-76.0
55-64	26	15.3	3.0-27.5		19	15.8	3.3-34.9		45	15.5	4.5-26.5
15-64	69	56.7	31.8-81.5		58	36.4	10.7-62.2		127	45.5	24.7-66.3
Advised by doctor or health worker to start or do more exercise										
Age Group	**Men**				**Women**				**Both Sexes**	
(years)	**n**	**%**	**95% CI**		**n**	**%**	**95% CI**		**n**	**%**	**95% CI**
15-24	4	7.5	3.6-18.6		2	1.9	1.3-5.1		6	4.6	1.0-10.3
25-34	9	11.2	1.6-23.9		7	8.5	0.9-17.9		16	9.8	2.1-17.5
35-44	11	15.2	5.2-25.2		20	15.8	2.4-29.2		31	15.5	7.6-23.4
45-54	29	40.5	18.5-62.6		33	61.9	33.9-90.0		62	51.4	31.4-71.4
55-64	27	25.6	5.8-45.5		28	11.9	2.2-21.6		55	18.7	6.7-30.6
15-64	80	56.5	37.3-75.7		90	47.6	21.3-73.9		170	51.6	33.6-69.6

Those who said they had been diagnosed to have hypertension were further asked whether they were receiving any of the treatments/advice(have special prescribed diet, lose weight, stop smoking and start or do more exercise) for high blood pressure prescribed by a doctor or other health workers.

Dietary management of hypertension is one of the modality of hypertension treatment. Uncomplicated hypertension without associated risk factor can be managed with dietary modification. This is more useful if one is having mild or moderate hypertension and in over weight persons.

This survey also looked at hypertensive persons whether they were advised for diet in the management of their hypertension in their locality. Table 45 shows figures of dietary management of hypertension. Altogether 77.9 percent of the hypertensive population were found to have received dietary advices and sex disparity was identified to be 60.9 percent

for men and 91.7 for women. Age-wise disparity ranged from 4.3 to 38 percent of men hypertensive with 15-24 age group receiving the least dietary advices compared to 45-54 years age group the most. Similarly the figures were 91.7 percent for women with 15-24 years age group receiving the least and 45-54 years age group the most.

Over weight individuals are more at risk of developing hypertension than normal weight individuals in one hand and over weight hypertensive lower the level of blood pressure if they lose weight. This is for this reason; this variable was included in this survey. Table 45 shows figures on advice to reduce weight received by hypertensive from their local health care taker. On an average around 40.7 percent of hypertensive were found to have received advice on reducing weight with a sex disparity of 36.5 percent for men and 44.1 percent for women. Age-wise disparity in receiving advices to lose weight among hypertensive was 4 percent among age group 15-24 years whereas it was 49.7 percent in 45-54 years age group.

Smoking is an established risk factor for hypertension. This survey also looked at advices by their health workers on quitting smoking among hypertensive. Table 45 shows figures on advices to quit smoking or not initiate smoking. It is seen that 45.5 percent hypertensive were given advice either to quit or not initiate smoking. Sex disparity ranged from 6.9-37.1 percent among men where as 1.2-73.8 percent for women. In both the cases younger age group received the least advices on smoking.

Physical exercise not only improves wellbeing, it also improves cardiovascular fitness. In addition it contributes in achieving normal body weight there by improving blood pressure level as well. This study was designed to look whether local health care taker were advising on exercise to their hypertensive clients. Table 45 shows figures on advice to exercise among hypertensive. It is evident that 51.6 percent hypertensive received advice on exercise at local level. And the figure ranged from 4.6-51.4 percent with the youngest receiving the least. Similarly sex disparity also varied with 56.3 for men and 51.6 for women.

Table 46: Percentage of respondents who have sought advice or received treatment from traditional healers for raised blood pressure

Seen a traditional healer in the last 12 months										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**%**	**95% CI**		**n**	**%**	**95% CI**		**n**	**%**	**95% CI**
15-24	0	-	-		2	77.3	32.6-122.0		2	72.0	26.6-117.4
25-34	1	43.9	0.3-88.1		2	13.1	14.4-40.5		3	15.2	11.2-41.6
35-44	0	-	-		2	2.4	2.6-7.4		2	2.2	2.1-6.5
45-54	0	-	-		2	7.2	8.8-23.3		2	6.7	7.7-21.2
55-64	3	56.1	11.9-100.3		0				3	3.9	3.8-11.6
15-64	4	1.4	0.7-3.4		8	14.8	4.4-34.0		12	8.8	2.0-19.5

Currently taking herbal or traditional remedy for high blood pressure										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**%**	**95% CI**		**n**	**%**	**95% CI**		**n**	**%**	**95% CI**
15-24	0	-	-		0	-	-		0	-	-
25-34	0	-	-		1	5.5	6.3-17.3		1	0.9	1.1-2.9
35-44	4	29.7	15.2-74.5		2	13.1	8.4-34.7		6	26.9	8.5-62.3
45-54	2	58.3	1.4-115.1		6	73.3	39.4-107.2		8	60.8	16.1-105.4
55-64	5	12.1	6.0-30.1		3	8.1	2.8-18.9		8	11.4	3.3-26.1
15-64	11	17.3*	0.4-34.1		12	2.8*	0.0-5.6		23	9.3*	0.7-17.9

**Data are statistically not significant.*

Respondents who were diagnosed to have hypertension in past 12 months were asked if they had been seeking advices and taking any herbal or traditional remedy for raised blood pressure

Large number of Nepalese people still believes in traditional healers. It is observed that seeking help of traditional healer is more for chronic illness compared to an acute one. Hypertension being a chronic illness, information on pattern of seeking help of traditional healer was also explored in this study. Figures are given in table 46.

On an average 8.8 percent hypertensive were found to have taken help of traditional healer for their hypertension and women were more to seek traditional healer than men. At least 1.4 percent of men were seeking help of traditional healer whereas around 1.5 percent of women hypertensive were found to do so.

Looking at different age group, younger women were found to be fascinated towards traditional healers compared to men whereas men did on older age groups.

Table 46 also looks at the use of herbal medicines for the treatment of hypertension. As large numbers of people are seen to have used traditional healers for their ailment, they are likely to have used herbal medicines as well. So it is for this reason, use of herbal medicine was also explored in this study. Around 9.3 percent hypertensive was found to be using herbal medicine for their hypertension whereas 17.3 percent of hypertensive men used herbal medicine for their hypertension and 2.8 percent of hypertensive women did so.

HISTORY OF DIABETES

Diabetes mellitus is a chronic metabolic disease affecting almost any organ system in the body. Primarily, it develops due to the imbalance between insulin demand and supply. A number of factors play role on either side of the demand and supply chain during the diabetes development process. If these factors are identified and acted upon to prevent their role, diabetes can be prevented to a great extent. It is for this reason; diabetes prevention campaigns are organized globally, regionally and locally in many countries throughout the world.

Diabetes in the long run, in uncontrolled state produces complications that are not only crippling but also shortens longevity. Stroke, heart attack, kidney failure etc. are more common in diabetics than non diabetics.

In Nepal, many people still consider diabetes a disease of affluent section of the society. But, growing evidences indicate that it has invaded even the poorest member in the community. Current health programs in Nepal have not paid sufficient attention on diabetes care and are more so in the rural areas. People are unnecessarily suffering in one hand and developing crippling complications on the other. Once complications develop, it becomes costly on care and facilities for care of complication are not easily available.

Though excessive thirst, excessive hunger and excessive urination is considered as the hallmark of diabetes, significant proportion of Nepalese diabetics are asymptomatic. Gold standard for diabetes diagnosis is the blood glucose level measurement, financial and logistic constraints limited the assessment of blood sugar measurement in this survey, and however, reported prevalence of diabetes and method of control were covered and is reported here.

Table 47: Diabetes diagnosis and treatment results among all respondents

Diabetes diagnosed by doctor or health worker in last 12 months

Age Group (years)	Men			Women			Both Sexes		
	n	% diagnosed	95% CI	n	% diagnosed	95% CI	n	% diagnosed	95% CI
15-24	0	----	-- - --	0	----	-- - --	0	----	-- - --
25-34	1	0.6	0.0- 2.0	2	4.5	3.5- 12.4	3	1.7	1.1- 4.4
35-44	7	25.5	4.9- 55.9	8	6.1	0.4- 11.9	15	20.0	2.1- 42.1
45-54	16	23.9	1.8- 46.0	27	19.3	8.6- 30.0	43	20.8	9.6- 31.9
55-64	28	17.4	3.7- 31.0	25	19.2	3.6- 34.8	53	18.1	7.7- 28.4
15-64	52	10.2	1.6- 18.8	62	11.8	4.5- 19.0	114	10.8	4.3- 17.2

Currently taking insulin prescribed for diabetes by doctor or health worker

Age Group (years)	Men			Women			Both Sexes		
	n	% taking insulin	95% CI	n	% taking insulin	95% CI	n	% taking insulin	95% CI
15-24	0			0			0		
25-34	0	----	--- - ---	1	5.6	13.0 - 24.2	1	4.2	7.9 - 16.2
35-44	2	3.9	3.6 - 11.3	2	13.2	19.6 - 46.0	4	4.7	2.4 - 11.8
45-54	4	15.1	1.9 - 32.1	3	31.6	20.8 - 84.0	7	25.4	9.0 - 59.8
55-64	3	8.7	6.3 - 23.8	5	15.3	7.6 - 38.2	8	11.4	2.6 - 25.3
15-64	9	7.5	0.7 - 14.4	11	24.5	12.3 - 61.3	20	14.1	3.6 - 31.8

Currently taking oral drugs prescribed for diabetes by doctor or health worker

Age Group (years)	Men			Women			Both Sexes		
	n	% taking meds	95% CI	n	% taking meds	95% CI	n	% taking meds	95% CI
15-24	0			0			0		
25-34	0			1	5.6	13.0 - 24.2	1	4.2	7.9 - 16.2
35-44	3	43.8	38.9 - 126.5	4	59.9	12.9- 107.0	7	45.2	23.3- 113.7
45-54	11	83.0	63.9 - 102.1	18	54.9	5.3- 104.4	29	65.4	34.5- 96.3
55-64	17	73.5	40.7 - 106.4	20	73.4	38.6- 108.1	37	73.5	45.4- 101.6
15-64	31	59.1	9.8 - 108.4	43	56.8	23.6- 89.9	74	58.2	24.3- 92.1

Of all the respondents who visited health workers in past 12 months for the purpose of checking their blood sugar level, 10.8 percent were diagnosed as having raised sugar level. Table 47 shows figures on reported prevalence of diabetes mellitus. Sex disparity in reported prevalence did not vary much. 10.2 percent of men had diabetes whereas 10.8

percent of Women had. Coming to the issue of age and reported prevalence, 35-44 age group men had the highest prevalence of diabetes whereas among women, 44-54 years age group had the highest. There were no diabetics in the youngest age group in both sexes.

Table 47 also shows figures on use of insulin among diabetics in Nepal. Though insulin is indicated for insulin dependent diabetes, a number of non insulin dependent diabetics need insulin in the course of their life. In addition, pregnant women also need insulin. A total of around 14 percent Nepalese diabetics were found to be using insulin for the control of their diabetes.

Table 48: Percentage of respondents who received lifestyle advice from a doctor or health worker to diabetes

Advised by doctor or health worker to have special prescribed diet

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24									
25-34	1	1.3	2.3-5.0	2	7.9	7.3-23.2	3	3.5	2.4-9.4
35-44	7	53.1	10.3-96.0	8	10.2	0.1-20.3	15	38.9	8.4-69.4
45-54	15	22.9	9.1-54.8	23	50.4	25.5-75.2	38	32.0	14.9-49.1
55-64	26	22.7	3.1-42.2	25	31.6	8.4-54.8	51	25.6	9.3-41.9
15-64	49	99.0	97.5-100.0	58	78.3	41.1-100.0	107	91.0	75.0-100.0

Advised by doctor or health worker to lose weight

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24									
25-34	0			2	8.9	7.9-25.8	2	4.7	3.9-13.3
35-44	3	6.9	3.8-17.6	7	8.8	2.7-20.2	10	7.9	0.8-16.6
45-54	11	41.7	2.1-12.8	24	63.4	39.0-87.8	35	53.1	33.4-72.7
55-64	23	51.4	81.4-89.9	14	18.9	3.4-34.3	37	34.4	19.9-48.9
25-64	37	39.7	3.0-76.4	47	69.3	39.3-99.4	84	51.1	18.3-83.9

Advised by doctor or health worker to stop smoking

Age Group (years)	Men			Women			Both Sexes		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24									
25-34				1	12.9	17.0-42.9	1	3.2	3.7-10.1
35-44	6	59.4	14.8-104.1	3	11.2	4.7-27.0	9	47.5	7.4-87.6
45-54	13	24.1	12.4-4.8	12	57.8	15.5-100.1	25	32.4	0.2-65.1
55-64	14	16.5	60.6-37.8	11	18.0	5.7-41.8	25	16.9	2.5-31.2
15-64	33	86.2	72.6-99.9	27	45.2	14.8-75.6	60	70.4	58.7-82.2

Advised doctor or health worker to start or do more exercise										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**%**	**95% CI**		**n**	**%**	**95% CI**		**n**	**%**	**95% CI**
15-24											
25-34					2	8.1	7.8-24.1		2	2.8	2.7-8.4
35-44	6	57.2	13.8-100.6		8	10.4	0.6-21.4		14	40.9	4.9-76.9
45-54	12	19.5	12.5-51.5		21	56.0	28.6-83.3		33	32.2	6.1-58.3
55-64	24	23.3	2.6-44.0		21	25.5	2.0-48.9		45	24.1	10.0-38.1
15-64	42	89.6	75.4-103.8		52	76.4	46.8-106.0		94	84.5	75.0-94.0

Diabetics with added risk factors for NCD are more susceptible to complications as well as development of co-morbidity and blood glucose beyond control. Hence, all diabetics need suggestion on life style modification. In this survey, the diabetics were asked whether they received suggestion on life style modification i.e. dietary pattern, timings, smoking, physical activity, stress management etc. A total of 91 percent diabetics were found to have received advices and comparing sex, men were receiving advices relatively more than women 99% Vs. 91% respectively. Comparing the age group, 35-44 years age group men population relatively received proportionately more advices on life style modification than other age group. Among women, the group was little older compared to men. Non insulin dependent diabetics (NIDDM) are usually either over weight or obese and their weight reduction helps in controlling diabetes. Since majority of Nepalese diabetics are NIDDM type, advices on weight reduction is likely to contribute in controlling diabetes. This survey also looked at whether the diabetic respondent received advices on weight reduction. Table 48 shows data on advices on weight reduction. Around half of the surveyed diabetic population appears to have received advices on weight reduction, and women were more to receive it compared to men. Looking at age group, older age group men and middle age group women were proportionately more to receive it.

Smoking is a risk factor not only for diabetes but also for cardio-vascular, cerebro-vascular, pulmonary and a number of cancers. Smoker diabetic is more likely to develop cardiovascular complication than a non-smoker diabetic. It is for this reason, advices on stopping smoking among diabetic was explored in this survey. Around 70 percent diabetics appeared to have received advices on stopping smoking in which men were proportionately more to receive than women. Looking at age group, older men and younger women received more than other age group.

Diabetics doing regular exercise not only loose weight if they are over weight, but also improve circulatory and pulmonary strength. It also contributes in physical well being, maintain muscle mass and transport of glucose into the cell. Diabetics discovered in this survey were also asked whether they received suggestion to do exercise. Eight in ten diabetics were found to have received exercise suggestion and men were proportionately slightly more than women to receive it.

Table 49: Percentage of respondents who have sought advice or treatment from traditional healers for diabetes.

Seen a traditional healer for diabetes in the last 12 months										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**%**	**95% CI**		**n**	**%**	**95% CI**		**n**	**%**	**95% CI**
15-24											
25-34									0	-	-
35-44									0	-	-
45-54	2	62.8	0.5-100.0		1	60.5	23.2-100.0		3	62.0	31.4-92.5
55-64	2	37.2	26.0-100.0		1	39.5	44.3-100.0		3	38.0	7.5-68.6
15-64	4	6.3	2.6-15.1		2	5.5	3.0-13.9		6	6.0	0.6-12.5

Currently taking herbal or traditional treatment for diabetes										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**%**	**95% CI**		**n**	**%**	**95% CI**		**n**	**%**	**95% CI**
15-24											
25-34	1	100.0	100.0 - 100.0		----	-- - --	----		1	25.6	31.2- 82.3
35-44	2	2.7	2.3- 7.8		----	-- -	----		2	2.5	1.8- 6.7
45-54	4	25.9	19.8- 71.5		4	35.1	0.0-88.3		8	31.7	4.1- 67.4
55-64	6	27.1	5.5- 48.8		2	13.2	1.8-24.5		8	21.5	7.7- 35.3
15-64	13	15.0	1.3- 31.3		6	24.7	0.0-60.7		19	18.7	0.3- 37.2

As mentioned earlier, many Nepalese people still believe in traditional way of healing and are more so for chronic diseases. Traditional way of healing in diabetes has no known effect in controlling diabetes rather it aggravates development of acute and/or chronic complications. If at all traditional healing contributes it helps console diabetic. In order to see whether Nepalese diabetics seek help of traditional healer or not, this issue was also explored in this survey. As evident, very small number of diabetics were found to have taken care of traditional healers.

In addition to diabetes, a number of other ailments demands traditional medicine for their care. Some use tubers; other use leaves whereas still other people use fruits or their seeds of different varieties of plants as traditional medicine. This study tried to explore use of traditional medicine for the control of diabetes and data are presented in table 49. Around one in five diabetics was found to use traditional medicine for the control of diabetes and women were relatively more to use traditional medicine compared to their men counterpart.

7. PHYSICAL MEASUREMENTS

According to WHO STEPwise approach, physical measurements of the respondents were taken. In this study, height, weight, BMI, blood pressure, waist circumference, hip girth were measured using the WHO standardised machines sent by WHO, SEARO Office. Physical measurement is one of the major variables to identify the risk factors for non-communicable diseases like diabetes mellitus, stroke and ischemic heart diseases. According to the WHO world health report 2002, approximately 58 percent of diabetes mellitus, 21 percent of ischemic heart diseases and 8-42 percent of certain cancers were attributable to BMI above 21kg/m^2.

Table 50: Mean height, weight, and body mass index among all respondent (excluding pregnant women for weight and BMI

Mean height (cm)							
Age Group (years)	**Men**				**Women**		
	n	**Mean**	**95% CI**		**n**	**Mean**	**95% CI**
15-24	488	160.1	156.7-163.5		541	151.7	150.7-152.8
25-34	383	162.5	161.2-163.8		588	151.1	150.0-152.1
35-44	389	161.8	159.5-164.1		551	149.9	147.6-152.1
45-54	321	160.4	158.5-162.2		443	149.2	147.1-151.3
55-64	318	157.7	155.2-160.1		278	146.4	143.1-149.6
15-64	1899	160.6	158.7-162.5		2401	150.4	149.4-149.6

Mean weight (kg)							
Age Group (years)	**Men**				**Women**		
	n	**Mean**	**95% CI**		**n**	**Mean**	**95% CI**
15-24	487	50.1	48.5-51.7		543	46.1	45.0-47.3
25-34	380	56.1	54.3-57.9		594	48.5	46.9-50.1
35-44	388	57.0	53.8-60.1		553	47.8	45.7-49.9
45-54	322	54.1	51.8-56.4		442	48.0	46.4-49.6
55-64	319	48.4	43.8-53.1		274	41.2	37.4-45.1
15-64	1896	52.9	51.1-54.7		2406	46.8	45.7-48.0

Mean BMI (kg/m^2)										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**Mean**	**95% CI**		**n**	**Mean**	**95% CI**		**n**	**Mean**	**95% CI**
15-24	487	19.6	18.9-20.2		540	20.1	19.5-20.6		1027	19.8	19.3-20.3
25-34	379	21.1	20.5-21.7		588	21.3	20.6-21.9		967	21.2	20.7-21.7
35-44	387	21.7	20.8-22.7		551	21.2	20.6-21.9		938	21.5	20.7-22.2
45-54	320	21.0	20.2-21.8		440	21.6	20.7-22.5		760	21.3	20.6-22.0
55-64	316	19.4	17.9-20.8		272	19.4	18.2-20.6		588	19.4	18.1-20.7
15-64	1889	20.4	20.0-20.9		2391	20.7	20.3-21.1		4280	20.6	20.1-21.0

Health of every individual is optimal if their body mass is ideal for their height. Deviation from the normal range is not desirous for health and for productivity. In this survey, an attempt was made to explore the height and weight of the target population.

Table 50 shows data for height in centimetre, and weight in kilogram. Mean height for men was calculated to be 160.6 centimetres whereas for Women it was 150.4 centimetres. Interestingly, younger age group were having slightly more mean height both for men and women which can be an indication of improved nutrition.

Looking at weight, mean weight for men was 52.9 Kg where as for women it was 46.8. Similar to height, younger age group were relatively having more weight compared to their older counter parts and true for both sexes.

Table 50 also shows figures on Body Mass Index which is calculated as weight in kilogram divided by height in meter square. Mean BMI for men was found to be 20.4 kg/m^2 and for women it was 20.6 kg/m^2. It was interesting to observe that middle aged individuals were having relatively more BMI compared to the two extremes of age group and was true for both sexes.

Table 51: Percentage of respondents (excluding pregnant women) in each BMI category

BMI classifications									
Age Group (years)	**Men**								
	n	**% Under-weight <18.5**	**95% CI**	**% Normal weight 18.5-24.9**	**95% CI**	**% Over-weight 25.0-29.9**	**95% CI**	**% Obese ≥30.0**	**95% CI**
15-24	487	47.4	37.5-57.3	35.1	23.5-46.6	14.4	0.9-29.7	7.1	6.3-20.6
25-34	379	17.6	10.2-25.0	23.4	17.0-29.8	22.3	11.2-33.3	52.1	15.2-89.0
35-44	387	9.5	5.4-13.6	17.1	12.4-21.8	27.6	9.3-46.0	12.5	1.2-23.9
45-54	320	7.2	1.8-12.6	15.5	9.5-21.6	22.2	10.6-33.7	14.9	3.9-33.8
55-64	316	18.3	5.4-31.2	8.9	5.3-12.4	13.5	4.3-22.7	13.3	3.6-30.2
15-64	**1889**	**28.5**	**20.4-36.6**	**63.1**	**55.1-71.1**	**7.3**	**4.9-9.6**	**1.1**	**0.2-2.0**

BMI classifications									
Age Group (years)	**Women**								
	n	**% Under-weight <18.5**	**95% CI**	**% Normal weight 18.5-24.9**	**95% CI**	**% Over-weight 25.0-29.9**	**95% CI**	**% Obese ≥30.0**	**95% CI**
15-24	540	40.2	29.4-51.0	40.4	27.3-53.5	6.8	3.1-10.6	21.1	9.1-51.3
25-34	588	15.0	9.1-20.8	22.0	15.7-28.2	21.5	16.8-26.1	25.8	3.0-48.6
35-44	551	16.5	9.7-23.4	18.1	11.4-24.8	32.4	23.6-41.1	17.6	4.0-31.1
45-54	440	9.8	6.0-13.6	16.1	9.7-22.5	28.5	18.6-38.4	29.6	6.8-52.3
55-64	272	18.5	3.8-33.2	3.4	1.9-4.9	10.9	5.7-16.1	5.9	1.9-9.9
15-64	**2391**	**26.5**	**19.7-33.3**	**64.0**	**56.3-71.6**	**7.1**	**4.0-10.2**	**2.4**	**1.2-3.6**

BMI classifications									
Age Group (years)	Both Sexes								
	n	% Under-weight <18.5	95% CI	% Normal weight 18.5-24.9	95% CI	% Over-weight 25.0-29.9	95% CI	% Obese ≥30.0	95% CI
15-24	1027	44.1	35.5-52.8	37.6	28.5-46.8	10.8	2.2-19.5	16.3	5.5-38.1
25-34	967	16.4	10.8-22.0	22.7	17.2-28.3	21.9	15.2-28.5	34.8	12.9-56.8
35-44	938	12.7	8.3-17.1	17.6	14.3-20.9	29.9	19.0-40.7	15.8	4.8-26.9
45-54	760	8.4	4.4-12.4	15.8	11.1-20.5	25.1	17.2-33.0	24.6	8.4-40.7
55-64	588	18.4	5.3-31.5	6.3	4.7-7.8	12.3	7.7-16.9	8.5	1.7-15.2
15-64	**4280**	**27.6**	**21.2-33.9**	**63.5**	**57.4-69.7**	**7.2**	**4.8-9.5**	**1.7**	**0.9-2.5**

Table 51 shows classes of BMI among surveyed population. It indicates that almost one in three men was found to be under weight whereas one in ten was over weight. Around 60 % Nepalese men were belonging to ideal BMI. Coming to the issue of women under weight and ideal BMI were almost similar to men but over weight was little more among women compared to their men counterparts. Similar was the situation for both sexes.

Table 52: Mean waist circumference among all respondents (excluding pregnant women)

Waist circumference (cm)							
Age Group (years)	Men				Women		
	n	Mean	95% CI		n	Mean	95% CI
15-24	486	70.5	68.6-72.4		514	67.1	65.9-68.2
25-34	383	76.4	74.9-78.0		575	72.0	69.4-74.6
35-44	388	78.9	76.3-81.6		551	72.1	70.3-73.9
45-54	322	79.0	77.6-80.4		445	72.9	70.0-75.8
55-64	321	74.2	70.6-77.9		277	71.6	67.7-75.6
15-64	1900	74.9	73.7-76.1		2362	70.3	68.9-71.8

Central obesity is considered one of the risk factors for cardiovascular ill health. Central obesity is measured by measuring the circumference of the abdomen and for better reference is compared with measurement of hip circumference. Cut off point to of abdominal circumference for men is 102 centimetre and for Women is 88 centimetre. In this survey, mean abdominal circumference was within normal limit. Ratio of abdominal to hip circumference is given in table 53 and is found to be within normal limit.

Table 53: Mean hip circumference among all respondents (excluding pregnant women)

Hip circumference (cm)							
Age Group (years)	**Men**				**Women**		
	n	**Mean**	**95% CI**		**n**	**Mean**	**95% CI**
15-24	487	82.1	79.4-84.7		515	83.7	82.6-84.8
25-34	382	87.2	85.4-89.1		577	85.3	83.3-87.3
35-44	388	86.9	85.2-88.6		550	86.1	84.2-87.9
45-54	322	85.4	83.8-86.9		444	85.8	83.3-88.3
55-64	320	82.6	78.4-86.7		280	82.5	80.6-84.3
15-64	**1899**	**84.5**	**82.6-86.3**		**2366**	**84.7**	**83.3-86.0**

Table 54: Mean waist-to-hip ratio among all respondents (excluding pregnant women).

Mean waist / hip ratio							
Age Group (years)	**Men**				**Women**		
	n	**Mean**	**95% CI**		**n**	**Mean**	**95% CI**
15-24	486	0.61	0.60-0.62		514	0.55	0.54-0.57
25-34	379	0.64	0.63-0.65		577	0.57	0.55-0.58
35-44	386	0.65	0.63-0.68		550	0.56	0.54-0.58
45-54	321	0.63	0.61-0.65		440	0.56	0.55-0.57
55-64	318	0.58	0.55-0.61		273	0.50	0.46-0.53
15-64	**1890**	**0.62**	**0.61-0.63**		**2354**	**0.55**	**0.54-0.56**

Table 55: Mean blood pressure among all respondents, excluding those currently on medication for raised blood pressure

Mean systolic blood pressure (mmHg)										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**Mean**	**95% CI**		**n**	**Mean**	**95% CI**		**n**	**Mean**	**95% CI**
15-24	488	121.0	117.5-124.6		544	119.3	114.0-124.7		1032	120.2	116.8-123.6
25-34	384	127.9	124.5-131.2		594	121.6	118.5-124.8		978	125.1	122.9-127.2
35-44	390	131.6	127.6-135.5		553	120.8	112.3-129.4		943	126.0	120.7-131.3
45-54	323	140.6	135.1-146.1		446	134.4	129.3-139.6		769	137.5	132.6-142.3
55-64	320	133.4	124.7-142.2		281	123.8	104.9-142.7		601	129.7	117.3-142.1
15-64	1905	128.3	124.6-132.0		2418	122.8	118.6-127.0		4323	125.7	122.1-129.3

Mean diastolic blood pressure (mmHg)										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**Mean**	**95% CI**		**n**	**Mean**	**95% CI**		**n**	**Mean**	**95% CI**
15-24	488	70.5	66.7-74.3		544	74.4	70.4-78.4		1032	72.4	69.0-75.7
25-34	384	80.1	78.1-82.1		594	77.4	75.4-79.5		978	78.9	77.2-80.6
35-44	390	80.6	77.5-83.8		553	76.6	72.8-80.3		943	78.5	75.8-81.2
45-54	323	86.7	81.7-91.8		446	82.4	79.7-85.1		769	84.5	81.0-88.1
55-64	320	80.1	75.4-84.9		281	76.3	72.6-80.0		601	78.6	74.8-82.5
15-64	1905	77.6	74.5-80.6		2418	76.8	74.6-79.0		4323	77.2	74.8-79.6

In addition to the history (reported prevalence) of hypertension and diabetes, actual measurement of blood pressure was done during the survey. Table 55 shows figures of mean systolic and diastolic blood pressure. Mean systolic blood pressure was 125.7 and diastolic was 77.2 mm of Hg. Mean systolic blood pressure was higher for men compared to women. Highest levels of mean systolic and diastolic blood pressures were found to be confined to the age group 45-54 years for the both sexes.

Table 56 (a): Percentage of respondents with raised blood pressure

SBP ≥140 and/or DBP ≥ 90 mmHg										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**%**	**95% CI**		**n**	**%**	**95% CI**		**n**	**%**	**95% CI**
15-24	49	16.3	8.4-24.1		20	20.1	0.8-41.1		69	17.8	6.9-28.7
25-34	83	19.4	11.1-27.7		63	14.8	5.1-24.6		186	17.6	11.3-23.9
35-44	116	21.1	11.9-30.2		102	18.1	11.2-25.0		218	19.9	13.8-25.9
45-54	123	26.4	16.3-36.6		159	34.4	18.2-50.7		282	29.6	21.1-38.2
55-64	140	16.8	7.2-26.4		124	12.5	4.7-20.4		264	15.1	8.3-21.9
15-64	511	24.5	16.5-32.6		468	18.1	12.7-23.5		979	21.5	15.7-27.3

Table 56 (b): Percentage of respondents with raised blood pressure or on medication for raised blood pressure

SBP ≥140 and/or DBP ≥ 90 mmHg or currently on medication for raised blood pressure										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**%**	**95% CI**		**n**	**%**	**95% CI**		**n**	**%**	**95% CI**
15-24	49	16.0	8.4-23.7		20	19.8	0.9-40.5		69	17.5	6.8-28.3
25-34	83	19.2	10.9-27.4		64	14.9	5.3-24.6		147	17.5	11.3-23.7
35-44	118	21.0	12.1-29.9		106	18.1	11.3-24.8		224	19.8	13.9-25.7
45-54	132	26.7	16.8-36.6		167	34.3	18.4-50.2		299	29.8	21.4-38.1
55-64	144	17.1	7.6-26.7		133	12.9	5.1-20.8		277	15.4	8.6-22.2
15-64	526	36.0	26.0-46.1		490	26.2	19.8-32.6		1016	31.3	24.2-38.5

Table 56 shows that 24.5 percent (CI 16.5-32.6) of men and 18.1 percent (CI 12.7-23.5) of women with 21 percent in both sexes had hypertension measuring more than 140 mmHg systolic and 90 mmHg diastolic. In both sexes it was observed that people of 45-54 years age group had the highest prevalence of hypertension. It reveals that on average one in five adult people has hypertension, which is an alarming health condition among

Nepalese people. Table 56 (a) explains figures of hypertensive quite a high compared to table 56 (b) as this includes both unknown hypertensive, and hypertensive and taking drugs. This survey was carried out in general population and this many people are suffering from hypertension but they do not know their blood pressure status.

Table 57 (a): Percentage of respondents with raised blood pressure

SBP ≥160 and/or DBP ≥ 100 mmHg										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**%**	**95% CI**		**n**	**%**	**95% CI**		**n**	**%**	**95% CI**
15-24	49	2.7	3.3-8.7		20	4.9	5.6-15.4		69	3.4	2.0-8.8
25-34	83	4.2	1.7-10.1		63	11.4	0.9-23.8		186	6.5	1.9-11.0
35-44	116	11.7	1.2-24.6		102	15.2	3.5-33.8		218	12.8	1.0-24.6
45-54	123	72.9	48.2-97.6		159	58.3	36.7-80.0		282	68.4	46.7-90.0
55-64	140	8.4	1.6-18.4		124	10.2	0.6-20.9		264	9.0	0.4-17.6
15-64	511	3.2	0.7-5.7		468		97.1-99.7		979	2.4	0.8-4.1

Table 57 (b): Percentage of respondents with raised blood pressure or on medication for raised blood pressure

SBP ≥160 and/or DBP ≥ 100 mmHg or currently on medication for raised blood pressure										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**%**	**95% CI**		**n**	**%**	**95% CI**		**n**	**%**	**95% CI**
15-24	49	3.5	2.1-9.1		20	14.4	8.8-37.6		69	7.7	2.6-17.9
25-34	83	9.3	0.2-18.7		64	10.7	1.6-19.8		186	9.8	4.3-15.3
35-44	118	14.2	2.3-26.1		106	14.9	3.9-26.0		218	14.5	4.5-24.5
45-54	132	59.2	36.2-82.2		167	47.3	25.3-69.2		282	54.6	33.0-76.2
55-64	144	13.8	0.7-27.0		133	12.7	3.5-21.9		264	13.4	3.5-23.3
15-64	526	6.9	2.6-11.3		490	4.5	2.1-6.9		979	5.7	3.3-8.2

Hypertension crossing 160 mm of Hg systolic and 100 mm of Hg diastolic needs immediate attention. Table 57 (a) shows that 3.2 percent of men and 1.6 percent of women with 2.4 percent in both sexes had hypertension measuring more than 160 mmHg systolic and 100 mmHg diastolic. In both sexes, it was observed that people of 45-54 years age group had the highest prevalence of hypertension. This figures become quite a larger while including people under medication also (Table 57 (b).

Table 58: Mean heart rate among all respondents and percentage with a raised heart rate

Mean beats per minute										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	**Mean**	**95% CI**		**n**	**Mean**	**95% CI**		**n**	**Mean**	**95% CI**
15-24	487	76.2	73.2-79.1		544	84.2	81.5-86.8		1031	80.0	78.1-81.9
25-34	384	77.7	75.6-79.9		594	80.8	78.4-83.1		978	79.1	77.4-80.8
35-44	390	76.9	73.2-80.7		552	80.2	78.6-81.8		942	78.6	76.3-81.0
45-54	323	76.5	73.3-79.6		444	79.5	77.5-81.5		767	78.0	75.8-80.2
55-64	321	75.4	68.7-82.1		280	83.0	75.3-90.7		601	77.9	73.4-82.4
15-64	1905	76.6	74.8-78.4		2414	81.9	80.4-83.4		4319	79.1	77.6-80.5

Percentage with beats per minute over 100										
Age Group (years)	**Men**				**Women**				**Both Sexes**	
	n	%	95% CI		n	%	95% CI		**n**	**%**	**95% CI**
15-24	487	26.3	2.4-50.2		487	59.5	48.6-70.3		487	47.8	32.1-63.4
25-34	384	21.6	6.0-37.2		384	18.2	10.2-26.1		384	19.4	11.6-27.1
35-44	390	15.1	3.7-26.5		390	5.0	0.4-9.5		390	8.6	1.6-15.5
45-54	323	17.2	0.8-33.6		323	9.5	1.7-17.3		323	12.2	3.8-20.7
55-64	321	19.8	2.1-37.4		321	7.9	0.9-14.9		321	12.1	6.4-17.7
15-64	1905	4.0	2.3-5.6		1905	8.3	4.1-12.4		1905	6.0	3.3-8.7

Heart rate was examined during the survey as there was an opportunity to do the physical measurement and measurement of blood pressure. Mean heart rate was within normal range in the both sexes. Around 6 percent of the target population was having tachycardia and the sex variation was 4 percent versus 8 percent among men and women respectively. This tachycardia may be because of sub clinical infection as bacterial, viral infections are frequent among Nepalese people.

8. RAISED RISK

Presence of single risk factor for non communicable diseases increases the chance of acquiring NCD in any individual. Increased number of risk factors increases the chances of developing NCDs. For example, smoking increases the risk of developing lung cancer and if one smoker does not take adequate fruit and vegetables the chance of developing lung cancer doubles. As increased number and types of risk factor increases the chance of NCDs. This survey looked at respondents having different level of risk factors. Table 59 shows figures on number and proportion of respondents having no risk factors, 1-2 and more than three risk factors like smoking, low fruit and vegetable consumption, physical inactivity, overweight and hypertension..

Table 59: Percentage of respondents with 0, 1-2, or 3-5 of the following risk factors

aised Risk							
Age Group (years)	**Men**						
	n	**% with 0 risk factors**	**95% CI**	**% with 1-2 risk factors**	**95% CI**	**% with 3-5 risk factors**	**95% CI**
15-24	488	26.3	13.8-38.7	70.3	56.2-84.4	3.4	1.0-7.8
25-34	385	12.6	5.6-19.7	85.6	77.6-93.5	6.3	2.9-9.7
35-44	390	8.6	3.4-13.8	88.3	83.1-93.4	23.3	8.7-37.9
45-54	323	7.7	1.0-14.3	83.3	72.2-94.5	26.5	13.6-39.3
55-64	321	6.9	0.9-12.8	87.9	81.1-94.7	21.8	5.7-37.9
15-64	1907	15.6	9.8-21.4	80.4	73.9-86.9	12.5	7.3-17.6

Raised Risk							
Age Group (years)	**Women**						
	n	**% with 0 risk factors**	**95% CI**	**% with 1-2 risk factors**	**95% CI**	**% with 3-5 risk factors**	**95% CI**
15-24	545	27.1	11.4-42.8	70.5	51.7-89.4	0.4	0.1-0.8
25-34	594	16.7	7.0-26.3	82.2	71.4-92.9	3.3	1.0-5.6
35-44	553	8.1	2.0-14.3	85.6	74.2-97.0	7.1	2.8-11.4
45-54	447	11.8	1.2-22.4	79.2	66.8-91.7	15.1	7.1-23.0
55-64	282	8.1	4.9-21.1	89.9	76.8-103.0	15.5	5.4-25.7
15-64	2421	17.5	7.7-27.3	78.7	65.4-91.9	5.8	3.3-8.2
Raised Risk							
Age Group (years)	**Both Sexes**						
	n	**% with 0 risk factors**	**95% CI**	**% with 1-2 risk factors**	**95% CI**	**% with 3-5 risk factors**	**95% CI**
15-24	1033	26.7	14.9-38.5	70.4	56.1-84.8	1.9	0.4-4.3
25-34	979	14.4	7.9-21.0	84.0	76.9-91.2	5.0	2.6-7.3
35-44	943	8.4	3.6-13.1	86.9	80.1-93.7	14.9	6.3-23.5
45-54	770	9.8	3.5-16.0	81.2	71.9-90.5	20.6	14.0-27.3
55-64	603	7.3	0.7-15.4	88.7	80.3-97.1	19.4	7.3-31.5
15-64	4328	16.5	10.0-23.1	79.6	70.8-88.3	9.3	6.0-12.6

Around one in six Nepalese individual was found to be without risk factors for NCD, where more than four out of five was found to be having either one or more risk factor. Despite this alarming fact, encouraging scenario is that younger age group people were found to have larger proportion without risk factor for NCD. And this was more or less true for both the sexes.

Majority of people that were having NCD risk factors appeared to have one or two risk factors and less than one in 10 happened to have 3 or more risk factors. Looking at sex and harbouring of risk factors, men were relatively more to have multiple risk factors compared to women.

Table 60: Percentage of respondents with 0, 1-2, or 3 of the following risk factors

Raised Risk							
Age Group (years)	**Men**						
	n	**% with 0 risk factors**	**95% CI**	**% with 1-2 risk factors**	**95% CI**	**% with 3 risk factors**	**95% CI**
15-24	488	29.9	15.8-44.0	70.1	56.0-84.2	0.1	0.1-0.4
25-34	385	17.2	8.3-26.0	82.8	74.0-91.7	0.7	0.3-1.6
35-44	390	13.5	8.5-18.6	86.5	81.4-91.5	0.4*	0.0-0.9
45-54	323	18.3	7.1-29.4	81.7	70.6-92.9	1.2	0.2-2.7
55-64	321	12.7	5.9-19.5	87.3	80.5-94.1	1.2	0.3-2.7
15-64	1907	20.9	14.3-27.5	79.1	72.5-85.7	0.6	0.0-1.1

Raised Risk							
Age Group (years)	**Women**						
	n	**% with 0 risk factors**	**95% CI**	**% with 1-2 risk factors**	**95% CI**	**% with 3 risk factors**	**95% CI**
15-24	545	30.1	11.4-48.8	69.9	51.2-88.6	----	----
25-34	594	19.8	9.2-30.5	80.2	69.5-90.8	----	----
35-44	553	18.2	4.1-32.2	81.8	67.8-95.9	0.1	0.1-0.4
45-54	447	24.3	9.8-38.9	75.7	61.1-90.2	1.3	1.3-3.9
55-64	282	11.2	2.1-24.4	88.8	75.6-102.1	0.4	0.1-0.8
15-64	2421	23.3	9.5-37.1	76.7	62.9-90.5	0.3	0.1-0.7

Raised Risk							
Age Group (years)	**Both Sexes**						
	n	**% with 0 risk factors**	**95% CI**	**% with 1-2 risk factors**	**95% CI**	**% with 3 risk factors**	**95% CI**
15-24	1033	30.0	15.6-44.3	70.0	55.7-84.4	0.1	0.1-0.2
25-34	979	18.4	10.7-26.0	81.6	74.0-89.3	0.4	0.2-0.9
35-44	943	15.9	7.8-24.1	84.1	75.9-92.2	0.3*	0.0-0.5
45-54	770	21.4	11.0-31.8	78.6	68.2-89.1	1.3	0.3-2.8
55-64	603	12.1	3.6-20.5	87.9	79.5-96.4	0.9	0.1-1.9
15-64	4328	22.0	13.0-31.1	78.0	68.9-87.0	0.4	0.1-0.8

Table 60 takes care of target population having presence or absence of three major risk factors for NCD i.e. smoking, low fruit and vegetables, and physical inactivity. Of the population, 22 percent was found to have no risk factors whereas almost equal proportion of men and women were found not having these three risk factors. Presence of all three risk factors among target population was low 0.4 percent men having little than Women.

Chapter-3

CONCLUSION AND RECOMMONDATION

CONCLUSION

This survey was carried out with the aim of establishing a continuous surveillance mechanism (surveillance system) to the major risk factors for Non Communicable Diseases, recognized worldwide.

Data revealed that prevalence of both behavioural (tobacco use, alcohol consumption, low intake of fruits and vegetables and physical inactivity) and intermediate (obesity, high blood pressure) risk factors for major Non Communicable Diseases are remarkably high in prevalence in the general population. Among adult aged 15-64 years, 37 percent consume tobacco products; 28.5 percent drink alcohol and 60.5 percent men and 63.5 percent women do not take recommended amount of fruits and vegetables. Prevalence of common behavioural risk factors varies among age groups and sex. Similarly, 7 percent of them are overweight and 24.5 percent of men and 18.2 percent of women are hypertensive. However, only one in three hypertensive cases take antihypertensive measures. However, less than 6 percent of the adult population in country is involving in low level of physical activity.

Prevention and control of non-communicable diseases is a multifaceted and complex task for least developed countries like Nepal. It is mostly related with people's day to day behaviour, which takes a lot of time to change. Similarly, treatment, care and support for patients with NCDs is very expensive and not easily accessible to general people. However, it is an established fact that most common risk factors for NCDs such as tobacco use, excessive alcohol consumption, low intake of fruits and vegetables and physical inactivity and their consequences are easily modifiable and preventable. Therefore, as WHO has framed, priority for future interventions in establishing a public health surveillance system on NCDs should be focused on prevention and control of common and easily modifiable risk factors to prevent NCDs at large. At the same time, public health system should also be strengthened and scale up to improve health care to detect and treat or refer hypertensive, diabetics and overweight individuals.

RECOMMENDATIONS

Based on the survey findings, observation during field activities and interaction with local health stakeholders, the study team recommends the following points for consideration to develop and execute NCD surveillance system in Nepal.

General

- In the context of high prevalence of common and modifiable risk factors for NCDs, a national campaign for raising awareness on prevention and control of risk factors should be launched focusing on :
  - Control of tobacco production, distribution, consumption and demand reduction
  - harmful effects of excessive alcohol consumption
  - importance of daily vegetable and fruits intake
  - promotion of physical activity both in urban and rural settings
- This report has prepared according to WHO prescribed format. Further analysis can be carried out to understand the risk factors level in different settings as for example urban versus rural, educated versus non-educated, etc. Further analysis of the findings should be carried out to further understand the risk factors and other associated factors

For Ministry of Health and Population (MoHP)

- The existing Nepal Health Sector Implementation Plan (2004-2009) neither recognized nor prioritized the programmes related to prevention and control of non-communicable diseases but the same document has explicitly documented that burden of NCDs as 42.1 percent. It is now increasing in trend. This research has also clearly showed that the risk factors for NCDs are highly prevalent in economically productive age group. So, ministry of health and population should immediately develop and endorse NCD prevention and control policy and also should establish the NCDs and their risk factors surveillance system.
- Government has already ratified the WHO Framework Convention on Tobacco Control and initiated some forms of tobacco prevention and control activities. However, those activities are not adequate to implement the FCTC. So, Ministry of health and population should develop and implement a comprehensive FCTC implementation plan in coordination with other concerned ministries. Similarly, MoHP should work together with other ministries to implement controlled production and distribution of alcohol
- Prevention and control of NCDs covers a wise range of sectors such as education, traditional medicine, agriculture and local governance. So, MoHP should work together with line ministries to integrate NCD prevention and control interventions.

For DOHS

- DoHS, major implementing department of MoHP should develop guidelines, protocol and a system to implement NCD policy and plans.

- All hypertensive and diabetics should have access to modern health facilities as well as develop on adequate awareness to utilize those facilities. In addition to change the life styles, community awareness on the importance of monitoring blood pressure, blood glucose and cholesterol should be carried out.

- DoHS should establish a NCD Section in Epidemiology Division to implement and monitor NCD related activities.

For Hospitals and health care providing facilities.

- Physicians and health workers are mostly trained on prevention and control of communicable diseases. They have inadequate knowledge and skills on prevention and control of NCDs. Thus, physicians and health workers should be trained and refreshed on prevention and control measures of NCDs.

- Regular scrutiny of risk factors in the general population should be carried out by physicians and health workers and as accordingly, they have to provide health education to the community people.

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ANNEX-1

PROCESS OF WEIGHT CALCULATION

STEP 1 Calculation of individual probability (W1)

Step 1.1 Probability calculation of 15 selected districts out of 75 Districts

Out of 75 Districts, 15 Districts were selected using PPS method

Probability of selecting a district was calculated using the below mentioned formula

$$\text{Probability (A)} = \frac{\text{Population (15 - 64 years) of the selected districts}}{\text{Total population of all 75 district (15 - 64 years)}} \times 15$$

Step 1. 2a Probability calculation of 75 wards in rural area

Out of 6692 rural wards in 15 selected districts, 75 Wards were selected using PPS method The Probability of selection of the ward was calculated as :

$$\text{Probability (B1)} = \frac{\text{Population(15 - 64 years) of the selected ward in rural area}}{\text{Total population (15 - 64 years)of all wards in rural in 15 selected districts}} \times 75$$

Step 1.2b Probability calculation of 74 wards in urban area

Out of 217 urban wards in 15 *Nagarpalika* (cities), 74 Wards were selected using PPS and the Probability of selection of the ward was calculated as:

$$\text{Probability (B2)} = \frac{\text{Population(15 - 64 years) of selected ward in urban area (let x)}}{\text{Population (15 - 64 years)of all wards in urban in 15 selected NP of 12 districts}} \times 74$$

Step 1.3 Calculation of selection of household in both urban and rural area

Out of total households in a selected ward, households were drawn randomly. So Probability of selection of each household in each selected ward was calculated as:

$$\text{Probability (C)} = \frac{\text{number of sample household in a ward}}{\text{number of all households in that selected ward}}$$

Step 1.4 Calculation of selection of individuals in each household

Out of all members in the households, an eligible individual was selected using KISH method. So, Probability of selection of an individual in a household was calculated as:

$$\text{Probability (D)} = \frac{1}{\text{number of individual in the sample household}}$$

Step1.5 Calculation of sample (Individual weight) = W1

W1 = 1/ (Probability A*Probability B *Probability C *Probability D)

Note: Probability B = Probability B1 for Rural and Probability B2 for Urban)

step2. Calculating non response weight (W2)

Step 2.1 Calculating Response rate by using following formula

$$\text{Response rate (RR)} = \frac{\text{Collected number of samples}}{\text{Planned sample size}}$$

Step 2.2 Calculating Non Response weight by using following formula

Thus, **Non response weight=** $\frac{1}{\text{Response rate}}$

note: Since non response is not very significant and we did not calculate age sex segregated rate of non response.

step 3. Calculating Population Weight (W3)

While weighing, the data for age sex structure of sample using the age and sex structure of population. This was calculated for each age and sex structure in urban and rural area in each selected district. This was done using below mentioned formula:

$$W3 = \frac{\frac{\text{AgeSex of population}}{\text{Total population}}}{\frac{\text{Age Sex of sample}}{\text{Total sample}}}$$

Step 4. Calculating Total Weight (WT)

The total weight was calculated by multiplying all the weights (individual, non response and population weight)

$$WT = W1 * W2s1 * W3$$

ANNEX-2

NAME OF INTERVIEWERS AND SUPERVISORS

1) LIST OF INTERVIEWERS

1. Arjun Ghimire
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32. Bharat Klumar Rai
33. Bharat Mahaseth
34. Biltu Yadav
35. Binod Kumar Yadav
36. Birandra Marik Yadav
37. Kishma Hamal
38. Krishnadev Yadav
39. Laxmi Shah Kanu
40. Mamata Kumari Yadav
41. Nirmala Kumari Karki
42. Roshan Kumar Yadav
43. Roshani Kumari Phuyal
44. Sangita Pahadi
45. Sanjay Kumar Mahato
46. Sarita Basnet
47. Sumitra Kumari Chohan
48. Sunita Acharya
49. Tiraskar Hamal
50. Yeshoda Karki
51. Bishnu Khadka
52. Dhan Bdr Shrestha
53. Durga KC
54. Geeta Devi Sharma
55. Hari Bdr Magar
56. Jamuna Kafle
57. Jamuna Tamang
58. Krishana Dhungana
59. Meera Sharma
60. Raman Lakhey
61. Rupamina Sharma
62. Sita Budhatohki
63. Subarna Shrestha
64. Sunil Basnet
65. Sushil KC
66. Sushila Karki
67. Achyut Babu Ojha
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69. Upendra Shrestha
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12	Prakash Raj Sharma
13	Suraj Bhusal
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15	Dashi Lal Majhi
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ANNEX-3

LIST OF CONTRIBUTORS

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5.	Meghanath Dhimal	Research officer	NHRC
6.	DPHO Office		Bhaktapur
7.	DPHO Office		Lalitpur
8.	DHO Office		Makawanpur
9.	DPHO Office		Chitwan
10.	DPHO Office		Nawalparasi
11.	DPHO Office		Mahottari
12.	DHO Office		Siraha
13.	DPHO Office		Palpa
14.	DHO Office		Baglung
15.	DPHO Office		Kanchanpur
16.	DPHO Office		Dadeldhura
17.	DPHO Office		Morang
18.	DHO Office		Khotang
19.	DHO Office		Tehrathum
20.	Dr. Rajendra Giri	General Secretary	SOLID Nepal
21.	Ms. Karuna Bajracharya	Public Health Section Officer	Lalitpur Sub-Metropolitan City
22.	Mr. Khadga Shrestha	Lecturer	Asian College for Advance Studies, Lalitpur
23.	Mr. Nagdev Yadav	President	Community Development and Advocacy Forum-Nepal, Bardibaas, Mahottari

STEERING COMMITTEE AND ORGANIZING COMMITTEE

SN	Name of the person	Designation	Name of the organization	Remarks
1	Dr. Nirakar Man Shrestha	Chief Specialist and Focal Point NCD	Ministry of Health and Population	Principle Investigator NCD RF Survey 2007/08 Chairman NCD Steering and Organizing committee
2	Dr Baburam Marasani	Chief, Health Sector Reform	Ministry of Health and Population	Member Secretary, NCD Steering Committee
3	Mr. Uttam Narayan Malla	Deputy Director	Central Bureau of Statistics	Member Steering Committee
4	Dr Ramesh Kanta Adhikari	Dean	IOM	Member Steering Committee
5	Dr Sarad Onta	Member Secretary	NHRC	Member Steering Committee
6	Mr. Rishi Lamichane	DPHA	DPHO lalitpur	Member Organizing Committee
7	Dr BR Dahal	Sr. Medical Officer	Bir Hospital	Member Organizing Committee
8	Dr. Praddep Kumar Shrestha	Consultant	Astha Nepal	Member Organizing Committee
9	Dr RP Baral	Medical Director	Bhaktapur Cancer Hospital	Member Organizing Committee
10	Dr. Ilsa Nelwan	PHA	WHO, Country Office Nepal	Member Steering Committee
11	Dr Rajendra Kumar BC	Chief Research Officer	NHRC	Member Steering Committee
12	Dr. Khem Karki	Executive Director	SOLID Nepal	Co-PI, NCD RF Survey 2007/08, Member Organizing Committee
13	Mr. Sugam Bhajracharya	Statistician	SOLID Nepal	Member Organizing Committee
14	Rudhra Thakuri	Admin Assistant	WHO, Country Office Nepal	Member Organizing Committee

PROPOSAL WRITING CORE TEAM

SN	Name of the person	Designation
1	Dr. Nirakar Man Shrestha	Principle Investigator, NCD RF Survey 2007/08, Chairman NCD Steering and Organizing committee
2	Dr. Baburam Marasani	Member Secretary NCD Steering Committee,
3	Dr. BR Dahal	Senior Medical Officer, Bir Hospital
4	Dr. Khem Karki	Co- Principle Investigator
5	Mr. Sugam Bajracharya	Statistician

ANNEX-5

Version 2.0 **Respondent Identification Number** ☐☐ ☐☐ ☐☐☐

STEPS Instrument

Overview

Introduction

This is the generic STEPS Instrument template which sites/countries will use to develop their tailored instrument. It contains the:

- CORE items (unshaded boxes)
- EXPANDED items (shaded boxes)
- Response options for Step 1, Step 2 and Step 3

Core items

The Core items for each section ask questions required to calculate basic variables. For example:

- Current daily smokers
- Mean BMI

Note: All the core questions should be asked, removing core questions will impact the analysis.

Expanded items

The Expanded items for each section ask more detailed information. Examples include:

- Use of smokeless tobacco
- History of raised blood pressure

Guide to the columns

The table below is a brief guide to each of the columns in the Instrument.

Column	Description	Site Tailoring
Number	This question reference number is designed to help interviewers find their place if interrupted.	Renumber the instrument sequentially once the content has been finalized.
Question	Each question is to be read to the participants	• Select sections to use. • Add expanded and optional questions as desired.
Response	This column lists the available response options which the interviewer will be circling or filling in the text boxes. The skip instructions are shown on the right hand side of the responses and should be carefully followed during interviews.	• Add site specific responses for demographic responses (e.g. C5). • Change skips question identifiers from code to question number.
Code	The column is designed to match data from the instrument into the data entry tool, data analysis syntax, data book, and fact sheet.	This should never be changed or removed. The code is used as a general identifier for the data entry and analysis.

Note: It is recommended that you use both the core and expanded questions.

WHO STEPS INSTRUMENT FOR NON COMMUNICABLE DISEASES

RISK FACTORS SURVEY 2007, NEPAL

Survey Information

Location and Date		Response	Code
1	District code	⌊__⌋	I1
2	Centre/Village name	⌊__⌋	I2
3	Centre/Village code	⌊__⌋	I 3
4	Interviewer Identification	⌊__⌋	I 4
5	Date of completion of the instrument	⌊__⌋ ⌊__⌋ ⌊__⌋ dd mm year	I 5

Proceed only if participant is willing to provide answer

Give participants to read the consent or read out the consent aloud if respondent is not able to read out the consent.

Non Communicable Diseases are rising in Nepal. In this context, it's important that we recognize the risk factors and implement prevention programme against them. For the same purpose, we are conducting this survey. We need your support and cooperation. In the course of interview, we will ask you question and take physical measurement. We assure you that the information which you provide for the survey will be kept confidential and will be used for the purpose of survey only.

Circle the appropriate responses

Participant Id Number ☐☐ ☐☐ ☐☐☐

Consent, Interview Language and Name		Response			Code
6	Consent has been **read out** to participant	Yes No	1 2	If NO, read consent	I6
7	Consent has been **obtained** (verbal or written)	Yes No	1 2	**If NO, END**	I7
8	Interview **Language** [Insert Language	English	1		I8

Version 2.0 **Respondent Identification Number** ☐☐ ☐☐ ☐☐☐

	if other than English and Nepali] *If any other languages please mention it.* ☐	Nepali 2 Others 3	
9	**Time** of interview (24 hour clock)	☐☐ : ☐☐ hrs mins	I9
10	**Family Name** of interview	----------	I10
11	First Name	----------	I11

Additional Information that may be helpful

12	Contact phone number where possible	☐☐☐☐☐☐☐☐☐☐	I12
13	Specify whose phone	Work 1 Home 2 Neighbour 3 Other (specify) 4 ----------	I13

Record and file identification information (I6 to I13) separately from the completed questionnaire.

Step 1 Demographic Information

CORE: Demographic Information

Questions		Response		Code
14	**Sex** (*Record Male / Female as observed)*	Male Female	1 2	C1
15	What is your **date of birth**? *Don't Know 77 777 7777*	☐☐ ☐☐ ☐☐☐☐ *If known, go to C4* dd mm year		C2
16	**How old** are you?	Years	☐☐	C3
17	In total, **how many** years have you spent at school or in full-time study (excluding pre-school)?	Years	☐☐	C4

EXPANDED: Demographic Information		**Response**		**Code**
18a	What is your [*insert relevant ethnic group / racial group / cultural subgroup / others*] background?	Brahmin/kshetri	1	C5a
		Newar	2	
		Indigenous/ Janjati(s)	3	
		Dalits	4	
		Others (Please mention) ----------	5	
		Refused	8	
18b	**Marital status**	Unmarried	1	C5b
		Married	2	
		Divorced/ separated	3	
		Widow/er	4	
		Refused	8	
18c	**Religion**	Hindu	1	C5c
		Buddha	2	
		Muslims	3	
		Christians	4	
		others (specify) ----------	5	
		Refused	8	
19	What is the **highest level** of education you have completed? [*INSERT COUNTRY-SPECIFIC CATEGORIES]*	No formal schooling	1	C6
		Less than primary	2	
		Primary school	3	
		Secondary school	4	
		Intermediate or higher secondary school	5	
		College/University completed	6	
		Post graduate degree and above	7	
		Refused	8	
20	Which of the following best describes your **<u>main</u> work** status over the last 12 months? [*INSERT COUNTRY-SPECIFIC CATEGORIES]* (*USE SHOWCARD)*	Government employee	1	C7
		Non-government	2	
		Self-employed	3	
		Non-paid	4	
		Student	5	
		Homemaker	6	
		Retired	7	
		Unemployed (able to	8	
		Unemployed (unable to	9	
		Refused	88	
21	How many people **older than** 15 years, including yourself, live in your household?	Number of people	⌊_⌊_⌋	C8

22	Taking **the past year**, can you tell me what the average earnings of the household have been? *(RECORD ONLY ONE, NOT ALL 3)*	Per week	⌊⌊⌊⌊⌊⌊⌊⌋ *Go to T1*	C9a
		OR per month	⌊⌊⌊⌊⌊⌊⌊⌋ *Go to T1*	C9b
		OR per year	⌊⌊⌊⌊⌊⌊⌊⌋ *Go to T1*	C9c
		Refused	8	C9d
23	If you don't know the amount, can you give an **estimate** of the annual household income if I read some options to you? Is it *[INSERT QUINTILE VALUES]* *(READ OPTIONS)*	≤ 4003	1	C10
		More than 4003 and 6727	2	
		More than 6727 and ≤ 9697	3	
		More than 9697 ≤ 14917	4	
		More than 14917 ≤ 40486	5	
		Don't Know	7	
		Refused	8	

Step 1 Behavioral Measurements

Now I am going to ask you some questions about various health behaviors. This includes things like smoking, drinking alcohol, eating fruits and vegetables and physical activity. Let's start with tobacco.

CORE: Tobacco Use

Questions		Response		Code
24	Do you currently (daily or less than daily/or occasional) smoke any **tobacco products**, such as bidi, hukah, cigarettes, cigars or pipes)?	Yes	1	T1
		No	2 *If No, go to T6*	
25	**<u>If Yes,</u>** Do you currently smoke tobacco products **daily**?	Yes	1	T2
		No	2 *If No, go to T6*	
26	How old were you when you **first started** smoking daily? *Don't remember 777*	Age (years)	⌊⌊⌋ *If Known, go to T5a*	T3
27	Do you remember **how long ago** it was? *(RECORD ONLY 1, NOT ALL 3)* *Don't remember 777*	In Years	⌊⌊⌋ *If Known, go to T5a*	T4a
		OR in Months	⌊⌊⌋ *If Known, go to T5a*	T4b
		OR in Weeks	T4c	

28	On average, **how many** of the following do you smoke each day? *(RECORD FOR EACH TYPE)* *Don't remember 777*	Manufactured cigarettes └┴┴┴┘	ipes full of tobacco (Hukkah, Chilim, etc) └┴┴ ┘	
		Cheroots, cigarillos	└┴┴┴┘	T5e
		Other (please specify): ---------- ----	└┴┴┴┘	T5f

EXPANDED: Tobacco Use				
Questions		**Response**		**Code**
Past tobacco use *(If currently smoking, please go to T10)*				
29	In the past, did you **ever** smoke any form of tobacco such as bidi, hukah, cigarettes, cigars or pipes **daily**?	Yes	1	T6
		No	2 *If No, go to T10*	
30	**If yes**, **which** of the following products did you use most frequently and in what amount?	Manufactures Cigarettes	└┴┴┴┘	T7
		Hand rolled Cigarettes (Kakat, etc)	└┴┴┴┘	
		Pipes full of tobacco (Hukkah, Chilim, etc)	└┴┴┴┘	
		bidi	└┴┴┴┘	
		Cigar/Cherrots/Cigarillos	└┴┴┴┘	
		Others (please specify) ----------	└┴┴┴┘	
31	How **long ago** did you stop smoking daily? *(RECORD ONLY 1, NOT ALL 3)* Don't remember 777	Years ago	└┴┴┴┘ *If Known, go to T10*	T8a
		OR Months ago	└┴┴┘ *If Known, go to T10*	T8b
		OR Weeks ago	└┴┘	T8c
32	How old were you when you **stopped** smoking **daily**? Don't remember 777	Age (years)	└┴┴┴┘ *If Known, go to T10*	T9

For occasional and experimental Tobacco users *(need not be asked to current daily smokers)*				
33	How many times in a month do you smoke? **(smokers only)**	Number of time	⌊_⌊_⌋	T10
34	**Which** one of these products do you use?	Manufactures Cigarettes	*1*	T11
		Hand rolled Cigarettes (Kakat, etc)	*2*	
		Pipes full of tobacco (Hukkah, Chilim, etc)	*3*	
		bidi	*4*	
		Cigar/Cherrots/Cigarillos	*5*	
		Others(please specify) ----------	*6*	
Smokeless tobacco product use				
35	Do you **currently use** any **smokeless tobacco** such as [nasal *snuff , Khaini, surti, Gutka,, betel, quid with tobacco (Jarda pan), or*	Yes	1	T12
		No	2 *If No, go to T15*	
36	**<u>If Yes,</u>** Do you **currently use smokeless tobacco** products **daily?**	Yes	1	T13
		No	2 *If No, go to T15*	
37	On average, how many **times a day** do you use such tobacco products? *(RECORD FOR EACH TYPE)* Don't Know 777	Snuff, by mouth *Khaini, surti*	⌊_⌊_⌊_⌋	T14a
		Snuff, by nose	⌊_⌊_⌊_⌋	T14b
		Chewing tobacco *such as Gutka,Panmasala*	⌊_⌊_⌊_⌋	T14c
		Betel, quid with tobacco	⌊_⌊_⌊_⌋	T14d
		Other applying tobacco product such as Gul (specify) ----------	⌊_⌊_⌊_⌊_⌋	T14e
Past Smokeless tobacco product use *(Do not ask if currently using smokeless product go to T 17)*				
38	**In the past,** did you **ever use** smokeless tobacco such as [nasal *snuff, Khaini, surti, Gutka,, betel, quid with tobacco (Jarda pan) or applying tobacco product such as Gul)* **daily**?	Yes	1	T15
		No	*2 if no go to T19*	

39	**If yes which** one of these products (nasal *snuff, Khaini, surti, Gutka, betel, quid with tobacco (Jarda pan, or applying tobacco product such as Gul* did you use?	Snuff, by mouth *Khaini, surti*	*1*	**T16**
		Snuff, by nose	*2*	
		Chewing tobacco *such as Gutka,Panmasala*	*3*	
		Betel, quid with tobacco	*4*	
		Others applying tobacco product such as Gul ⌊_⌊_⌊_⌊_⌊_⌊_⌋	*5*	
Occasional Smokeless tobacco product use *(Do not ask to current daily smokeless tobacco product users)*				
40	**How many times** in a month do you use smokeless tobacco products smokeless tobacco products (*nasal snuff, Khaini, surti, Gutka,, betel, quid with tobacco (Jarda pan), or applying tobacco product such as Gul*)?	Number of time	⌊_⌊_⌋	**T17**
41	**Which** of these products did you used?	Snuff, by mouth *Khaini, surti*	*1*	**T18**
		Snuff, by nose	*2*	
		Chewing tobacco *such as Gutka,Panmasala*	*3*	
		Betel, quid with tobacco	*4*	
		Others applying tobacco product such as Gul (specify) ----------	*5*	
Cause for non use				
42	If you **do not** take any tobacco products**, why** don't you take those products?	Long term health effects	*1*	**T19**
		Short term Health and Cosmetic effects	*2*	
		Economic Reasons	*3*	
		Moral/religious reasons	*4*	
		Pressure from Families or friends	*5*	
		Not good to use	*6*	
		Others (Specify) ----------	*7*	
For Current Tobacco Users only				
43	**How much** do you **spend** on tobacco products (both for smoking or smokeless varieties)? *In Local Currency*	Money in NRs	⌊_⌊_⌊_⌊_⌊_⌊_⌋	**T20**
For tobacco product changers *(Do not ask to those who do not use)*				
44 a	Have you **changed** on to	*Yes*	*1*	**T21**

	another tobacco product?	*No*	*2 if no go T25*	
44 b	If yes, which products did you **change**?	Smoking to smokeless	*1*	**T22**
		Smokeless to smoking	*2*	
44 c	**Why** did you change the tobacco products?	Save money	*1*	**T23**
		Easiness	*2*	
		less harmful	*3*	
		to quit the habit	*4*	
		Others (specify) ----------	*5*	
44 d	For **how long** have you changed the tobacco products?	Number of years	☐☐	**T24.a**
		Number of months	☐☐	**T24.b**
Quit Questions		**Response**		**Code**
45 a	Have you ever **thought of** giving up or cut-down tobacco use (smoking as well as smokeless)?	Not yet	1	**T25**
		Thought previously	2	
		Thinking now	3	
		Quit completely	4	
45 b	What made you think of **stopping or cutting down?**	Long term health effects	1	**T26**
		Short term/ cosmetic effects	2	
		Economic impact to self/ family	3	
		Moral or religious reasons	4	
		Negative perception of tobacco use: foolish/weak	5	
		Pressure from family or friends	6	
		Other (specify) ----------	7	
46 a	Have you ever made **any attempts** to give-up tobacco use (smoking as well as smokeless)?	Yes	1	**T27**
		No	2 if no go to T.33	
46 b	If so, approximately **how many times** have you tried to stop? *During last 12 months (Number of attempts)*	*(Number of attempts)*	☐☐	**T28**

46 c	How did you try to quit? (What **method** did you use?) *Consider latest attempts if there has been more than one attempt?* (*tick the best option)*	Self Determination	1	**T29**
		Support of family or friends only	2	
		Doctors/health workers	3	
		NRT	4	
		other (specify) ----------	5	
46 d.	Have you ever **been able to** quit tobacco use for a period of six months or more?	Yes	1	**T30**
		No	2 If no go to T32	
47 a	What **method** did you use for your successful attempts?	Self Determination	1	**T31**
		Support of family or friends only	2	
		Doctors/health workers	3	
		NRT	4	
		other (specify) ----------	5	
47 b	Which method did you use for your **unsuccessful attempts** in last 12 months?	Self Determination	1	**T32**
		Support of family or friends only	2	
		Doctors/health workers	3	
		NRT	4	
		other (specify) ----------	5	
Use of tobacco by family and friends				
48.a	Does/Did your **Father** use any form of tobacco?	Did not use /does not use	1	**T33**
		Used to smoke but stooped	2	
		Used to take smokeless tobacco but stopped	3	
		Smokes now	4	
		Uses smokeless tobacco now	5	
		Uses both smoke and smokeless.	6	
48.b	Does/Did your **mother** use any form of tobacco?	Did not use /does not use	1	**T34**
		Used to smoke but stooped	2	
		Used to take smokeless tobacco but stopped	3	
		Smokes now	4	
		Uses smokeless tobacco now	5	
		Uses both smoke and smokeless	6	
48.c	Does/Did any of the **siblings of family** and /or **near friend** of yours use any form of tobacco?	Did not use /does not use	1	**T35**
		Used to smoke but stooped	2	
		Used to take smokeless tobacco but stopped	3	
		Smokes now	4	
		Uses smokeless tobacco now	5	

		Uses both smoke and smokeless	6	
Knowledge of effects of tobacco use				
49.a	Do you **know** that tobacco use is harmful?	Yes	1	**T36**
		No	2 *If no go to T40*	
		Do not know	7 *if don't know, go to T40*	
49.b	If yes, Do you know of any **health effects** of tobacco	Heart Diseases	1	**T37**
		Respiratory disease	2	
		Cancers	3	
		Problems with teeth / gums	4	
		Impotence	5	
Passive smoking (Exposed to smoke from tobacco smoked by others)				
50	Do you **know** that passive smoking is harmful?	Yes	1	**T38**
		No	2 *If no go to T40*	
		Do not know	7 *If don't know, go to T40*	
51	If yes, what are the **health effects** of passive smoking?	Lung illness	1	**T39**
		Heart attack	2	
		Sudden Infant death	3	
		Others ----------	5	
52	Do you know, money **spent** to buy tobacco products make people poorer?	Yes	1	**T40**
		No	2	
		Do not know	7	
Perception of tobacco use and the tobacco industry				
53.a	**Why** do people use tobacco? *Help the respondent to explore out the causes for using tobacco product.* *circle only one option*	Fun	1	**T41**
		Manly/Strong/rebellious/ adult	2	
		Sophisticated	3	
		Relaxing	4	
		Foolish/weak	5	
		Repulsive/disgusting	6	
		Immoral/sinful	7	
		Other (Specify) ----------	8	

53.b	What do you **think** about the tobacco industry?	Provides jobs	1	**T42**
		Helps Sports, art and other sectors	2	
		Provides government with revenue	3	
		Kills our citizens	4	
		Causes harm to the economy of families and country and to environment	5	
		Other (specify) ----------	6	
Support for measures for tobacco control				
54.a	In general, do you **support t**he government taking measures to reduce tobacco use?	Yes	1	**T43**
		No	2	
		Do not know	7	
54.b	Which of the **following measures** do you specifically support or oppose?	Support	1	
	• Government **banning advertising, promotion, and sponsorships** of the tobacco products	Oppose	2	**T44**
		Do not know	7	
	• **Increasing** price of tobacco products	Support	1	**T45**
		Oppose	2	
		Do not know	7	
	• **Banning** smoking in public places and public transport	Support	1	**T46**
		Oppose	2	
		Do not know	7	
	• **Banning** sale of tobacco to and by minors	Support	1	**T47**
		Oppose	2	
		Do not know	7	

CORE: Alcohol Consumption

The next questions ask about the consumption of alcohol.

Questions		Response		Code
55	Have you consumed alcohol (such as beer, wine, spirits, fermented cider or *[Raksi, Jaand, Tungba, Tari, etc]* within the **past 12 months**? *(USE SHOWCARD OR SHOW EXAMPLES)*	Yes	1	A1
		No	2 *If No, go to D1*	

56	In the past 12 months, **how frequently** have you had at least one drink? *(READ RESPONSES* *USE SHOWCARD)*	Daily	1	A2
		5-6 days per week	2	
		1-4 days per week	3	
		1-3 days per month	4	
		Only some times	5	
		In special occasion	6	
57	When you drink alcohol, **on average**, how many drinks do you have during one day?	Number Don't know 77	☐☐	A3
58	Have you consumed alcohol (such as beer, wine, spirits, fermented cider or *[Raksi, Jaand, Tungba, Tari, etc]* within the **past 30 days**? *(USE SHOWCARD OR SHOW EXAMPLES)*	Yes	1	A4
		No	2 *If No, go to A 6*	
59	During each of the **past 7 days**, how many standard drinks of any alcoholic drink did you have each day? *(RECORD FOR EACH DAY* *USE SHOWCARD)* Don't Know 77	Monday	☐☐	A5a
		Tuesday	☐☐	A5b
		Wednesday	☐☐	A5c
		Thursday	☐☐	A5d
		Friday	☐☐	A5e
		Saturday	☐☐	A5f
		Sunday	☐☐	A5g

EXPANDED : Alcohol Consumption

Questions		Response		Code
60	In the past 12 months, what was the **largest number** of drinks you had on a single occasion, counting all types of standard drinks together?	Largest number	☐☐	A6
61	**For men only:** In the past 12 months, on how many days did you have **five or more** standard drinks in a single day?	Number of days	☐☐☐	A7
62	**For women only**: In the past 12 months, on how many days did you have **four or more** standard drinks in a single day?	Number of days	☐☐☐	A8

EXPANDED : Only for Alcohol Consumers

Questions		Response		Code
63.a	What type of alcohol do you use **most frequently**?	Beer	1	*A9*
		Western liquor	2	
		Country legal Liquor	3	

		Country illegal Liquor	4	
		Home brew	5	
		Other (specify) ----------	6	
63.b	**What happens** when you take alcohol	Nothing or minor effects	1	*A10*
		Discomfort (Headache, Nausea and indigestion)	2	
		Major effects (Drowsiness, vomiting, LOC, Medical Rx)	3	
63.c	**How often** do you drink until you suffer from major effects (above mentioned effects)	Never	1	*A11*
		Special Occasion	2	
		1-3/ month	3	
		2-4/week	4	
		Daily or almost daily	5	
64.a	At what age (Approximately) did you **first consume** alcohol?	Age in years	⌊__⌋⌊__⌋	*A12*
64.b	What **situation** did you use it	special occasion	1	*A13*
		with friends	2	
		Alone	3	
		Others(specify) ----------	4	
64.c	What **type of alcohol** did you use when you first consume	Beer	1	*A14*
		Western liquor	2	
		Country legal Liquor	3	
		Country illegal Liquor	4	
		Home brew	5	
		Other (specify) ----------	6	
Relation between drinking and getting payment (*to be asked to those who earn only)*				
65.a	Do you usually **drink on pay day**	Yes	1	*A15*
		No	2	
65.b	What is the **pattern of payment** you get?	Daily	1	*A16*
		Weekly	2	
		Monthly	3	
		Others (specify) ----------	4	
65.c	How do you **get** your pay?	Cash to hand	1	*A17*
		Bank deposit	2	
		In kind	3	
66	Do you **have a strong urge** to need a drink **every day**	Yes	1	*A18*
		No	2	

67.a	Have you ever **felt the necessity of reducing** the quantity of liquor since you started drinking liquor?	Yes No	1 2	*A19*
67.b	Have you ever **quarreled with anyone** in influence of alcohol since you started drinking in past 3 months?	Yes No	1 2	*A20*
67.c	Have you ever **regretted for drinking** since you started drinking alcohol?	Yes No	1 2	A21
67.d	Have you ever **felt the necessity of drinking early in the morning** since you started drinking	Yes No	1 2	*A22*

CORE: Diet

The next questions ask about the fruits and vegetables that you usually eat. I have a nutrition card here that shows you some examples of local fruits and vegetables. Each picture represents the size of a serving. As you answer these questions please think of a typical week in the last year.

Questions	Response	Code

68	In a typical week, on how many days do you **eat fruit**? *(USE SHOWCARD)*	Number of days Don't Know 77	☐☐ *If Zero days, go to D3*	D1
69	How many **servings** of fruit do you eat on **one** of those days? (*USE SHOWCARD)*	Number of servings Don't Know 77	☐☐	D2
70	In a typical week, on how many days do you **eat vegetables**? *(USE SHOWCARD)*	Number of days Don't Know 77	☐☐ *If Zero days, go to D5*	D3
71	How many **servings** of vegetables do you eat on one of those days? *(USE SHOWCARD)*	Number of servings Don't Know 77	☐☐	D4

EXPANDED: Diet

72	What type of **oil or fat is most often** used for meal preparation in your household? *(USE SHOWCARD SELECT ONLY ONE)*	Vegetable oil	1	D5
		Lard or suet	2	
		Butter or ghee	3	
		Vanespati ghee	4	
		None in particular	5	
		None used	6	
		Other(specify) ----------	7	

CORE: Physical Activity

Next I am going to ask you about the time you spend doing different types of physical activity in a typical week. Please answer these questions even if you do not consider yourself to be a physically active person.

Think first about the time you spend doing work. Think of work as the things that you have to do such as paid or unpaid work, study/training, household chores, harvesting food/crops, fishing or hunting for food, seeking employment. *[Insert other examples if needed].* In answering the following questions 'vigorous-intensity activities' are activities that require hard physical effort and cause large increases in breathing or heart rate, 'moderate-intensity activities' are activities that require moderate physical effort and cause small increases in breathing or heart rate.

Questions	Response	Code
Activity at work (work related)		
73 *Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like [carrying or lifting heavy loads, digging or construction work] for at least 10 minutes continuously?* *[INSERT EXAMPLES] (USE SHOWCARD)*	Yes 1 No 2 *If No, go to P 4*	P1
74 *In a typical week, on how many days do you do vigorous-intensity activities as part of your work?*	Number of days ⌊__⌋	P2
75 *How much time do you spend doing vigorous-intensity activities at work on a typical day?*	⌊__⌋⌊__⌋ Hours : minutes hrs ⌊__⌋⌊__⌋ mins	P3.a P3.b
76 *Does your work involve moderate-intensity activity that causes small increases in breathing or heart rate such as brisk walking [or carrying light loads] for at least 10 minutes continuously?* *[INSERT EXAMPLES] (USE SHOWCARD)*	Yes 1 No 2 *If No, go to P 7*	P4
77 *In a typical week, on how many days do you do moderate-intensity activities as part of your work?*	Number of days ⌊__⌋	P5
78 *How much time do you spend doing moderate-intensity activities at work on a typical day?*	⌊__⌋⌊__⌋ Hours : minutes hrs ⌊__⌋⌊__⌋ mins	P6.a P6.b
Travel to and from places		

Version 2.0 **Respondent Identification Number** ☐☐ ☐☐ ☐☐☐

The next questions exclude the physical activities at work that you have already mentioned. Now I would like to ask you about the usual way you travel to and from places. For example to work, for shopping, to market, to place of worship. [insert other examples if needed]

79	Do you walk or use a bicycle (*pedal cycle*) for at least 10 minutes continuously to get to and from places?	Yes 1 No 2 *If No, go to P 10*	P7
80	In a typical week, on how many days do you walk or bicycle for at least 10 minutes continuously to get to and from places?	Number of days ☐☐	P8
81	How much time do you spend walking or bicycling for travel on a typical day?	☐☐☐ Hours : minutes hrs ☐☐☐ mins	P9.a P9.b

Recreational activities

The next questions exclude the work and transport activities that you have already mentioned. Now I would like to ask you about sports, fitness and recreational activities (leisure), [insert relevant terms].

82	Do you **do** any vigorous-intensity sports, fitness or recreational (*leisure*) activities that cause large increases in breathing or heart rate like [*running or football,]* for at least 10 minutes continuously? *[INSERT EXAMPLES] (USE SHOWCARD)*	Yes 1 No 2 *If No, go to P 13*	P10
83	In a typical week, on **how many** days do you do vigorous-intensity sports, fitness or recreational (*leisure*) activities?	Number of days ☐☐	P11
84	How much **time** do you **spend** doing vigorous-intensity sports, fitness or recreational activities on a typical day?	☐☐☐ Hours : minutes hrs ☐☐☐ mins	P12.a P12.b

85	Do you **do** any **moderate-intensity** sports, fitness or recreational *(leisure*) activities that causes a small increase in breathing or heart rate such as brisk walking,(*cycling, swimming, volleyball*)for at least 10 minutes continuously? *[INSERT EXAMPLES] (USE SHOWCARD)*	Yes 1 No 2 *If No, go to P16*	P13
86	In a typical week, on how many days do you do moderate-intensity sports, fitness or recreational (*leisure*) activities?	Number of days ☐☐	P14

87	How much time do you spend doing moderate-intensity sports, fitness or recreational (*leisure*) activities on a typical day?	Hours : minutes	⌊_⌊_⌋ hrs ⌊_⌊_⌋ mins	P15.a P15.b

Sedentary behaviour

The following question is about sitting or reclining at work, at home, getting to and from places, or with friends including time spent [sitting at a desk, sitting with friends, travelling in car, bus, train, reading, playing cards or watching television], but do not include time spent sleeping.
[INSERT EXAMPLES] (USE SHOWCARD)

88	How much time do you usually spend sitting or reclining on a typical day?	Hours : minutes ⌊_⌊_⌋ hrs ⌊_⌊_⌋ mins	P16a P16b

EXPANDED: History of Raised Blood Pressure

	Questions	Response	Code
89	When was your blood pressure last measured by a health professional?	Within past 12 months 1 1-5 years ago 2 Not within past 5 years 3 Never checked 4	H1
90	During the past 12 months have you been told by a doctor or other health worker that you have raised blood pressure or hypertension?	Yes 1 No 2 if no go to H6	H2
91	Are you currently receiving any of the following treatments for raised blood pressure prescribed by a doctor or other health worker as well as any advice?		
	Drugs (medication) that you have taken in the last 2 weeks	Yes 1 No 2	H3a
	Special prescribed diet	Yes 1 No 2	H3b
	Advice or treatment to lose weight	Yes 1 No 2	H3c
	Advice or treatment to stop smoking	Yes 1 No 2	H3d
	Advice to start or do more exercise	Yes 1 No 2	H3e
92	During the past 12 months have you seen a traditional healer for raised blood pressure or hypertension	Yes 1 No 2	H4
93	Are you currently taking any herbal or traditional remedy for your raised blood pressure?	Yes 1 No 2	H5

Version 2.0 **Respondent Identification Number** ☐☐ ☐☐ ☐☐☐

EXPANDED: History of Diabetes

Questions		Response	Code
94	Have you had your blood sugar measured in the last 12 months?	Yes 1 No 2 if no go to M1	H6
95	During the past 12 months, have you ever been told by a doctor or other health worker that you have diabetes?	Yes 1 No 2 if no go to M1	H7

96	Are you currently receiving any of the following treatments for diabetes prescribed by a doctor or other health worker as well as any advice?

	Insulin	Yes 1 No 2	H8a
	Oral drug (medication) that you have taken in the last 2 weeks	Yes 1 No 2	H8b
	Special prescribed diet	Yes 1 No 2	H8c
	Advice or treatment to lose weight	Yes 1 No 2	H8d
	Advice or treatment to stop smoking	Yes 1 No 2	H8e
	Advice to start or do more exercise	Yes 1 No 2	H8f
97	During the past 12 months have you seen a traditional healer for diabetes?	Yes 1 No 2	H9
98	Are you currently taking any herbal or traditional remedy for your diabetes?	Yes 1 No 2	H10

Step 2 Physical Measurements

CORE: Height and Weight		Response	Code
99	Interviewer ID	☐☐☐☐	M1
100	Device IDs for height and weight	Height ☐☐☐	M2a
		Weight ☐☐☐	M2b
101	Height	in Centimetres (cm) ☐☐☐☐.☐	M3
102	Weight *If too large for scale, code 666.6*	in Kilograms (kg) ☐☐☐☐.☐	M4
103	***(For women)*** Are you pregnant?	Yes *1 If Yes, go to M 8* No *2*	M5
CORE: Waist			
104	Device ID for waist	☐☐☐	M6
105	Waist circumference	in Centimeters (cm) ☐☐☐☐.☐	M7

CORE: Blood Pressure			
106	Interviewer ID	⌊_⌋⌊_⌋⌊_⌋	M8
107	Device ID for blood pressure	⌊_⌋⌊_⌋	M9
108	Cuff size used	Small 1 Medium 2 Large 3	M10
109	Reading 1	Systolic (mmHg) ⌊_⌋⌊_⌋⌊_⌋	M11a
		Diastolic (mmHg) ⌊_⌋⌊_⌋⌊_⌋	M11b
110	Reading 2	Systolic (mmHg) ⌊_⌋⌊_⌋⌊_⌋	M12a
		Diastolic (mmHg) ⌊_⌋⌊_⌋⌊_⌋	M12b
111	Reading 3	Systolic (mmHg) ⌊_⌋⌊_⌋⌊_⌋	M13a
		Diastolic (mmHg) ⌊_⌋⌊_⌋⌊_⌋	M13b
112	During the past two weeks, have you been treated for raised blood pressure with drugs (medication) prescribed by a doctor or other health worker?	Yes 1 No 2	M14

EXPANDED: Hip Circumference and Heart Rate				
113	Hip circumference	in Centimeters (cm)	⌊_⌋⌊_⌋⌊_⌋.⌊_⌋	M15
114	Heart Rate (Record if automatic blood pressure device is used)			
	Reading 1	Beats per minute	⌊_⌋⌊_⌋⌊_⌋	M16a
	Reading 2	Beats per minute	⌊_⌋⌊_⌋⌊_⌋	M16b
	Reading 3	Beats per minute	⌊_⌋⌊_⌋⌊_⌋	M16c

ANNEX-6

Standards used for Alcohol, Fruits & Vegetables, Physical Activity and Physical Measurement

Types of Alcohol	Concentration of alcohol (%)	1 Standard Drink=
Beer, *Jaand, Tongba*	5%	250 ml
Locally made alcohol *(Raksi)*	27 %	45 ml
Whisky, Rum, Vodka (Spirti)	40%	30 ml.
Wine (RED & White)	12%	105 ml.

VEGETABLES are considered to be:	**1 serving=**	**Examples**
Raw green leafy vegetables	1 cup	spinach, salad etc.
Other vegetables, cooked or chopped raw	½ cup	Tomatoes, carrots, pumpkin, corn, Chinese cabbage, fresh beans, onion, etc.
Vegetable juice	½ cup	
FRUITS are considered to be:	**1 serving=**	**Examples**
Apple, banana, orange	1 medium size piece	
Chopped, cooked, canned fruit	½ cup	
Fruit juice	½ cup	Juice from fruit, not artificially flavored

One standard serving = 80 grams

WORK RELATED PHYSICAL ACTIVITY	
MODERATE **Intensity Activities** Makes you breathe somewhat harder than normal	**VIGOROUS** **Intensity Activities** Makes you breathe much harder than normal
Examples: • Cleaning (vacuuming, mopping, polishing, scrubbing, sweeping, ironing) • Washing (beating and brushing carpets, wringing clothes (by hand)	**Examples:** • Forestry (cutting, chopping, carrying wood) • Sawing hardwood • Ploughing

• Gardening • Milking cows (by hand) • Planting and harvesting crops • Digging dry soil (with spade) • Weaving • Woodwork (chiselling, sawing softwood) • Mixing cement (with shovel) • Labouring (pushing loaded wheelbarrow, operating jackhammer) • Walking with load on head • Drawing water • Tending animals	• Cutting crops (sugar cane) • Gardening (digging) • Grinding (with pestle) • Labouring (shovelling sand) • Loading furniture (stoves, fridge) • Instructing spinning (fitness) • Instructing sports aerobics • Sorting postal parcels (fast pace) • Cycle rickshaw driving
LEISURE/SPARE TIME RELATED PHYSICAL ACTIVITY	
MODERATE **Intensity Activities** Makes you breathe somewhat harder than normal	**VIGOROUS** **Intensity Activities** Makes you breathe much harder than normal
Examples: • Cycling • Jogging • Dancing • Horse-riding • Tai chi • Yoga • Pilates • Low-impact aerobics • Cricket	**Examples:** • Soccer • Rugby • Tennis • High-impact aerobics • Aqua aerobics • Ballet dancing • Fast swimming

BMI = Weight (Kg)/ Height in meter^2

Definitions for categories of relative weight

BMI (kg/me^2)	Category of relative weight
<18.5	Underweight
18.5-24.9	Normal weight
25.0-29.9	Grade I overweight
30.0-39.9	Grade II overweight
>40.0	Grade III overweight (Morbid obesity)

Note: For Asian people WHO has recommended BMI of 18.5-22.0 kg/m^2 as normal category

ANNEX-7

Further Analysis of Alcohol and Tobacco

THE TABLES

1. DEMOGRAPHIC INFORMATION OF THE STUDY POPULATION

Age and sex wise distribution of study population

Age Group (years)	Male		Female		Total	
	n	%	n	%	n	%
15-24	488	25.6	545	22.5	1033	23.9
25-34	385	20.2	594	24.5	979	22.6
35-44	390	20.5	553	22.8	943	21.8
45-54	323	16.9	447	18.5	770	17.8
55-64	321	16.8	282	11.6	603	13.9
15-64	1907	44.1	2421	55.9	4328	100.0

Area and sex wise distribution of study population

Area	Male		Female		Total	
	n	%	n	%	n	%
Urban	978	51.3	1244	51.4	2173	50.2
Rural	929	48.7	1177	48.6	2155	49.8
Total	1907	44.1	2421	55.9	4328	100.0

2. CURRENT USE OF ALCOHOL

2.1 Current alcohol users by age and sex in total population

Age Group (years)	Male			Female			Total		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	152	31.1	19.3-43.0	43	13.9	4.3-23.5	195	26.6	14.7-38.5
25-34	206	53.5	43.1-63.9	108	21.7	10.5-32.9	314	37.5	28.4-46.6
35-44	214	54.9	42.4-67.3	120	30.1	15.2-45.1	334	45.4	33.5-57.4
45-54	154	47.7	38.1-57.2	101	37.1	17.4-56.9	255	47.9	29.5-66.3
55-64	149	46.4	37.5-55.3	62	20.8	5.7-36.0	211	46.5	36.1-57.0
15-64	875	45.9	36.1-55.7	434	22.7	13.1-32.2	1309	37.3	28.7-45.9

2.2 Current alcohol users by types of alcohol most often used

Type of alcohol	Male		Female		Total	
	n	%	n	%	n	%
Beer	139	8.9	29	1.5	168	6.8
Imported Alcohol	41	1.7	6	0.2	47	1.2
Legally produced Alcohol	112	10.8	16	1.1	128	8.0
Illegally produced alcohol	70	6.4	20	2.6	90	5.3
Home made alcohol	494	70.2	314	89.3	808	75.7
Other	19	2.1	49	5.3	68	3.0
Total	875		434		1309	

2.3 Current alcohol users by area specific population

Area	Male		Female		Total	
	n	**%**	**n**	**%**	**n**	**%**
Urban	492	51.0	232	32.	724	37.5
Rural	383	50.3	202	23.1	585	37.2
Total	875		434		1309	

2.4 Area specific current alcohol users by type of alcohol most often used

Type of alcohol	Urban		Rural		Total	
	n	**%**	**n**	**%**	**n**	**%**
Beer	128	17.3	40	4.4	168	6.8
Imported Alcohol	36	2.7	11	0.9	47	1.2
Legally produced Alcohol	80	8.3	48	7.9	128	8.0
Illegally produced alcohol	40	6.6	50	5.0	90	5.3
Home made alcohol	401	61.7	407	78.9	808	75.7
Other	39	3.3	29	3.0	68	3.0
Total	724		585		1309	37.3

3. FREQUENCY OF ALCOHOL USE

3.1 Frequency of alcohol use by sex among all respondents

Frequency of use	Male		Female		Total	
	n	%	n	%	n	%
Non user	1032	49.6	1987	77.3	3019	62.7
On special occasions only	139	13.1	155	16.0	294	13.9
Sometimes	300	29.6	179	48.6	479	35.1
1 – 3 times a month	112	9.2	32	8.2	144	8.9
1 – 4 times a week	124	14.2	21	11	145	13.3
5-6 times a week	32	2.6	9	2.9	41	2.7
Daily or almost daily	168	31.3	38	13.3	206	26.1
Total	**1907**		**2421**		**4328**	

3.2 Frequency of alcohol use by age group among all respondents

Frequency of use	15-24 years		25-34 years		35-44 years		45-54 years		55-64 years		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Non user	838	73.4	665	62.5	609	54.6	515	52.1	392	53.5	3019	62.7
On special occasions only	70	18.0	85	13.3	68	12.5	45	6.1	26	20.1	294	13.9
Sometimes	95	46.7	119	39.1	119	36.6	72	21.0	74	22.8	479	35.1
1 – 3 times a month	15	2.3	39	15.4	39	6.3	26	6.3	25	19.8	144	8.9
1 – 4 times a week	4	2.2	35	20.5	44	18.5	41	18.2	21	8.4	145	13.3
5-6 times a week	2	0.7	9	2.9	9	3.7	12	5.0	9	1.3	41	2.7
Daily or almost daily	9	30.1	27	8.7	55	22.5	59	43.3	56	27.6	206	26.1
Total	1033		979		943		770		603		4328	

3.3 Area specific frequency of alcohol use among all respondents

Frequency of use	Urban		Rural		Total	
	n	%	n	%	n	%
Non user	1431	62.5	1588	62.8	3019	62.7
On special occasions only	234	35.4	60	9.0	294	13.9

Sometimes	216	26.9	263	37.0	479	35.1
1 – 3 times a month	84	11.4	60	8.4	144	8.9
1 – 4 times a week	96	11.7	49	13.6	145	13.3
5-6 times a week	18	2.9	23	2.6	41	2.7
Daily or almost daily	76	11.7	130	29.4	206	26.1
Total	2155		2173		**4328**	

3.4 Frequency of alcohol use by type of alcohol most often consumed

Type of alcohol	Sp. Occasions		Sometimes		1-3 times a month		1-4 times a week		5-6 times a week		Daily		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Beer	72	32.2	66	54.7	16	10.0	10	2.0	3	1.0	1	0.1	168	6.8
Imported Alcohol	8	6.7	19	54.0	8	8.6	10	26.9	1	0.8	1	3.0	47	1.2
Legally produced Alcohol	20	12.6	47	42.2	30	23.1	19	14.8	1	0.8	11	6.6	128	8.0
Illegally produced alcohol	9	13.3	32	36.1	13	17.7	13	9.2	5	8.1	18.	15.6	90	5.3
Home made alcohol	153	11.9	300	33.1	72	6.8	90	14.6	28	2.2	165	31.4	808	75.7
Other	32	30.4	15	14.3	5	6.6	3	3.7	3	14.2	10	30.8	68	3.0
Total	294	13.9	479	35.1	144	8.9	145	13.3	41	2.7	206	26.1	1309	

4. IMPACT OF USE

Discomfort – headache, nausea, indigestion. Major effects- drowsiness, vomiting, Loss of consciousness, medical treatment

4.1 Sex wise distribution of Harmful effects (Impact) of alcohol use among current drinkers

Impact	Male		Female		Total	
	n	%	n	%	n	%
Nothing / minor	737	68.6	405	95.4	1142	76.4
Discomfort	121	22.5	28	4.3	149	17.2
Major	17	8.9	1	0.3	18	6.4
Total	875		434		1309	

4.2 Age group-wise distribution of Harmful effects (Impact) of alcohol use among current drinkers

Impact	15-24 years		25-34 years		35-44 years		45-54 years		55-64 years		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Nothing / minor	168	62.0	264	75.0	288	86.4	228	89.5	194	72.9	1142	76.4
Discomfort	24	32.3	44	16.2	43	12.3	22	7.2	16	10.6	149	17.2
Major	3	5.7	6	8.8	3	1.3	5	3.3	1	16.5	18	6.4
Total	195		314		334		255		211		1309	

4.3 Area-wise distribution of harmful effects (Impact) of alcohol use among current drinkers.

Impact	Urban		Rural		Total	
	n	%	n	%	n	%
Nothing /minor	651	90.6	491	73.1	1142	76.4
Discomfort	69	9.0	80	19.1	149	17.2
Major	4	0.3	14	7.8	18	6.4
Total	724		585		1309	

4.4 Sex-wise distribution of harmful effects (Impact) of alcohol use among daily or almost drinkers.

* This is to obtain an idea of frequent light alcohol use in the Region. Currently this pattern of use is being emphasised in other areas of the world due to its possible effect on CHD

Impact	Male		Female		Total	
	n	%	n	%	n	%
Nothing /minor	133	59.5	36	89.4	169	63.9
Discomfort	32	31.7	2	10.6	34	28.6
Major	3	8.8	0	--	3	7.5
Total	168		38		206	

5. MAJOR IMPACT (HEAVY DRINKING)

5.1 Harmful effects (Impact) of alcohol by frequency of use among current drinkers

Frequency of use	Male		Female		Total	
	n	%	n	%	n	%
No heavy use	731	71.2	417	94.9	1148	78.1
On special occasions only	127	16.4	16	4.7	143	13.0
1 – 3 times a month	13	12.0	1	0.3	14	8.7
1 – 3 times a week	4	0.4	0	--	4	0.3
Daily or almost daily	0	--	0	--	0	--
Total	875		434		1309	

6. PAY DAY DRINKING

6.1 Pay day drinking by type of alcoholic preparations among current drinkers

Type of alcohol	Male		Female		Total	
	n	%	n	%	n	%
Beer	14	8.6	0	--	14	8.6
Imported Alcohol	1	0.3	0	--	1	0.3
Legally produced Alcohol	16	13.3	0	--	16	13.2
Illegally produced alcohol	15	5.7	0	--	15	5.7
Home made alcohol	84	72.1	5	100.0	89	72.3
Other	0	--	0	--	0	--
Total	130		5		135	

6.2 Area specific pay day drinking of alcohol among current drinkers

Area	Male			Female			Total		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Urban	80	30.0	17.2-42.8	4	8.4	0.0-19.0	84	27.2	15.0-39.4
Rural	50	43.6	23.4-63.7	1	0.9	0.0-3.0	51	41.9	22.6-61.2
Total	130	40.4	25.3-55.5	5	4.8	0.0-10.8	135	38.2	23.9-52.5

7. THOSE WHO HAVE "STRONG URGE" TO HAVE ALCOHOL

7.1 "Strong urge to drink" by area

Area	Male		Female		Total	
	n	%	n	%	n	%
Urban	68	13.8	5	1.3	73	11.3
Rural	79	37.3	29	14.9	108	31.0
Total	147	32.4	34	12.9	181	27.3

7.2 "Strong urge to drink" by age among the current drinkers

Age Group (years)	Male			Female			Total		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	6	36.8	0.0-84.6	2	2.9	0.0-9.6	8	29.5	0.0-72.9
25-34	22	16.2	0.0-36.4	5	3.1	0.0-7.8	27	12.6	0.0-26.7
35-44	39	26.4	5.5-47.2	10	14.0	5.4-22.6	49	22.4	8.9-35.9
45-54	42	53.7	38.4-68.9	12	26.4	6.5-46.3	54	43.2	33.0-53.5
55-64	38	29.9	7.8-52.1	5	19.9	1.0-38.9	43	29.0	8.2-49.7
15-64	147	32.4	15.8-49.0	34	12.9	3.3-22.6	181	27.3	14.3-40.3

8. AGE OF INITIATION

8.1 Mean Age of initiation of alcohol use by sex among current drinkers

Age Group (years)	Male			Female			Total		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
15-24	143	16.6	15.3-17.9	41	16.4	14.9-17.8	184	16.6	15.7-17.4
25-34	193	18.6	17.1-20.2	100	18.4	17.0-19.7	293	18.5	17.3-19.8
35-44	207	20.9	19.1-22.7	115	19.9	15.0-24.7	322	20.5	18.4-22.6
45-54	147	19.2	16.3-22.0	91	22.0	16.4-27.6	238	20.2	17.1-23.3
55-64	145	24.1	20.4-27.8	53	25.1	13.4-36.9	198	24.3	20.6-27.9
Total	835	19.4	18.1-20.7	400	19.6	17.9-21.3	1235	19.5	18.6-20.4

8.2 Mean Age of initiation of alcohol use by area among current drinkers

Age Group (years)	Urban			Rural			Total		
	n	Mean	95% CI	n	Mean	95% CI	n	Mean	95% CI
15-24	111	16.7	15.7-17.8	73	16.5	15.5-17.5	184	16.6	15.7-17.4
25-34	153	18.0	15.8-20.2	140	18.7	17.1-20.3	293	18.5	17.3-19.8
35-44	187	20.8	16.2-25.3	135	20.5	18.0-23.0	322	20.5	18.4-22.6
45-54	123	20.8	19.8-21.8	115	20.1	16.3-23.9	238	20.2	17.1-23.3
55-64	93	22.8	16.1-29.5	105	24.5	20.3-28.8	198	24.3	20.6-27.9
Total	667	19.2	16.7-21.7	568	19.5	18.5-20.6	1235	19.5	18.6-20.4

9. ALCOHOL DEPENDENCY

9.1 Age group and sex wise Alcohol dependency among current drinkers (According to CAGE Scale : Yes ≥2)

Age Group (years)	Male			Female			Total		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	13	14.8	0.0-35.4	5	3.5	0.0-8.5	18	9.4	0.0-20.9
25-34	41	13.9	3.2-24.7	7	1.2	0.0-2.5	48	8.3	2.0-14.5
35-44	59	17.0	7.1-27.0	2	0.4	0.0-1.3	61	8.4	2.9-13.9
45-54	40	12.7	4.2-21.2	6	2.2	0.0-5.4	46	7.3	3.6-11.0
55-64	34	16.4	7.7-25.0	4	1.1	0.0-2.9	38	10.4	3.9-17.0
Total	187	14.9	6.7-23.0	24	2.0	0.0-4.7	211	8.8	4.3-13.3

9.2 Area specific Alcohol dependency among current drinkers (According to CAGE Scale)

Area	Male			Female			Total		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
Urban	93	8.5	5.6-11.3	6	0.4	0.0-1.0	99	4.9	3.2-6.5
Rural	94	16.4	5.9-26.9	18	2.4	0.0-5.7	112	9.7	3.9-15.4
Total	187	14.9	6.7-23.0	24	2.0	0.0-4.7	211	8.8	4.3-13.3

STUDY OF PREVALENCE OF TOBACCO USE

1. MONTHLY AVERAGE EXPENSES ON TOBACCO USE (NRS)

	Male			Women			Both Sexes		
Age group	**n**	**Mean (NRS.)**	**95 % CI**	**n**	**Mean (NRS.)**	**95 % CI**	**n**	**Mean (NRS.)**	**95 % CI**
15-24	88.0	185.5	83.0-288.0	8	87.8	8.0-167.7	96	175.9	74.0-277.9
25-34	195.0	203.3	151.3-255.2	46	94.1	56.5-131.8	241	187.3	143.2-231.5
35-44	228.0	191.7	143.9-239.6	91	128.4	76.6-180.3	319	177.8	137.1-218.4
45-54	218.0	150.2	99.5-201.0	114	90.1	56.5-123.6	332	127.9	90.2-165.6
55-64	195.0	177.8	115.4-240.2	81	125.9	94.3-157.5	276	161.0	127.5-194.6
TOTAL	924.0	181.7	145.8-217.7	340	106.8	85.7-128.0	1264	163.4	136.3-190.5

2. REASONS FOR NOT USING TOBACCO PRODUCTS

AGE GROUP	**Male**																	
	Long term health effects			**Short term health and cosmetic effects**			**Economic reasons**			**moral/religious reasons**			**pressure from family or friends**			**others**		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**
15-24	224	65.6	56.6-74.7	4	1.6	0.0-4.3	3	1.6	0.0-4.0	53	11.4	3.3-19.6	37	7.1	3.8-10.4	60	12.6	5.6-19.7
25-34	89	55.1	41.9-68.4	9	8.2	0.0-18.6	2	1.8	0.0-5.6	29	6.0	0.3-11.8	14	6.9	0.0-15.2	37	21.9	7.7-36.1
35-44	71	52.1	27.5-76.6	10	22.8	1.5-47.2	2	0.2	0.0-0.7	24	9.1	2.0-16.2	13	9.3	3.1-15.5	26	6.6	1.9-11.2
45-54	48	60.5	44.8-76.1	5	4.8	0.0-10.4	2	0.5	0.0-1.4	17	19.3	0.8-37.7	7	4.0	0.2-7.7	15	11.0	2.6-19.4
55-64	65	67.4	55.3-79.6	5	3.9	0.0-8.3	4	3.3	0.0-8.6	11	13.5	3.5-23.6	10	6.4	0.0-13.7	14	5.5	0.0-1.6
TOTAL	497	61.5	55.3-67.7	33	5.6	0.3-11.0	13	1.5	0.1-3.0	134	10.4	4.6-16.1	81	7.1	4.2-10.0	152	13.9	7.6-20.2

AGE GROUP	Female																	
	Long term health effects			Short term health and cosmetic effects			Economic reasons			moral/religious reasons			pressure from family or friends			others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	273	53.9	35.6-72.1	11	1.5	0.0-3.3	4	0.4	0.0-1.0	112	19.9	9.3-30.5	19	1.3	0.3-2.4	104	23.0	11.4-34.5
25-34	199	36.1	25.9-46.2	17	3.5	1.1-6.0	9	1.9	0.0-4.0	137	26.7	10.4-42.9	27	4.0	1.6-6.4	146	27.8	15.5-40.1
35-44	158	46.0	25.6-66.5	10	0.9	0.1-1.7	9	1.6	0.0-3.4	89	19.3	8.7-30.0	38	7.8	1.7-13.8	137	24.3	12.3-36.4
45-54	103	38.9	26.9-50.8	10	3.3	0.0-7.0	9	4.5	0.2-8.7	62	18.9	8.8-29.0	31	8.1	0.0-16.8	109	26.4	10.1-42.6
55-64	75	34.9	16.8-53.0	5	3.5	0.0-7.1	1	0.3	0.0-1.0	45	34.9	13.1-56.7	14	10.0	0.2-19.8	51	16.4	8.8-24.0
TOTAL	808	46.2	35.3-57.1	53	2.1	0.8-3.4	32	1.4	0.4-2.3	445	21.8	12.9-30.8	129	4.1	1.8-6.5	547	24.4	14.8-34.0

AGE GROUP	Both sexes																	
	Long term health effects			Short term health and cosmetic effects			Economic reasons			moral/religious reasons			pressure from family or friends			others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	273	53.9	35.6-72.1	11	1.5	0.0-3.3	4	0.4	0.0-1.0	112	19.9	9.3-30.5	19	1.3	0.3-2.4	104	23.0	11.4-34.5
25-34	199	36.1	25.9-46.2	17	3.5	1.1-6.0	9	1.9	0.0-4.0	137	26.7	10.4-42.9	27	4.0	1.6-6.4	146	27.8	15.5-40.1
35-44	158	46.0	25.6-66.5	10	0.9	0.1-1.7	9	1.6	0.0-3.4	89	19.3	8.7-30.0	38	7.8	1.7-13.8	137	24.3	12.3-36.4
45-54	103	38.9	26.9-50.8	10	3.3	0.0-7.0	9	4.5	0.2-8.7	62	18.9	8.8-29.0	31	8.1	0.0-16.8	109	26.4	10.1-42.6
55-64	75	34.9	16.8-53.0	5.0	3.5	0.0-7.1	1	0.3	0.3-1.0	45.0	34.9	13.1-56.7	14.0	10.0	0.2-19.8	51.0	16.4	8.8-24.0
TOTAL	808	46.2	35.3-57.1	53	2.1	0.8-3.4	32	1.4	0.4-2.3	445	21.8	12.9-30.8	129	4.1	1.8-6.5	547	24.4	14.8-34.0

3. CHANGE IN TOBACCO HABIT

3.1 Change in tobacco habits

	Male			Female			Both sexes		
Age group	n	%	95 % CI	n	%	95 % CI	n	%	95 % CI
15-24	6	18.6	0.0-39.9	0	--	--	6	16.3	0.0-35.2
25-34	10	6.9	1.6-15.4	2	7.8	0.0-21.6	12	7.0	0.0-14.7
35-44	32	30.7	11.1-50.2	8	18.2	2.3-34.0	40	29.1	12.0-46.2
45-54	27	26.3	3.4-49.2	14	56.9	38.7-75.2	41	30.1	10.0-50.2
55-64	33	17.6	6.5-28.6	7	17.1	7.9-26.3	40	17.5	7.8-27.2
TOTAL	108	11.1	5.3-16.8	31	4.8	0.7-9.0	139	9.5	5.1-14.0

3.2 Change in Tobacco habits (Smoke to Smokeless or Smokeless to Smoke)

Male						
	Smoke to Smokeless			Smokeless to Smoke		
Age group	n	%	95 % CI	n	%	95 % CI
15-24	6	22.5	0.0-47.6	0	--	--
25-34	9	8.2	0.0-19.0	1	0.8	0.0-2.7
35-44	28	26.1	5.5-46.7	4	52.1	4.8-99.3
45-54	23	29.0	1.7-56.3	4	13.4	0.0-33.8
55-64	28	14.2	4.9-23.4	5	33.7	0.0-80.3
TOTAL	94	82.4	65.3-99.5	14	17.6	0.5-34.7

Female						
	Smoke to Smokeless			Smokeless to Smoke		
Age group	n	%	95 % CI	n	%	95 % CI
15-24	0	--	--	0	--	--
25-34	2	8.5	0.0-26.4	0	--	--
35-44	8	19.9	1.3-38.4	0	--	--
45-54	10	52.9	27.9-77.9	0	--	--
55-64	7	18.7	6.6-30.8	4	100	100.0-100.0
TOTAL	27	91.4	79.9-103.0	**4**	8.6	0.0-20.1

Both sexes						
	Smoke to Smokeless			Smokeless to Smoke		
Age group	n	%	95 % CI	n	%	95 % CI
15-24	6	19.5	0.0-41.2	0	--	--
25-34	11	8.2	0.0-17.8	1	0.8	0.0-2.5
35-44	36	25.3	7.4-43.1	4	48.7	4.0-93.4
45-54	33	32.3	8.9-55.6	8	19.0	0.0-42.0
55-64	35	14.8	6.7-22.8	5	31.5	0.0-75.2
TOTAL	121	83.6	68.5-98.6	18	16.4	1.4-31.5

3.2. Reasons to change in tobacco habits (Smoke to smokeless or Smokeless to smoke)

AGE GROUP	Male														
	Save money			Easy to use			less harmful			To quit tobacco habit			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	0	--	--	2	66.2	9.7-122.7	0	--	--	3	32.1	0.0-87.1	1	1.7	0.0-5.8
25-34	0	--	--	1	2.8	0.0-9.2	3	57.3	1.5-113.1	3	17.0	0.0-45.8	3	23.0	0.0-65.1
35-44	2	7.1	0.0-16.7	5	6.3	0.2-12.4	14	54.7	29.3-80.1	8	30.4	1.5-59.3	3	1.5	0.0-4.0
45-54	2	5.9	0.0-18.0	5	5.3	0.0-13.9	10	71.3	34.1-108.6	6	5.7	0.0-14.0	4	11.8	0.0-29.7
55-64	2	1.3	0.0-3.4	3	33.2	0.0-81.1	14	15.3	0.0-36.5	8	11.1	0.0-27.4	6	39.2	0.0-84.3
TOTAL	6	4.0	0.0-7.9	16	21.6	3.1-40.2	41	42.2	25.1-59.2	28	19.9	4.8-34.9	17	12.4	0.2-24.5

AGE GROUP	Female														
	Save money			Easy to use			less harmful			To quit tobacco habit			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	0	--	--	0	--	--	0	--	--	0	--	--	0	--	--
25-34	0	--	--	1	88.8	88.8-88.8	0	--	--	1	11.2	11.2-11.2	0	--	--
35-44	1	6.8	0.0-21.8	1	34.5	0.0-95.0	2	46.0	0.0-109.6	1	1.1	0.0-3.5	3	11.7	0.0-31.1
45-54	0	--	--	2	0.9	0.0-2.7	2	14.0	0.0-40.6	7	47.4	0.0-97.2	3	37.8	0.0-97.1
55-64	0	--	--	2	34.6	0.0-79.0	3	19.8	0.0-47.3	0	--	--	2	45.6	0.0-100.0
TOTAL	1	1.2	0.0-3.9	6	19.6	0.0-44.4	7	19.7	6.8-32.6	9	28.1	0.0-61.5	8	31.4	0.0-75.5

AGE GROUP	Both Sexes														
	Save money			Easy to use			less harmful			To quit tobacco habit			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	0	--	--	2	66.2	9.9-122.5	0	--	--	3	32.1	0.0-87.0	1	1.7	0.0-5.8
25-34	0	--	--	2	14.6	0.0-41.9	3	49.4	0.0-100.0	4	16.2	0.0-40.5	3	19.8	0.0-55.4
35-44	3	7.1	0.0-16.2	6	8.5	0.4-16.6	16	54.0	29.1-78.9	9	28.1	1.0-55.2	6	2.3	0.0-5.2
45-54	2	4.5	0.0-13.3	7	4.2	0.0-10.2	12	57.9	18.1-97.6	13	15.5	0.0-33.6	7	17.9	0.0-40.7
55-64	2	1.1	0.0-2.8	5	33.3	0.0-75.0	17	15.9	0.0-34.8	8	9.7	0.0-23.3	8	40.0	0.0-80.2
TOTAL	7	3.6	0.1-7.2	22	21.4	4.7-38.1	48	39.4	23.8-54.9	37	20.9	7.7-34.1	25	14.7	2.9-26.6

4. TOBACCO QUIT STATUS

4.1 Attempt to Quit Tobacco

AGE GROUP	Male											
	No			Thought previously			Thinking now to quit			Quit Completely		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	47	67.4	37.7-97.0	6	2.5	0.0-5.6	36	28.0	1.6-54.4	2	2.2	0.0-6.4
25-34	106	52.4	36.5-68.3	13	5.5	0.0-11.6	76	42.1	26.2-58.0	0	--	--
35-44	118	52.8	36.8-68.8	19	5.0	1.2-8.8	92	42.2	26.3-58.2	0	--	--
45-54	121	71.5	55.0-88.1	28	13.1	3.3-22.9	66	15.3	4.4-26.3	0	--	--
55-64	127	77.2	64.0-90.5	24	7.0	0.4-13.7	40	15.7	2.5-28.9	0	--	--
TOTAL	519	63.7	51.6-75.8	90	6.6	3.6-9.7	310	29.3	18.3-40.2	2	0.4	0.0-1.2

Female												
AGE GROUP	No			Thought previously			Thinking now to quit			Quit Completely		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	5	85.5	58.8-100	1	8.6	0.0-28.0	2	5.9	0.0-19.4			
25-34	26	65.7	37.5-93.9	7	4.8	0.0-9.9	13	29.5	2.6-56.4			
35-44	54	69.9	47.3-92.6	16	20.8	0.0-44.2	21	9.2	1.9-16.5			
45-54	69	69.9	50.0-89.9	15	4.6	0.0-9.2	31	25.5	5.8-45.1			
55-64	61	83.7	63.2-104.2	10	10.0	0.0-22.9	11	6.3	0.0-14.9			
TOTAL	215	74.1	62.4-85.7	49	9.3	3.6-15.1	78	16.6	6.9-26.3			

Both sexes												
AGE GROUP	No			Thought previously			Thinking now to quit			Quit Completely		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	52	69.1	43.9-94.2	7	3.1	0.0-6.6	38	25.9	3.9-47.9	2	1.9	0.0-5.7
25-34	132	54.3	40.6-68.1	20	5.4	0.0-10.9	89	40.3	26.8-53.8	0	--	--
35-44	172	56.6	43.3-69.9	35	8.5	1.3-15.6	113	35.0	21.6-48.3	0	--	--
45-54	190	70.9	57.7-84.2	43	9.9	4.3-15.5	97	19.1	7.9-30.3	0	--	--
55-64	188	79.4	65.5-93.2	34	8.0	1.4-14.7	51	12.6	1.8-23.4	0	--	--
TOTAL	734	66.2	55.0-77.5	139	7.3	3.9-10.7	388	26.2	16.1-36.2	2	0.3	0.0-0.9

4.2 Reasons for thinking to stop or cut down tobacco use among current tobacco users

AGE GROUP	Male																				
	Long term health effects			Short term cosmetic effects			Economic impact to self/family			Moral or religious reasons			Negative perception of tobacco use: foolish/weak			Pressure from family or friends			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	19	50.5	17.6-83.4	5	12.0	0.0-29.2	7	21.3	3.5-39.1	2	3.7	0.0-9.8	1	3.2	0.0-9.5	5	6.1	0.0-14.0	3	3.2	0.0-8.9
25-34	47	51.5	25.8-77.3	11	25.0	0.7-49.3	8	7.2	1.1-13.3	3	1.5	0.0-3.4	5	2.6	0.0-5.7	10	9.2	0.5-17.9	5	3.0	0.0-6.8
35-44	64	46.6	26.2-67.0	10	16.4	3.2-29.6	10	18.5	0.0-43.5	3	0.9	0.0-2.3	10	10.0	0.0-20.6	11	7.2	0.0-16.2	3	0.5	0.0-1.1
45-54	54	38.7	18.7-58.6	7	20.1	0.0-45.8	12	18.2	1.6-34.8	2	0.7	0.0-2.1	4	2.7	0.0-6.7	8	10.0	0.0-20.4	6	9.6	0.0-24.6
55-64	41	64.4	34.7-94.0	4	2.4	0.0-6.2	7	22.1	0.0-50.8	1	0.6	0.0-1.8	5	4.8	0.0-12.3	2	1.0	0.0-2.9	4	4.6	0.0-11.7
TOTAL	225	49.3	39.2-59.4	37	17.1	6.6-27.5	44	16.2	7.1-25.4	11	1.5	0.0-3.0	25	5.1	0.5-9.6	36	7.3	2.5-12.1	21	3.6	7.0

AGE GROUP	Female																				
	Long term health effects			Short term cosmetic effects			Economic impact to self/family			Moral or religious reasons			Negative perception of tobacco use: foolish/weak			Pressure from family or friends			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	2	91.6	71.3-100.0	0	--	--	0	--	--	0	--	--	0	--	--	0	--	--	1	8.4	0.0-28.7
25-34	10	67.0	32.1-100.0	1	2.5	0.0-8.0	8	21.3	0.0-42.6	0	--	--	0	--	--	0	--	--	1	9.2	0.0-27.5
35-44	17	68.6	33.3-100.0	3	6.5	0.0-18.5	6	14.5	0.0-37.8	1	0.2	0.0-0.6	1	0.9	0.0-2.8	6	7.2	0.0-18.8	2	2.2	0.0-5.9
45-54	20	28.5	0.9-56.2	7	8.8	0.0-22.1	5	40.4	0.0-86.3	1	0.1	0.0-0.2	1	5.7	0.0-17.1	8	15.5	0.0-35.0	2	1.0	0.0-3.2
55-64	13	57.9	36.7-79.2	0	--	--	3	20.3	0.0-41.4	0	--	--	0	--	--	2	12.2	0.0-38.3	3	9.6	0.0-22.9
TOTAL	62	49.9	29.1-70.6	11	5.6	0.0-11.9	22	27.3	3.7-50.9	2	0.1	0.0-0.2	2	2.7	0.0-7.9	16	10.4	1.6-19.2	9	4.1	0.1-8.1

AGE GROUP	Both sexes																				
	Long term health effects			Short term cosmetic effects			Economic impact to self/family			Moral or religious reasons			Negative perception of tobacco use: foolish/weak			Pressure from family or friends			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	21	52.5	21.1-83.9	5	11.5	0.0-27.9	7	20.3	3.3-37.2	2	3.6	0.0-9.3	1	3.0	0.0-9.0	5	5.8	0.0-13.3	4	3.5	0.0-8.9
25-34	57	53.2	30.0-76.4	12	22.5	0.6-44.5	16	8.8	2.8-14.7	3	1.3	0.0-3.0	5	2.3	0.0-5.1	10	8.2	0.7-15.7	6	3.7	0.0-8.8
35-44	81	49.9	30.3-69.4	13	14.9	3.4-26.5	16	17.9	0.0-39.2	4	0.8	0.0-2.0	11	8.6	0.0-18.0	17	7.2	0.0-15.1	5	0.7	0.0-1.5
45-54	74	34.7	16.6-52.9	14	15.7	0.0-33.1	17	26.8	3.8-49.8	3	0.5	0.0-1.3	5	3.9	0.0-9.0	16	12.2	3.6-20.7	8	6.3	0.0-15.6
55-64	54	62.7	39.9-85.6	4	1.8	0.0-4.6	10	21.7	0.0-43.6	1	0.4	0.0-1.3	5	3.6	0.0-9.1	4	3.9	0.0-10.6	7	5.9	0.0-14.1
TOTAL	287	49.4	38.7-60.1	48	14.9	6.4-23.4	66	18.3	12.0-24.6	13	1.2	0.0-2.5	27	4.6	1.0-8.2	52	7.9	3.4-12.4	30	3.7	0.3-7.0

4.3 Attempt to give up or cut down tobacco use

Age group	Male			Female			Both sexes		
	n	%	95 % CI	n	%	95 % CI	n	%	95 % CI
15-24	26	18.2	7.7-28.7	2	4.5	0.0-11.7	28	15.2	6.5-23.8
25-34	57	29.5	17.3-41.7	16	16.9	0.5-33.3	73	26.7	17.1-36.3
35-44	67	21.4	11.1-31.6	28	24.9	0.8-49.1	95	22.1	16.1-28.2
45-54	57	17.8	9.1-26.4	27	36.1	6.6-65.7	84	21.8	11.8-31.9
55-64	40	13.2	3.4-23.0	18	17.5	3.4-31.6	58	14.2	6.4-21.9
TOTAL	247	60.7	41.6-79.8	91	73.4	59.2-87.6	338	63.1	48.3-77.9

4.4 Average attempts to quit tobacco use, in last 12 months

Age group	Male			Female			Both sexes		
	n	Mean	95 % CI	n	Mean	95 % CI	n	Mean	95 % CI
15-24	26	5.4	2.1-8.6	3	1.4	0.7-2.1	29	5.1	2.0-8.2
25-34	55	3.4	2.5-4.2	14	4.2	3.6-4.7	69	3.4	2.7-4.2
35-44	67	3.6	2.5-4.8	28	2.0	0.6-3.3	95	3.2	2.1-4.3
45-54	56	1.7	1.3-2.2	27	1.7	0.8-2.6	83	1.7	1.3-2.2
55-64	38	2.1	0.7-3.4	18	3.3	0.0-6.9	56	2.4	0.9-3.9
TOTAL	242	3.3	2.4-4.3	90	2.3	1.3-3.2	332	3.1	2.2-4.0

4.5 Measures used for quitting tobacco use

Male												
AGE GROUP	Self determination			Support of family or friends			Support of health professionals			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	23	85.9	60.3-100.0	0	--	--	3	14.1	0.0-39.7	0	--	--
25-34	47	87.3	73.9-100.0	4	5.2	0.0-11.1	3	4.2	0.0-10.3	2	3.3	0.0-8.1
35-44	58	79.3	64.9-93.8	6	15.1	0.0-30.6	3	5.6	0.0-14.7	0	--	--
45-54	45	82.1	60.3-100.0	6	13.1	0.0-34.9	3	4.8	0.0-11. 5	0	--	--
55-64	33	73.7	44.7-100.0	2	12.3	0.0-36.0	4	12.3	0.0-30.0	1	1.8	0.0-5.7
TOTAL	206	82.6	74.7-90.5	18	8.7	2.7-14.7	16	7.5	0.8-14.1	3	1.2	0.0-2.7

No any NRT in any age group of male and female & both sexes

Female												
AGE GROUP	Self determination			Support of family or friends			Support of health professionals			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	2	40.6	0.0-100.0	0	--	--	1	59.4	0.0-100.0	0	--	--
25-34	14	80.1	48.3-100.0	0	--	--	2	19.9	0.0-51.7	0	--	--
35-44	19	89.8	75.4-100.0	3	2.6	0.0-7.7	4	6.0	0.0-16.3	1	1.6	0.0-5.2
45-54	18	81.8	51.7-100.0	7	13.9	0.0-37.1	2	4.4	0.0-14.4	0	--	--
55-64	14	84.5	68.9-100.0	1	1.8	0.0-6.0	3	13.6	0.0-28.5	0	--	--
TOTAL	67	81.9	65.6-98.2	11	6.0	0.0-12.5	12	11.7	0.0-24.5	1	0.4	0.0-1.2

Both sexes												
AGE GROUP	Self determination			Support of family or friends			Support of health professionals			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	25	82.7	57.9-100.0	0	--	--	4	17.3	0.0-42.1	0	--	--
25-34	61	86.3	74.2-98.4	4	4.5	0.0-9.6	5	6.4	0.0-13.4	2	2.8	0.0-7.0
35-44	77	81.9	69.3-94.6	9	12.0	0.0-24.5	7	5.7	0.0-12.9	1	0.4	0.0-1.2
45-54	63	82.0	65.1-98.9	13	13.4	0.0-28.6	5	4.6	0.0-11.2	0	--	--
55-64	47	76.7	56.5-96.8	3	9.4	0.0-27.0	7	12.6	0.1-25.2	1	1.3	0.0-4.1
TOTAL	273	82.5	74.4-90.5	29	8.1	3.4-12.8	28	8.4	1.7-15.1	4	1.0	0.0-2.2

4.6 Able to quit tobacco use for a period of six months or more.

Age group	Male			Female			Both sexes		
	n	%	95 % CI	n	%	95 % CI	n	%	95 % CI
15-24	6	19.2	0.0-38.7	1	59.4	0.0-100.0	7	21.8	2.2-41.4
25-34	8	10.5	0.0-21.1	3	19.9	0.0-48.0	11	11.9	0.9-22.8
35-44	14	33.7	7.3-60.1	3	4.7	0.0-12.4	17	26.5	4.5-48.5
45-54	7	6.9	0.1-13.7	3	6.4	0.0-18.2	10	6.7	0.0-13.7
55-64	3	1.4	0.0-3.3	3	28.5	0.0-67.0	6	8.8	0.0-19.5
TOTAL	38	15.3	5.0-25.6	13	14.7	3.0-26.4	51	15.2	5.6-24.

4.7 Successful measures taken for quitting tobacco use

Male												
AGE GROUP	Self determination			Support of family or friends			Support of health professionals			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	4	43.9	0.0-100.0	1	42.3	0.0-100.0	1	13.8	0.0-44.6	0	--	--
25-34	6	65.0	7.5-100.0	0	--	--	1	12.6	0.0-33.3	1	22.4	0.0-59.2
35-44	9	70.9	24.3-100.0	3	26.4	0.0-72.7	2	2.7	0.0-7.1	0	--	--
45-54	6	98.1	94.0-100.0	0	--	--	0	--	--	1	1.9	0.0-6.0
55-64	3	100.0	100.0-100.0	0	--	--	0	--	--	0	--	--
TOTAL	28	65.5	41.9-89.1	4	22.7	4.1-41.3	4	7.2	0.0-16.0	2	4.6	0.0-14.5

Female												
AGE GROUP	**Self determination**			**Support of family or friends**			**Support of health professionals**			**Others**		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**
15-24	0	--	--	0	--	--	1	100.0	100.0-100.0	0	--	--
25-34	1	53.1	0.0-100.0	1	14.2	0.0-48.3	1	32.7	0.0-97.0	0	--	--
35-44	3	100.0	100.0-100.0	0	--	--	0	--	--	0	--	--
45-54	1	31.1	0.0-99.7	0	--	--	2	68.9	0.3-100.0	0	--	--
55-64	2	70.9	11.8-100.0	1	29.1	0.0-88.2	0	--	--	0	--	--
TOTAL	7	48.9	7.6-90.3	2	13.1	0.0-35.4	4	38.0	0.0-82.2	0	--	--

Both sexes												
AGE GROUP	**Self determination**			**Support of family or friends**			**Support of health professionals**			**Others**		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**
15-24	4	36.2	0.0-82.9	1	34.8	0.0-90.9	2	29.0	0.0-71.9	0	--	--
25-34	7	62.2	11.9-100.0	1	3.4	0.0-11.5	2	17.4	0.0-40.7	1	17.1	0.0-48.7
35-44	12	72.2	28.1-100.0	3	25.2	0.0-69.2	2	2.6	0.0-6.7	0	--	--
45-54	7	74.8	39.0-100.0	0	--	--	2	24.0	0.0-60.2	1	1.2	0.0-4.0
55-64	5	74.1	23.1-100.0	1	25.9	0.0-76.9	0	--	--	0	--	--
TOTAL	35	62.0	35.9-88.0	6	20.7	7.6-33.8	8	13.7	0.0-29.5	2	3.6	0.0-11.3

5. TOBACCO PRODUCTS USED BY FATHER, MOTHERS AND FRIENDS

5.1 Tobacco products used by Father

AGE GROUP	Male																	
	Never use/used			Used to smoke but stopped			Used smokeless tobacco but stopped			Smokes now			Uses smokeless tobacco now			Uses both smoke and smokeless		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	206	32.2	18.5-46.0	34	6.6	2.6-10.7	10	1.0	0.2-1.8	138	37.0	20.5-53.4	55	14.7	6.8-22.7	41	8.5	2.5-14.5
25-34	147	31.8	19.2-44.5	42	12.7	1.9-23.5	15	3.0	1.1-4.9	114	35.6	24.7-46.4	46	11.0	3.8-18.1	19	5.9	0.9-11.0
35-44	204	36.8	24.7-48.9	54	17.9	8.0-27.8	12	2.4	0.1-4.6	78	27.6	14.7-40.5	23	8.0	1.0-15.1	15	7.3	1.8-12.7
45-54	184	52.5	31.3-73.8	56	20.5	7.2-33.9	12	4.0	0.0-10.3	40	14.7	3.7-25.7	16	3.7	0.5-7.0	8	4.5	0.9-8.0
55-64	211	76.9	65.3-88.6	58	13.5	4.4-22.6	10	0.5	0.0-1.0	26	6.5	0.0-13.5	7	0.8	0.0-1.6	4	1.7	0.0-3.4
TOTAL	952	40.9	32.7-49.2	244	12.4	6.2-18.7	59	2.0	1.0-3.1	396	28.6	21.0-36.1	147	9.7	5.2-14.2	87	6.4	3.1-9.6

AGE GROUP	Female																	
	Never use/used			Used to smoke but stopped			Used smokeless tobacco but stopped			Smokes now			Uses smokeless tobacco now			Uses both smoke and smokeless		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	235	39.7	29.6-49.8	28	9.6	2.8-16.5	12	2.3	0.0-5.8	168	24.0	15.0-33.0	62	10.1	3.6-16.7	37	14.2	7.7-20.6
25-34	258	40.5	30.6-50.5	52	8.5	3.5-13.5	14	1.7	0.0-3.6	186	36.3	23.5-49.1	47	8.0	2.4-13.6	30	4.9	2.1-7.8
35-44	281	42.8	28.6-57.0	73	23.0	2.1-43.8	14	1.6	0.2-2.9	119	16.7	7.8-25.7	37	7.1	1.4-12.7	21	8.9	0.4-17.3
45-54	257	48.2	34.6-61.7	94	22.4	5.9-38.9	15	1.1	0.0-2.2	48	19.8	8.0-31.7	10	3.7	0.3-7.2	17	4.8	0.0-9.5
55-64	197	69.5	53.4-85.5	43	23.4	6.7-40.1	13	2.1	0.1-4.2	19	3.6	1.6-5.6	4	1.0	0.0-2.4	3	0.4	0.0-0.9
TOTAL	1228	43.8	37.2-50.3	290	14.9	8.5-21.2	68	1.8	0.5-3.2	540	23.1	17.3-29.0	160	7.5	4.0-11.0	108	8.9	4.6-13.1

AGE GROUP	Both sexes																	
	Never use/used			Used to smoke but stopped			Used smokeless tobacco but stopped			Smokes now			Uses smokeless tobacco now			Uses both smoke and smokeless		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	441	35.8	25.9-45.8	62	8.1	4.9-11.3	22	1.6	0.0-3.3	306	30.7	20.5-41.0	117	12.5	6.6-18.4	78	11.2	7.2-15.2
25-34	405	35.7	27.3-44.1	94	10.8	4.0-17.7	29	2.4	1.1-3.7	300	35.9	26.1-45.8	93	9.6	5.1-14.2	49	5.5	2.1-8.9
35-44	485	39.9	29.3-50.6	127	20.5	8.1-32.9	26	1.9	0.4-3.5	197	22.0	13.8-30.3	60	7.5	2.2-12.8	36	8.1	2.2-14.0
45-54	441	50.3	34.7-66.0	150	21.5	9.3-33.7	27	2.5	0.0-5.7	88	17.3	11.2-23.5	26	3.7	1.4-6.1	25	4.6	1.3-8.0
55-64	408	74.5	63.1-85.9	101	16.7	8.0-25.5	23	1.0	0.2-1.9	45	5.6	0.9-10.2	11	0.9	0.0-1.7	7	1.3	0.1-2.5
TOTAL	2180	42.3	35.5-49.0	534	13.6	8.5-18.6	127	1.9	1.1-2.7	936	26.0	21.1-30.9	307	8.7	5.3-12.0	195	7.5	4.8-10.3

5.2 Tobacco products used by Mother

AGE GROUP	Male																	
	Never use/used			Used to smoke but stopped			Used smokeless tobacco but stopped			Smokes now			Uses smokeless tobacco now			Uses both smoke and smokeless		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	350	57.7	40.8-74.7	16	2.2	0.1-4.2	3	0.7	0.0-1.6	97	37.0	19.1-55.0	12	1.4	0.0-2.7	6	1.0	0.0-2.3
25-34	249	57.6	47.5-67.7	19	11.4	2.9-19.9	1	0.0	0.0-0.1	99	28.4	21.7-35.0	10	1.9	0.0-4.5	5	0.6	0.0-1.6
35-44	267	60.4	46.8-74.0	32	11.6	4.7-18.5	11	1.7	0.0-3.5	53	18.9	5.6-32.2	17	3.7	1.0-6.4	6	3.7	0.0-8.6
45-54	233	60.5	43.3-77.8	30	13.0	2.5-23.6	8	3.8	0.0-10.0	39	19.2	8.9-29.4	6	2.9	0.0-6.2	1	0.6	0.0-1.7
55-64	261	65.3	45.6-85.1	36	22.8	0.0-45.7	4	0.9	0.0-2.4	14	9.0	0.0-18.8	3	1.9	0.0-4.1	0	--	--
TOTAL	1360	59.4	49.4-69.4	133	9.7	5.7-13.7	27	1.1	0.2-2.1	302	26.5	18.4-34.5	48	2.1	0.9-3.4	18	1.2	0.2-2.1

AGE GROUP	Female																	
	Never use/used			Used to smoke but stopped			Used smokeless tobacco but stopped			Smokes now			Uses smokeless tobacco now			Uses both smoke and smokeless		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	378	62.6	55.8-69.3	19	3.9	1.4-6.3	5	0.2	0.0-0.4	105	27.6	19.9-35.4	22	4.3	0.6-8.0	9	1.5	0.0-2.9
25-34	352	53.0	42.9-63.0	32	7.0	1.7-12.3	5	0.5	0.0-1.1	154	32.6	25.2-40.0	28	3.8	0.5-7.1	14	3.1	0.4-5.9
35-44	361	53.3	36.9-69.7	47	18.2	0.0-39.5	11	1.8	0.0-3.9	104	19.8	10.4-29.3	14	1.5	0.2-2.8	11	5.4	0.0-13.1
45-54	311	70.0	58.4-81.6	72	17.7	8.3-27.1	7	2.6	0.0-5.3	34	6.1	2.0-10.2	7	2.4	0.0-5.2	8	1.3	0.0-2.6
55-64	222	73.7	58.7-88.7	36	20.2	4.3-36.1	4	0.2	0.0-0.6	13	4.8	0.0-9.5	2	0.8	0.0-2.1	2	0.4	0.0-0.9
TOTAL	1624	60.8	53.5-68.1	206	10.5	5.1-15.8	32	0.9	0.4-1.5	410	22.2	17.2-27.2	73	3.1	1.4-4.9	44	2.4	1.2-3.7

AGE GROUP	Both sexes																	
	Never use/used			Used to smoke but stopped			Used smokeless tobacco but stopped			Smokes now			Uses smokeless tobacco now			Uses both smoke and smokeless		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	728	60.1	51.0-69.1	35	3.0	1.0-4.9	8	0.4	0.0-0.9	202	32.5	22.6-42.4	34	2.8	1.0-4.6	15	1.2	0.2-2.3
25-34	601	55.6	49.1-62.1	51	9.5	4.4-14.6	6	0.2	0.0-0.5	253	30.2	25.3-35.1	38	2.8	0.9-4.6	19	1.7	0.3-3.1
35-44	628	56.7	45.0-68.5	79	15.0	3.0-27.0	22	1.8	0.4-3.1	157	19.4	10.8-27.9	31	2.6	1.0-4.1	17	4.6	0.1-9.1
45-54	544	65.4	52.7-78.0	102	15.4	6.7-24.1	15	3.2	0.0-6.3	73	12.5	7.0-17.9	13	2.6	0.1-5.2	9	0.9	0.2-1.7
55-64	483	68.1	53.1-83.0	72	22.0	6.0-37.9	8	0.7	0.0-1.7	27	7.6	0.9-14.3	5	1.5	0.0-3.2	2	0.1	0.0-0.3
TOTAL	2984	60.1	52.8-67.3	339	10.1	5.9-14.2	59	1.0	0.5-1.5	712	24.5	19.9-29.0	121	2.6	1.4-3.8	62	1.8	1.0-2.6

5.3 Tobacco products used by Family members or Friends

AGE GROUP	Male																	
	Never use/used			Used to smoke but stopped			Used smokeless tobacco but stopped			Smokes now			Uses smokeless tobacco now			Uses both smoke and smokeless		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	273	48.4	31.4-65.4	3	0.8	0.0-2.1	1	0.0	0.0-0.1	126	33.1	14.7-51.5	43	11.2	5.0-17.3	36	6.5	1.6-11.3
25-34	185	37.5	23.4-51.6	3	4.2	0.0-12.5	2	0.8	0.0-2.4	117	32.5	18.0-47.0	38	16.2	8.3-24.2	34	8.7	3.3-14.2
35-44	205	45.5	31.4-59.6	9	3.2	0.0-6.5	3	1.1	0.0-3.0	120	31.0	16.0-46.1	24	10.0	1.7-18.2	27	9.2	2.4-16.0
45-54	186	40.3	28.7-51.9	4	2.1	0.0-5.2	2	2.3	0.0-6.2	72	39.5	26.4-52.7	18	6.1	1.3-10.9	35	9.6	1.4-17.9
55-64	165	34.0	19.9-48.2	14	4.9	0.0-10.5	2	0.3	0.0-0.7	98	43.8	26.9-60.7	9	2.8	0.0-6.2	30	14.1	2.0-26.3
TOTAL	1014	42.7	33.1-52.2	33	2.6	0.0-5.6	10	0.7	0.0-1.5	533	34.8	23.6-46.0	132	10.4	6.2-14.7	162	8.8	4.3-13.2

AGE GROUP	Female																	
	Never use/used			Used to smoke but stopped			Used smokeless tobacco but stopped			Smokes now			Uses smokeless tobacco now			Uses both smoke and smokeless		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	355	60.4	46.89-73.9	3	0.5	0.0-1.2	5	0.5	0.0-1.3	103	21.9	9.7-34.1	48	10.0	1.6-18.5	24	6.6	1.7-11.6
25-34	249	41.7	30.7-52.7	16	5.5	0.0-14.5	3	0.3	0.0-0.6	181	28.4	19.4-37.3	88	12.8	7.6-18.1	48	11.4	4.3-18.5
35-44	227	40.8	29.0-52.6	17	2.6	0.0-5.7	9	1.0	0.0-2.1	171	28.6	21.7-35.5	71	13.6	8.0-19.2	49	13.4	6.2-20.6
45-54	186	24.8	16.8-32.9	30	5.8	0.0-12.3	3	0.4	0.0-0.9	138	44.8	29.7-59.8	46	12.0	5.3-18.7	38	12.2	4.0-20.47
55-64	132	50.4	31.7-69.0	24	9.3	0.0-19.8	5	0.3	0.0-1.0	71	26.5	8.5-44.5	30	8.5	1.8-15.2	17	5	0.0-10.4
TOTAL	1149	46.7	36.5-56.9	90	3.4	0.0-7.0	25	0.5	0.1-0.9	664	28.4	21.0-35.8	283	11.4	6.5-16.3	176	9.6	6.3-12.9

AGE GROUP	Both sexes																	
	Never use/used			Used to smoke but stopped			Used smokeless tobacco but stopped			Smokes now			Uses smokeless tobacco now			Uses both smoke and smokeless		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	628	54.2	40.3-68.0	6	0.7	0.0-1.4	6	0.3	0.0-0.6	229	27.7	14.6-40.9	91	10.6	5.0-16.3	60	6.5	2.8-10.2
25-34	434	39.4	28.3-50.4	19	4.8	0.0-13.4	5	0.6	0.0-1.5	298	30.7	19.1-42.2	126	14.7	9.6-19.8	82	9.9	5.3-14.5
35-44	432	43.2	34.0-52.4	26	2.9	0.7-5.2	12	1.1	0.0-2.4	291	29.9	20.2-39.5	95	11.7	6.8-16.7	76	11.2	6.2-16.2
45-54	372	32.4	25.2-39.6	34	4.0	0.0-8.7	5	1.3	0.0-3.2	210	42.2	29.6-54.8	64	9.1	4.4-13.8	73	10.9	5.4-16.5
55-64	297	39.3	27.0-51.6	38	6.3	0.0-13.0	7	0.3	0.0-0.7	169	38.2	24.5-51.9	39	4.6	1.8-7.5	47	11.2	2.9-19.5
TOTAL	2163	44.5	36.8-52.3	123	3.0	0.0-6.2	35	0.6	0.1-1.1	1197	31.9	24.0-39.7	415	10.9	7.5-14.3	338	9.1	6.0-12.3

6. HARMFUL EFFECTS OF TOBACCO USE

6.1 Knowledge on harmful effects of tobacco use

AGE GROUP	Male								
	Yes			No			Do not know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	477	98.0	96.6-99.4	5	1.0	0.0-2.2	6	0.9	0.0-2.0
25-34	377	98.9	97.6-100.0	5	0.6	0.0-1.4	1	0.5	0.0-1.5
35-44	381	98.0	95.3-100.0	5	1.1	0.0-2.5	4	0.9	0.0-2.4
45-54	311	86.5	74.3-98.6	6	8.6	0.0-20.7	6	4.9	0.0-11.1
55-64	299	91.6	85.2-98.0	5	4.2	0.0-9.7	17	4.2	0.1-8.3
TOTAL	1845	95.9	94.0-97.8	26	2.4	0.6-4.1	34	1.8	0.5-3.0

Female									
AGE GROUP	**Yes**			**No**			**Do not know**		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**
15-24	527	87.4	75.4-99.3	2	0.5	0.0-1.5	13	12.1	0.0-24.4
25-34	564	95.9	93.5-98.3	12	2.2	0.9-3.5	15	1.9	0.0-4.0
35-44	514	90.6	83.4-97.7	8	1.2	0.0-2.4	30	8.3	1.2-15.3
45-54	400	80.8	70.0-91.7	13	2.6	0.5-4.8	31	16.5	6.6-26.5
55-64	241	89.9	83.0-96.7	7	0.7	0.0-1.6	34	9.4	2.8-16.0
TOTAL	2246	88.9	83.8-93.9	42	1.3	0.5-2.2	123	9.8	4.5-15.2

Both sexes									
AGE GROUP	**Yes**			**No**			**Do not know**		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**
15-24	1004	92.9	86.2-99.6	7	0.8	0.0-1.7	19	6.3	0.0-13.2
25-34	941	97.6	96.1-99.1	17	1.3	0.5-2.1	16	1.1	0.0-2.2
35-44	895	94.2	90.5-97.8	13	1.1	0.2-2.0	34	4.7	1.2-8.3
45-54	711	83.6	74.4-92.8	19	5.6	0.0-11.7	37	10.8	5.2-16.4
55-64	540	90.9	85.7-96.1	12	2.9	0.0-6.3	51	6.2	2.1-10.3
TOTAL	4091	92.5	89.1-96.0	68	1.9	1.0-2.7	157	5.6	2.8-8.4

6.2 Respondents level of knowledge on selected harmful effects of tobacco use

AGE GROUP	Male																	
	Heart diseases			Respiratory diseases			Cancers			Problems with teeth/gums			Impotence			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	55	13.3	1.0-25.7	180	47.7	30.6-64.8	207	32.0	21.4-42.6	25	4.2	0.7-7.8	1	0.1	0.1-0.4	9	2.6	0.1-5.1
25-34	47	11.2	2.4-20.0	160	48.0	36.3-59.8	125	27.3	15.1-39.5	32	11.5	0.0-24.0	0	--	--	13	2.0	0.3-3.8
35-44	50	8.9	2.9-15.0	158	45.4	31.9-59.0	132	36.1	22.9-49.3	23	2.8	0.9-4.7	0	--	--	18	6.7	0.3-13.1
45-54	38	10.1	3.6-16.7	135	47.4	34.4-60.3	101	26.5	13.1-40.0	24	12.3	1.9-22.7	2	1.7	0.0-5.1	11	1.9	0.3-3.5
55-64	38	11.2	0.6-21.7	151	68.1	52.0-84.3	78	15.5	4.1-26.9	18	2.1	0.3-3.9	0	--	--	14	3.1	0.3-5.8
TOTAL	228	11.5	4.8-18.2	784	49.7	39.9-59.5	643	29.0	21.1-36.9	122	6.4	1.3-11.5	3	0.3	0.0-0.7	65	3.1	1.5-4.7

AGE GROUP	Female																	
	Heart diseases			Respiratory diseases			Cancers			Problems with teeth/gums			Impotence			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	74	11.0	3.4-18.6	221	55.4	36.9-74.0	188	25.0	15.1-34.8	25	3.7	0.4-7.0	0	--	--	19	4.9	0.1-9.8
25-34	90	13.5	9.4-17.7	236	46.1	34.7-57.4	191	32.4	19.3-45.5	21	4.0	0.0-8.2	0	--	--	26	4.0	0.7-7.2
35-44	79	11.1	5.1-17.0	246	61.8	46.4-77.2	137	17.6	7.8-27.5	26	5.0	0.5-9.5	0	--	--	26	4.5	0.9-8.1
45-54	44	4.5	0.8-8.1	198	56.3	47.2-65.5	118	31.7	20.3-43.2	13	4.0	0.0-8.6	0	--	--	27	3.4	0.3-6.5
55-64	31	4.8	0.5-9.0	126	72.9	53.2-92.6	61	17.6	2.2-33.1	7	0.5	0.0-1.2	1	0.1	0.0-0.2	15	4.2	0.0-8.9
TOTAL	318	10.1	6.5-13.7	1027	56.3	46.9-65.6	695	25.5	19.0-32.0	92	3.8	1.4-6.2	1	0.0	0.0-0.0	113	4.4	1.9-6.9

AGE GROUP	Both sexes																	
	Heart diseases			Respiratory diseases			Cancers			Problems with teeth/gums			Impotence			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	129	12.3	5.0-19.5	401	51.2	36.9-65.4	395	28.8	20.3-37.3	50	4.0	0.9-7.1	1	0.1	0.0-0.2	28	3.7	0.4-6.9
25-34	137	12.2	6.3-18.1	396	47.2	38.2-56.1	316	29.5	18.3-40.8	53	8.2	0.2-16.2	0	--	--	39	2.9	0.6-5.1
35-44	129	10.0	6.0-14.0	404	53.6	42.9-64.3	269	26.9	17.9-35.9	49	3.9	1.2-6.6	0	--	--	44	5.6	1.6-9.5
45-54	82	7.3	3.3-11.3	333	51.8	44.4-59.2	219	29.1	19.7-38.5	37	8.2	2.6-13.9	2	0.9	0.0-2.7	38	2.7	0.8-4.5
55-64	69	8.7	1.5-15.9	277	70.0	54.6-85.3	139	16.3	6.8-25.8	25	1.5	0.3-2.7	1	0.0	0.0-0.1	29	3.5	0.3-6.7
	546	10.9	6.6-15.1	1811	52.7	43.7-61.7	1338	27.4	20.5-34.3	214	5.2	1.7-8.7	4	0.1	0.0-0.4	178	3.7	1.8-5.5

7 HARMFUL EFFECTS OF PASSIVE SMOKING

7.1 Knowledge on harmful effects of passive smoking

Male									
AGE GROUP	Yes			No			Don't know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	470	99.5	98.9-100.0	5	0.4	0.0-0.9	2	0.1	0.0-0.2
25-34	366	98.4	97.0-99.9	6	1.2	0.0-2.7	5	0.3	0.0-0.8
35-44	371	96.8	93.6-100.0	4	1.3	0.0-3.9	6	1.9	0.0-4.2
45-54	298	96.5	93.7-99.4	5	1.3	0.0-3.1	8	2.2	0.0-4.4
55-64	283	95.8	91.0-100.0	7	1.6	0.0-3.8	9	2.6	0.0-6.2
TOTAL	1788	98.0	96.9-99.2	27	1.0	0.3-1.7	30	1.0	0.1-1.9

Female									
AGE GROUP	Yes			No			Don't know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	512	96.6	92.7-100.0	9	2.9	0.0-6.7	6	0.5	0.0-1.0
25-34	547	95.5	89.8-100.0	5	0.9	0.0-2.3	12	3.6	0.0-9.2
35-44	487	94.7	89.3- 100.0	14	3.1	0.0-8.0	13	2.1	0.4-3.9
45-54	370	93.8	89.6-98.0	13	3.3	0.3-6.3	17	2.9	0.3-5.5
55-64	224	66.0	26.8-100.0	4	3.0	0.0-7.0	13	31.0	0.0-71.9
TOTAL	2140	93.0	87.7-98.3	45	2.6	0.1-5.1	61	4.4	0.0-9.3

Both sexes									
AGE GROUP	Yes			No			Don't know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	982	98.2	96.5-100.0	14	1.5	0.0-3.2	8	0.3	0.0-0.5
25-34	913	97.1	94.3-100.0	11	1.1	0.2-2.1	17	1.8	0.0-4.2
35-44	858	95.8	92.4-99.1	18	2.2	0.0-4.9	19	2.0	0.4-3.6
45-54	668	95.2	92.3-98.0	18	2.3	0.5-4.1	25	2.5	0.7-4.4
55-64	507	84.3	67.5-100.0	11	2.1	0.0-4.3	22	13.5	0.0-31.0
TOTAL	3928	95.7	93.4-98.1	72	1.7	0.5-2.9	91	2.5	0.3-4.8

7.2 Respondents level of knowledge on selected harmful effects of passive smoking

AGE GROUP	Male														
	Respiratory diseases			Heart diseases			Sudden infant death			Cancers			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	329	70.7	58.4-83.1	44	8.8	0.5-17.2	4	0.9	0.0-2.1	86	16.5	8.2-24.9	8	2.9	0.0-6.7
25-34	255	69.8	55.5-84.0	34	7.5	3.6-11.5	0	--	--	68	13.4	4.7-22.0	9	9.3	0.0-22.5
35-44	255	70.1	55.1-85.0	36	7.0	1.3-12.7	1	0.0	0.0-0.1	58	18.9	6.0-31.7	20	4.0	1.4-6.7
45-54	202	71.1	63.8-78.4	29	8.1	2.1-14.0	1	0.4	0.0-1.3	54	16.0	5.8-26.2	12	4.4	0.0-10.8
55-64	199	74.3	59.6-89.0	31	11.5	0.0-23.0	1	0.7	0.0-2.1	44	11.3	0.1-22.6	9	2.2	0.0-5.1
TOTAL	1240	70.9	65.9-75.8	174	8.5	4.9-12.0	7	0.5	0.0-1.0	310	15.5	9.8-21.2	58	4.7	0.8-8.6

AGE GROUP	Female														
	Respiratory diseases			Heart diseases			Sudden infant death			Cancers			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	357	70.8	55.4-86.1	54	10.0	4.0-15.9	1	0.0	0.0-0.1	77	12.1	3.2-21.0	23	7.1	0.4-13.9
25-34	393	73.0	65.0-81.0	53	9.9	5.7-14.2	3	0.3	0.0-0.7	74	12.7	5.6-19.8	26	4.1	0.0-8.3
35-44	345	74.0	61.6-86.3	45	6.3	1.5-11.1	0	--	--	68	15.3	6.6-24.1	29	4.4	0.7-8.1
45-54	266	70.7	60.3-81.2	35	9.1	0.0-19.2	1	0.2	0.0-0.6	51	15.8	5.3-26.3	15	4.2	0.0-9.0
55-64	159	69.7	53.1-86.4	21	5.0	0.3-9.6	3	0.8	0.0-2.1	24	18.2	1.0-35.5	16	6.3	0.0-14.3
TOTAL	1520	71.8	64.8-78.8	208	8.8	5.7-12.0	8	0.2	0.0-0.3	294	13.8	8.6-19.0	109	5.5	1.7-9.3

AGE GROUP	Both sexes														
	Respiratory diseases			Heart diseases			Sudden infant death			Cancers			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	686	70.7	59.4-82.1	98	9.3	3.4-15.3	5	0.5	0.0-1.2	163	14.6	7.3-21.8	31	4.8	0.5-9.1
25-34	648	71.1	61.4-80.9	87	8.6	5.2-11.9	3	0.1	0.0-0.3	142	13.1	6.1-20.1	35	7.1	0.0-15.1
35-44	600	72.0	63.1-80.9	81	6.7	3.0-10.4	1	0.0	0.0-0.1	126	17.1	9.5-24.8	49	4.2	1.5-6.9
45-54	468	70.9	64.5-77.4	64	8.6	3.4-13.7	2	0.3	0.0-1.0	105	15.9	8.7-23.1	27	4.3	0.2-8.3
55-64	358	72.9	62.0-83.8	52	9.5	1.5-17.5	4	0.7	0.0-1.8	68	13.4	5.3-21.6	25	3.4	0.0-7.4
TOTAL	2760	71.3	66.1-76.4	382	8.6	5.8-11.5	15	0.3	0.0-0.6	604	14.8	9.7-19.8	167	5.0	1.8-8.3

8. ECONOMIC LOSS DUE TO TOBACCO USE:

Do you think money spent to buy tobacco products make people poorer?

Male									
AGE GROUP	Yes			No			Don't know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	420	91.9	86.2-97.6	37	4.5	0.0-9.1	15	3.7	0.2-7.1
25-34	340	95.8	91.3-100.0	30	3.9	0.0-8.4	4	0.3	0.0-0.8
35-44	337	89.3	78.5-100.0	23	3.4	0.2-6.5	17	7.4	0.0-17.2
45-54	270	93.9	88.4-99.4	29	5.0	0.0-10.4	9	1.1	0.0-2.2
55-64	280	90.8	83.3-98.4	14	5.8	0.0-12.4	18	3.3	0.1-6.5
TOTAL	1647	92.5	88.0-97.0	133	4.4	0.9-7.9	63	3.1	0.8-5.4

Female									
AGE GROUP	Yes			No			Don't know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	508	87.1	77.5-96.8	13	4.2	0.5-7.9	17	8.7	0.8-16.6
25-34	548	93.8	90.0-97.6	11	2.4	0.0-5.3	23	3.8	1.3-6.3
35-44	499	93.1	88.5-97.7	14	2.5	0.0-5.8	29	4.4	1.6-7.2
45-54	401	94.1	90.0-98.1	9	1.0	0.0-2.2	25	5.0	1.4-8.6
55-64	237	90.7	84.1-97.4	13	1.9	0.1-3.8	28	7.3	1.6-13.0
TOTAL	2193	91.0	86.5-95.4	60	2.8	0.8-4.8	122	6.2	3.1-9.4

Both sexes									
AGE GROUP	Yes			No			Don't know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	928	89.6	83.6-95.5	50	4.3	1.4-7.2	32	6.1	1.6-10.6
25-34	888	94.9	92.0-97.8	41	3.2	0.5-5.9	27	1.9	0.6-3.1
35-44	836	91.2	85.2-97.2	37	2.9	0.4-5.4	46	5.8	0.9-10.8
45-54	671	94.0	89.5-98.5	38	3.0	0.0-5.9	34	3.0	0.9-5.1
55-64	517	90.8	84.7-97.0	27	4.3	0.0-8.6	46	4.9	1.3-8.5
TOTAL	3840	91.8	88.2-95.4	193	3.6	1.3-6.0	185	4.6	2.2-7.0

9 PERCEPTION OF TOBACCO USE:

What do you think of tobacco use?

AGE GROUP	Male																										
	Fun			Manly/strong/rebellious/adult			sophisticated/civilized			Relaxing			Foolish/weak			Repulsive/disgusting			Immoral/sinful			Due to friends			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	77	12.7	7.6-17.8	11	4.3	0.0-10.2	28	3.3	1.0-5.7	132	19.3	9.9-28.8	37	6.8	2.1-11.6	6	4.1	0.4-7.8	1	0.1	0.0-0.3	129	33.6	16.6-50.5	66	15.7	5.1-26.3
25-34	79	22.1	13.4-30.8	1	0.0	0.0-0.1	16	5.9	0.0-13.1	141	33.5	23.5-43.5	10	2.0	0.6-3.5	2	1.2	0.0-3.3	1	0.2	0.0-0.7	89	27.8	16.6-39.0	46	7.1	2.3-12.0
35-44	53	7.5	3.4-11.6	1	0.0	0.0-0.1	14	1.2	0.3-2.2	134	35.9	25.0-46.8	17	9.7	0.0-20.3	2	1.2	0.0-3.0	2	1.0	0.0-3.0	107	29.2	15.2-43.2	60	14.3	4.8-23.9
45-54	41	7.4	1.5-13.3	0	--	--	5	0.8	0.0-1.8	118	40.8	18.4-63.2	16	8.1	1.3-14.8	1	0.1	0.0-0.3	0	--	--	93	27.5	5.2-49.7	48	15.3	2.8-27.7
55-64	39	20.8	0.0-43.3	6	1.2	0.0-2.6	6	0.7	0.0-1.6	108	29.5	14.1-45.0	8	0.9	0.0-1.8	1	0.1	0.0-0.4	3	0.3	0.0-0.7	82	23.1	1.8-44.4	68	23.3	6.6-40.0
Total	289	14.3	10.4-18.2	19	1.7	0.0-3.8	69	2.9	1.2-4.7	633	29.3	20.2-38.3	88	5.6	3.0-8.2	12	2.0	0.2-3.7	7	0.3	0.0-0.8	500	29.5	19.6-39.4	288	14.4	9.4-19.5

AGE GROUP	Female																										
	Fun			Manly/strong/rebellious/adult			sophisticated/civilized			Relaxing			Foolish/weak			Repulsive/disgusting			Immoral/sinful			Due to friends			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	85	20.4	15.1-25.6	2	0.2	0.0-0.4	19	1.2	0.2-2.1	140	28.5	11.6-45.4	42	5.8	3.1-8.6	14	2.0	0.2-3.8	3	0.7	0.0-2.3	149	28.2	17.1-39.2	90	13.0	3.6-22.4
25-34	79	16.7	9.8-23.6	6	0.5	0.0-1.0	13	1.3	0.1-2.4	210	31.5	21.3-41.8	36	5.3	2.4-8.2	17	2.7	0.6-4.8	4	0.4	0.0-0.8	117	23.5	12.2-34.8	111	18.1	6.5-29.7
35-44	78	21.9	1.7-42.0	3	0.5	0.0-1.4	7	0.6	0.1-1.1	202	24.7	15.4-33.9	29	5.3	1.1-9.5	16	2.9	0.2-5.5	2	0.3	0.0-1.0	115	27.2	15.5-38.9	101	16.7	8.3-25.1
45-54	52	10.2	4.9-15.4	4	0.4	0.0-1.0	7	0.5	0.1-0.9	153	28.2	14.1-42.2	20	8.7	0.0-21.4	15	2.0	0.0-4.0	5	2.5	0.0-7.1	86	24.1	9.6-38.5	103	23.5	11.1-35.9
55-64	34	33.7	0.0-69.9	1	0.0	0.0-0.1	3	0.9	0.0-2.0	101	31.1	8.9-53.3	15	2.5	0.0-5.0	7	0.8	0.0-1.6	3	1.8	0.0-4.7	59	13.4	2.5-24.4	59	15.8	2.6-29.0
Total	328	19.5	11.3-27.6	16	0.3	0.1-0.5	49	0.9	0.4-1.4	806	28.6	19.2-38.0	142	5.8	3.0-8.6	69	2.2	1.0-3.4	17	1.0	0.0-2.0	526	25.2	16.6-33.7	464	16.6	10.2-23.0

AGE GROUP	Both sexes																										
	Fun			Manly/strong/rebellious/adult			sophisticated/civilized			Relaxing			Foolish/weak			Repulsive/disgusting			Immoral/sinful			Due to friends			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	162	16.4	13.0-19.9	13	2.3	0.0-4.9	47	2.3	0.7-3.8	272	23.8	12.9-34.7	79	6.3	3.5-9.2	20	3.1	0.8-5.4	4	0.4	0.0-1.1	278	31.0	19.6-42.3	156	14.4	7.1-21.7
25-34	158	19.7	13.5-25.9	7	0.2	0.0-0.5	29	3.8	0.0-8.0	351	32.6	23.4-41.8	46	3.5	1.9-5.0	19	1.9	0.3-3.5	5	0.3	0.0-0.6	206	25.9	18.7-33.1	157	12.0	4.6-19.5
35-44	131	14.9	3.4-26.5	4	0.3	0.0-0.7	21	0.9	0.4-1.4	336	30.1	22.5-37.7	46	7.4	1.1-13.7	18	2.0	0.4-3.7	4	0.6	0.0-1.6	222	28.1	20.1-36.2	161	15.6	8.0-23.1
45-54	93	8.8	5.2-12.5	4	0.2	0.0-0.5	12	0.6	0.1-1.2	271	34.4	19.7-49.0	36	8.4	0.0-17.5	16	1.0	0.0-2.1	5	1.3	0.0-3.6	179	25.7	8.6-42.8	151	19.5	8.4-30.6
55-64	73	25.8	0.0-54.1	7	0.8	0.0-1.6	9	0.8	0.2-1.4	209	30.1	14.3-46.0	23	1.5	0.3-2.7	8	0.4	0.1-0.7	6	0.9	0.0-2.1	141	19.3	2.2-36.5	127	20.4	7.5-33.2
Total	617	16.7	11.7-21.8	35	1.0	0.0-2.1	118	2.0	0.9-3.0	1439	28.9	20.6-37.3	230	5.7	3.4-8.0	81	2.1	0.8-3.3	24	0.6	0.0-1.2	1026	27.4	19.4-35.4	752	15.5	10.5-20.4

10. PERCEPTION TOWARDS TOBACCO INDUSTRIES

AGE GROUP	Male																	
	Provides jobs			Helps sports, art and other sectors			Provides government with revenue			Kills our citizens			Causes harm to the economy of families and country and to environment			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	106	20.0	10.8-29.2	11	1.1	0.0-2.6	69	14.8	6.6-22.9	184	30.6	17.7-43.5	72	10.5	5.0-16.0	43	23.0	3.2-42.8
25-34	73	16.6	6.2-27.0	6	0.4	0.0-0.9	57	17.3	7.7-26.9	153	43.0	31.1-54.9	49	12.9	6.4-19.5	43	9.7	2.5-16.9
35-44	74	19.1	5.6-32.5	5	2.8	0.0-6.5	54	20.0	2.1-38.0	153	35.2	20.0-50.5	59	11.8	4.4-19.3	43	11.1	4.5-17.6
45-54	88	29.1	16.3-41.9	1	0.1	0.0-0.2	40	10.4	4.6-16.1	116	33.6	21.7-45.4	31	20.3	0.0-41.5	40	6.6	1.8-11.5
55-64	74	30.5	14.0-47.0	2	0.5	0.0-1.6	53	17.0	4.1-29.9	118	25.8	13.3-38.3	25	6.5	1.4-11.6	45	19.6	0.0-43.2
Total	415	21.6	13.0-30.2	25	1.0	0.0-2.0	273	15.9	7.8-24.0	724	33.9	24.9-42.9	236	12.1	8.0-16.1	214	15.6	4.4-26.8

AGE GROUP	Female																	
	Provides jobs			Helps sports, art and other sectors			Provides government with revenue			Kills our citizens			Causes harm to the economy of families and country and to environment			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	72	15.6	7.4-23.8	4	0.2	0.1-0.5	69	14.2	5.4-23.0	194	29.0	21.2-36.8	107	19.8	12.4-27.3	91	21.2	10.5-31.9
25-34	95	14.0	7.2-20.8	1	0.1	0.0-0.4	47	4.1	1.7-6.5	217	34.5	21.5-47.6	124	27.5	14.0-41.0	104	19.7	11.1-28.3
35-44	97	13.4	6.8-20.1	1	0.1	0.0-0.4	54	7.0	2.5-11.5	172	43.2	27.1-59.2	113	18.5	10.0-27.1	106	17.8	8.1-27.4
45-54	77	15.7	7.1-24.3	0	--	--	36	3.6	0.6-6.5	156	39.0	29.0-49.0	70	15.2	8.9-21.4	99	26.6	18.3-34.8
55-64	47	10.9	2.8-18.9	0	--	--	11	1.0	0.0-2.0	99	35.3	12.8-57.8	44	13.7	1.2-26.3	78	39.1	5.6-72.6
Total	388	14.5	9.8-19.2	6	0.1	0.0-0.3	217	8.1	3.9-12.3	838	34.8	29.4-40.1	458	19.9	13.8-26.1	478	22.6	15.0-30.2

AGE GROUP	Both sexes																	
	Provides jobs			Helps sports, art and other sectors			Provides government with revenue			Kills our citizens			Causes harm to the economy of families and country and to environment			Others		
	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	178	17.9	10.5-25.3	15	0.7	0.0-1.5	138	14.5	7.1-21.9	378	29.8	21.0-38.6	179	15.0	10.2-19.7	134	22.1	10.2-34.0
25-34	168	15.5	7.2-23.8	7	0.3	0.0-0.6	104	11.4	5.0-17.7	370	39.2	28.6-49.8	173	19.5	11.0-28.0	147	14.2	7.4-21.0
35-44	171	16.2	8.9-23.5	6	1.4	0.0-3.2	108	13.3	2.9-23.8	325	39.3	27.3-51.3	172	15.3	9.2-21.4	149	14.5	7.4-21.6
45-54	165	22.4	13.3-31.5	1	0.0	0.0-0.1	76	7.0	3.6-10.3	272	36.3	30.1-42.4	101	17.7	4.9-30.5	139	16.6	9.7-23.5
55-64	121	22.9	9.8-35.9	2	0.3	0.0-1.0	64	10.8	2.0-19.6	217	29.5	15.7-43.3	69	9.3	4.1-14.6	123	27.2	0.0-55.4
Total	803	18.2	12.0-24.5	31	0.6	0.0-1.1	490	12.2	6.2-18.2	1562	34.3	28.0-40.7	694	15.8	11.0-20.6	692	18.9	10.9-26.9

11. SUPPORT FOR MEASURES FOR TOBACCO CONTROL

11.1. Support the government for the measures taking to reduce tobacco use:

Male									
AGE GROUP	Yes			No			Don't know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	441	88.1	80.6-95.7	27	4.8	0.5-9.0	17	7.1	1.2-13.0
25-34	354	91.8	86.6-97.0	19	6.6	1.6-11.5	9	1.7	0.1-3.3
35-44	361	85.1	73.0-97.2	17	10.2	0.0-23.0	12	4.7	0.9-8.6
45-54	294	93.3	86.3-100.0	16	6.0	0.0-13.0	9	0.7	0.0-1.4
55-64	292	93.9	88.0-99.7	16	1.0	0.1-1.9	11	5.1	0.0-11.0
TOTAL	1742	89.8	85.2-94.5	95	5.8	2.0-9.5	58	4.4	2.3-6.6

Female									
AGE GROUP	Yes			No			Don't know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	512	85.7	74.4-97.0	12	1.8	0.0-3.6	19	12.5	0.4-24.6
25-34	548	92.7	88.5-96.8	19	3.9	0.5-7.3	23	3.4	0.9-5.9
35-44	515	94.9	91.4-98.4	16	2.4	0.1-4.7	19	2.6	0.6-4.7
45-54	399	88.1	81.3-94.9	10	2.0	0.0-4.4	33	9.8	3.7-16.0
55-64	245	91.8	87.9-95.7	6	0.8	0.1-1.5	27	7.4	3.3-11.5
TOTAL	2219	89.7	84.9-94.4	63	2.3	0.5-4.2	121	8.0	3.0-13.1

Both sexes									
AGE GROUP	Yes			No			Don't know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	953	87.0	80.7-93.2	39	3.3	0.8-5.8	36	9.7	3.1-16.3
25-34	902	92.2	89.1-95.2	38	5.4	2.6-8.2	32	2.5	1.2-3.7
35-44	876	90.2	83.8-96.5	33	6.2	0.0-12.6	31	3.7	1.1-6.2
45-54	693	90.7	87.3-94.1	26	4.0	0.7-7.3	42	5.3	2.1-8.5
55-64	537	93.2	88.8-97.6	22	0.9	0.3-1.6	38	5.8	1.4-10.3
TOTAL	3961	89.8	86.8-92.7	158	4.1	1.9-6.4	179	6.1	3.5-8.7

11.2 Discontinuing advertising and sponsorship by the tobacco industry

Male									
AGE GROUP	Support			Oppose			Do not know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	466	92.1	85.4-98.8	13	4.8	0.0-10.8	9	3.1	0.0-7.1
25-34	369	93.4	87.8-99.0	13	6.2	0.6-11.9	3	0.4	0.0-1.2
35-44	364	90.4	80.8-100.0	18	7.0	0.0-16.5	7	2.6	0.1-5.1
45-54	303	96.1	93.1-99.2	8	2.8	0.0-5.8	10	1.1	0.1-2.1
55-64	296	93.3	87.1-99.4	12	0.9	0.1-1.8	13	5.8	0.0-11.8
TOTAL	1798	92.8	88.9-96.7	64	4.7	1.3-8.2	42	2.5	0.9-4.0

Female									
AGE GROUP	Support			Oppose			Do not know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	504	84.2	76.5-91.9	21	6.2	0.0-12.6	19	9.6	2.2-17.0
25-34	545	92.2	87.4-97.0	22	4.6	0.8-8.4	24	3.2	0.6-5.7
35-44	501	90.3	84.3-96.3	29	6.7	1.6-11.7	21	3.0	0.0-6.4
45-54	400	88.6	82.5-94.7	14	1.9	0.0-3.8	32	9.5	3.9-15.1
55-64	244	66.8	30.5-100.0	9	1.7	0.1-3.3	28	31.5	0.0-68.7
TOTAL	2194	86.2	81.3-91.0	95	4.9	2.0-7.9	124	8.9	4.3-13.5

Both sexes									
AGE GROUP	Support			Oppose			Do not know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	970	88.3	82.0-94.6	34	5.5	0.3-10.7	28	6.2	1.9-10.5
25-34	914	92.8	89.4-96.2	35	5.5	2.2-8.8	27	1.7	0.2-3.1
35-44	865	90.4	83.5-97.2	47	6.8	0.4-13.2	28	2.8	0.3-5.3
45-54	703	92.3	89.2-95.4	22	2.3	0.6-4.0	42	5.4	2.3-8.4
55-64	540	83.0	68.1-97.9	21	1.2	0.3-2.2	41	15.8	0.5-31.1
TOTAL	3992	89.7	86.1-93.3	159	4.8	2.1-7.6	166	5.5	3.1-7.9

11.3 Increasing price of tobacco products by increasing taxation

Male									
AGE GROUP	Support			Oppose			Do not know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	420	70.0	49.7-90.2	55	16.2	6.1-26.4	11	13.8	0.0-34.7
25-34	327	81.7	73.5-89.9	52	17.2	8.8-25.6	6	1.1	0.0-2.9
35-44	319	69.6	56.9-82.4	60	25.8	11.6-40.0	10	4.6	0.8-8.4
45-54	261	80.3	69.3-91.4	48	17.3	6.3-28.4	12	2.3	0.1-4.5
55-64	255	67.1	44.3-90.0	49	13.3	4.2-22.4	16	19.6	0.0-43.8
TOTAL	1582	73.6	62.4-84.8	264	17.7	11.5-24.0	55	8.7	0.0-19.7

Female									
AGE GROUP	Support			Oppose			Do not know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	451	74.6	64.6-84.6	55	17.6	9.6-25.7	38	7.8	0.6-14.9
25-34	489	82.6	74.7-90.6	70	11.4	4.7-18.2	32	5.9	2.1-9.8
35-44	427	69.5	50.0-89.0	74	11.5	4.8-18.2	49	19.0	0.0-40.2
45-54	332	72.0	60.5-83.5	69	13.4	5.9-20.8	45	14.6	5.8-23.5
55-64	196	47.4	19.7-75.2	42	12.8	1.6-24.0	43	39.7	5.9-73.6
TOTAL	1895	72.6	63.8-81.4	310	14.2	9.7-18.6	207	13.2	4.2-22.3

Both sexes									
AGE GROUP	Support			Oppose			Do not know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	871	72.2	58.6-85.8	110	16.9	8.6-25.3	49	10.9	0.0-22.9
25-34	816	82.1	76.5-87.8	122	14.6	9.1-20.1	38	3.3	0.8-5.7
35-44	746	69.6	57.6-81.5	134	18.4	10.1-26.6	59	12.1	0.0-24.2
45-54	593	76.1	66.0-86.1	117	15.3	6.9-23.7	57	8.6	3.8-13.4
55-64	451	59.5	35.3-83.7	91	13.1	6.1-20.1	59	27.4	0.0-56.2
TOTAL	3477	73.1	63.4-82.8	574	16.0	10.9-21.1	262	10.8	1.1-20.6

11.4 Banning smoking in public places and public transport

Male									
AGE GROUP	Support			Oppose			Do not know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	470	84.0	63.4-100.0	10	13.3	0.0-34.5	5	2.6	0.0-6.6
25-34	375	97.7	94.0-100.0	7	1.7	0.0-4.2	2	0.6	0.0-1.8
35-44	375	89.9	76.8-100.0	8	8.4	0.0-21.4	5	1.7	0.0-4.0
45-54	305	95.7	92.2-99.1	9	2.4	0.0-5.5	7	1.9	0.0-4.3
55-64	308	85.9	61.8-100.0	5	1.0	0.0-2.4	7	13.2	0.0-37.3
TOTAL	1833	89.8	78.6-100.0	39	7.0	0.0-15.4	26	3.2	0.1-6.4

Female									
AGE GROUP	Support			Oppose			Do not know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	519	96.0	91.9-100.0	19	3.2	0.0-6.8	4	0.8	0.0-1.8
25-34	557	95.4	92.3-98.5	20	2.2	0.1-4.3	12	2.4	0.1-4.7
35-44	518	93.6	88.4-98.8	23	4.8	0.1-9.6	10	1.6	0.0-3.3
45-54	414	86.8	76.5-97.0	16	2.4	0.1-4.7	16	10.8	1.3-20.3
55-64	247	66.1	29.6-102.6	15	3.6	0.0-7.4	18	30.3	0.0-68.4
TOTAL	2255	91.5	86.1-96.8	93	3.2	0.3-6.2	60	5.3	0.8-9.8

Both sexes									
AGE GROUP	Support			Oppose			Do not know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	989	89.8	78.0-100.0	29	8.5	0.0-20.2	9	1.8	0.0-4.0
25-34	932	96.7	94.4-98.9	27	1.9	0.3-3.6	14	1.4	0.3-2.5
35-44	893	91.8	84.8-98.8	31	6.5	0.0-13.4	15	1.7	0.2-3.1
45-54	719	91.2	85.3-97.0	25	2.4	0.0-4.8	23	6.4	1.6-11.3
55-64	555	78.2	48.6-100.0	20	2.0	0.0-4.0	25	19.8	0.0-50.1
TOTAL	4088	90.6	82.7-98.5	132	5.2	0.6-9.8	86	4.2	0.5-7.9

11.5 Banning sale of tobacco to minors

Male									
AGE GROUP	Support			Oppose			Do not know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	468	82.5	62.1-100.0	10	3.8	0.0-7.9	7	13.6	0.0-34.6
25-34	372	95.7	91.0-100.0	9	4.2	0.0-8.9	3	0.1	0.0-0.3
35-44	376	91.5	78.7-100.0	8	6.9	0.0-19.8	4	1.6	0.0-3.9
45-54	306	95.8	92.7-98.9	9	3.5	0.4-6.5	6	0.7	0.0-1.6
55-64	307	84.6	60.6-100.0	7	14.8	0.0-38.9	6	0.6	0.0-1.1
TOTAL	1829	88.9	77.5-100.0	43	5.7	1.0-10.3	26	5.4	0.0-13.6

Female									
AGE GROUP	Support			Oppose			Do not know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	508	88.1	75.9-100.0	29	11.2	0.0-23.2	3	0.7	0.0-1.6
25-34	551	94.7	91.4-98.1	26	3.1	0.3-5.8	11	2.2	0.0-4.4
35-44	510	80.6	59.1-100.0	29	18.0	0.0-39.8	10	1.4	0.0-3.3
45-54	411	87.2	76.7-97.7	23	5.0	0.0-11.7	12	7.8	0.0-16.7
55-64	255	69.5	31.8-100.0	13	28.1	0.0-67.0	12	2.4	0.3-4.5
TOTAL	2235	86.3	75.6-97.1	120	11.3	0.9-21.7	48	2.4	0.7-4.1

Both sexes									
AGE GROUP	Support			Oppose			Do not know		
	n	%	95% CI	n	%	95% CI	n	%	95% CI
15-24	976	85.2	71.6-98.8	39	7.4	0.6-14.2	10	7.4	0.0-19.3
25-34	923	95.3	92.1-98.5	35	3.7	0.5-6.9	14	1.0	0.0-2.1
35-44	886	85.9	72.8-99.0	37	12.6	0.0-25.9	14	1.5	0.1-2.9
45-54	717	91.4	85.8-97.1	32	4.2	0.1-8.4	18	4.3	0.0-9.0
55-64	562	78.8	48.8-100.0	20	20.0	0.0-50.4	18	1.3	0.2-2.3
TOTAL	4064	87.7	77.2-98.2	163	8.3	1.7-15.0	74	4.0	0.0-8.4

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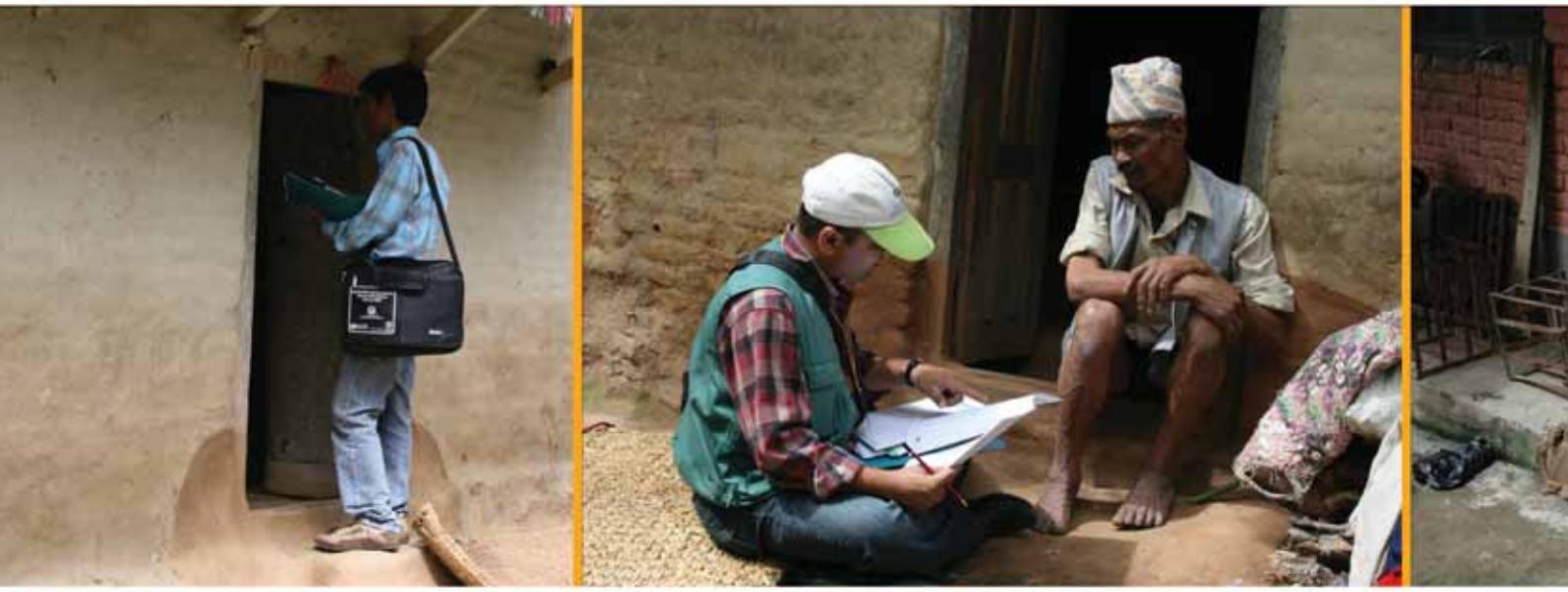

STEPS

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