Community Based Intervention for Prevention and Control of Non Communicable Disease Risk Factors (CIPCON) / Baseline Report, 2015

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Baseline report

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Prof. Dr. Anjani Kumar Jha
Executive Chairman
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Executive Summary

Non-communicable diseases (NCDs) are a major public health concern with significant social and economic implications in terms of health care-needs, lost productivity and premature death. NCDs are thus a serious setback to our attainment of social, health and economic targets if no proper interventions are put in place.

Realizing the need of timely interventions on Non-communicable disease, this interventional study had been planned to identify effective methods of preventing and controlling non-communicable diseases with optimum use of locally available resources and local health care system. This report deals with baseline information of intervention and control districts.

This cross-sectional baseline study was conducted on Ilam and Dhankuta districts which represent intervention and control districts respectively. In each district, VDCs were considered as clusters with a total of 1404 samples planned from 12 VDCs. A total of 13 households were selected from each cluster through systematic random sampling, and eligible participants of 15-69 years were selected from each household using a KISH table. The response rate for intervention and control district was 92.8% and 96.4% respectively making total of 1302 participants in intervention and 1361 participants in control district. The WHO STEPS version 3.1 was adopted with addition of knowledge and attitude questionnaire related with NCD in the data collection tool to assess baseline information.

In both Ilam and Dhankuta district, majority of participants were female (Ilam-56.8%, Dhankuta-58.6%) and most of participants belonged to 45-69 years (Ilam-44.8%, Dhankuta-46.0%). Similarly, Disadvantage Janjatis represented the major share of research participants in each districts (Ilam-65.2%, Dhankuta-56.1%).

About 10% of participants in Ilam and 16% of participants in Dhankuta district were current smokers. Mean age of starting smoking was about 17.8 years for Ilam and 17.6 years for Dhankuta districts. Out of the total research participants, 23% in Ilam and 25% in Dhankuta were current alcohol drinker.

Mean minutes of total physical activity on typical day was about 367 minutes (6.1 hours) and 386 minutes (6.4 hours) on Ilam and Dhankuta district respectively. Approximately, 2.8% participants in Ilam and 3.4% participants in Dhankuta were not meeting the recommended physical activity of WHHI standards.

Mean number of days fruits consumed in a typical week was about 2.5 days and 3.6 days on Ilam and Dhankuta district respectively. Similarly, mean number of days vegetables consumed

per week was about 6.2 days and 3.6 days on Ilam and Dhankuta respectively. Around 89.7% and 89.1% participants from Ilam and Dhankuta districts ate less than 5 servings of fruits and / or vegetable on an average. Mean body mass index of Ilam and Dhankuta were about 22.7 and 22.9 respectively while 3.7% participants in Ilam and 4.0% participants in Dhankuta districts were obese.

Mean diastolic blood pressure of Ilam and Dhankuta districts were about 81.7 mm of Hg and 81.8 mm of Hg respectively. The prevalence of raised blood pressure was 27.3% in Ilam and as 24.3% in Dhankuta district. Prevalence of raised fasting blood glucose was 13.3% in Ilam and 6.5% in Dhankuta districts. Similarly, 11.6% and 11.20% participants of Ilam and Dhankuta districts had raised level of cholesterol or had medication for raised cholesterol.

List of Abbreviations

BMI	Body Mass Index
ERB	Ethical Review Board
MoH	Ministry of Health
NCDs	Non Communicable Diseases
NHRC	Nepal Health Research Council
PDA	Personal Digital Assistants
PEN	Package for Essential NCD Prevention and Control
SPSS	Statistical Package for the Social Science
VDC	Village Development Committee
WHO	World Health Organization

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INTRODUCTION

Background

The rapid rise of non-communicable diseases (NCDs) represents one of the major health challenges to global health and development. It is estimated that NCDs contribute to almost 60% of deaths in the world with about 80% occurring in the developing countries.[1] NCDs constituted 43% of the global burden of disease in 1999. NCDs are already of major importance in developed countries and are rapidly becoming a public health threat in the developing world. Particularly in developing countries, demographic patterns are expected to change over the next generations with, increases in life expectancy, decreases in the infectious disease, and rapid urbanization[2]. These changes are expected to increase prevalence of non-communicable diseases including diabetes prevalence in those countries. Based on current trends, by 2020 they will account for 73% of deaths and 60% of the disease burden in the developing countries.[2] Like many other countries, Nepal has been experiencing an epidemiological transition from communicable disease to NCDs. However, representative national level data on NCDs and their risk factors are still inadequate in Nepal. Non Communicable Diseases Risk Factor: STEPS Survey Nepal 2013 traced out around 99.60% population have at least one risk factor of NCD.[3]

Ministry of Health (MoH) is in underway to introduce the PEN package (Package for Essential NCD prevention and control) for NCD prevention and control in Nepal. The package is highly focused on secondary prevention (diagnosis and treatment) rather than primary prevention.[4] Nevertheless, primary prevention is crucial to bring changes in the behavioural factors along with health seeking behaviour, which plays an important role in prevention and control of NCDs. This study is designed to introduce a community based NCD primary prevention package using interventional package on in selected district (s).

Report has further revealed that out of 100, 26 and 4 people of age between15-69 years were suffering from raised blood pressure and raised blood glucose respectively.[3] The most cost-effective and efficient strategy to deal with the escalating burden of NCDs is primary prevention as proven in the global scenario.

The disease burden caused by NCDs in Nepal is supposed to be fueled by adoption of unhealthy lifestyles whose magnitude and impact on NCDs have not been documented hitherto appropriately. Programs in NCDs largely depend on fragmented local data and epidemiological models and projections that may not be representative or accurate. There is a dearth of data in Nepalese context on what works and what does not work in prevention of the burden of non-communicable diseases. Although the primary prevention have been emphasized and globally advocated, their effectiveness in Nepalese context is yet to be determined.

Therefore, the need of a comprehensive study realized to determine the prevalence and the magnitude of common risk factors for NCDs and effectiveness of primary prevention strategies in Nepalese context which can be useful to the Ministry of Health and governments to establish interventions. Additionally, information from this study will provide baseline data that will be used to assess disease trends and impact of various interventions.

Objectives of the study

This study is a part of an interventional study that intends to assess the effectiveness of community based intervention on control of non-communicable diseases. This study obtained the baseline data for the interventional study.

General objective

To find out the baseline information on NCD risk factors.

Specific objectives

1. To measure the prevalence of selected NCD risk factors (behavioral and certain biological risk factors)
2. To assess the level of
    - Awareness on the risk factors and associated behaviours
    - Knowledge about ways to reduce the NCD risk factors
    - Health seeking behaviour of people with selected biological risk factors
3. To identify the population salt intake of the selected communities

METHODOLOGY

The baseline study was a part of community based intervention study in Ilam district with a control group of Dhankuta districts. Detail of this study is described below:

Study design

This was a cross sectional baseline survey of NCDs risk factors and associated behaviours carried out in both intervention and control clusters (communities) by using a pre-tested instruments in the first year (2015) of the intervention study. Ilam was considered as an interventional districts and Dhankuta as a control districts. Techniques from the WHO Step wise approach to surveillance were used for baseline data collection. Additional components like knowledge and attitude related questions were identified to be important for the study and were added in the baseline survey tool.

Study Population

The survey population included men and women aged 15-69 years who had been living at their place of residence for at least six months. People who were too frail and mentally unfit to participate in the study were excluded from the study.

Sample size calculation

Sample size was determined considering the national prevalence of tobacco use (P_1 31%)[3] which we aim to reduce by 30% and hence P_2 is 21.7%. The initial sample size was 277 for interventional and control arm each. Considering design effect of 1.5 and multiplying the size by 3 and considering 10% non-response the final sample size for each arm were 1385. This was rounded off to 1404.

Sampling technique

VDCs were considered as a cluster in this study. Twelve clusters from interventional and control districts were selected purposively.

For the purpose of representing geographical variations, the VDCs in both interventional and control districts were divided into northern, central and southern strata. Four VDCs from each of the strata were selected in each district. From each of nine wards of the VDCs, 13 individuals were selected leading to selection of 117 individual from each VDC and 1404 from each of the interventional and control districts. Systematic Random sampling was used for selecting 13 households (HHs) from each ward. After the selection of HH, KISH method was used to select eligible adult individual.

Survey Instruments

The survey was conducted using the WHO NCD STEPS instrument version 3.1. The questionnaire consisted of three STEPS for measuring the NCD risk factors. STEPS I involves collection of socio-demographic and behavioural factors, knowledge and attitude related information of the research participants. STEPS II involves physical measurement and STEPS III involves biochemical measurements. Each step consists of a number of core expanded and optional questions.

In this survey Personal Digital Assistants (PDA's) were used as a data collection tool. The PDAs had eSTEPs software installed to record the information given by the participants in STEP I, Physical measurements taken in STEP II and the biochemical measurements taken in STEPS III. Following the completion of data collection a final master dataset was created.

Data collection procedures

Data were collected by using structured questionnaire by trained field interviewers. Regarding bio-chemical and physical measurement following ways were followed as described below:

Physical measurements: Height and weight were measured and body mass index (BMI) calculated. Waistband hip circumference was also measured in order to determine the waist-hip ratio. Height was measured with a portable standard stature scale. For the height measurement, participants were asked to remove footwear (shoes, slippers, sandals) and any hat or hair ties. Participants stood on a flat surface facing the interviewer with their feet together and heels against the back board with knees straight They were asked to look straight ahead and not tilt their head up, making sure that their eyes were at the same level as their ears. Height was recorded in centimeters.

Weight was measured with a portable digital weighing scale (Seca, Germany). The instrument was placed on a firm, flat surface. Participants were requested to remove their footwear and socks, wear light clothes, and stand on the scale with one foot on each side of the scale, face forward, place arms at their side and wait until asked to step off. Weight was recorded in kilograms.

Waist and hip circumference were measured using a constant tension tape (Seca, Germany). A private area, such as a separate room with in the house, was used and the measurement was taken over light clothing. Waist circumference was taken at the end of abnormal expiration with the arms relaxed at the sides at the midpoint between the lower margin of the last palpable rib and the top of the iliac crest (hip bone). Hip circumference was taken at the maximum circumference over the buttocks. Participants were requested to wrap the tape around them. The measurement was read at the level of the tape to the nearest 0.1cm, making sure to keep the measuring tape snug.

Blood pressure measurement: Blood pressure was measured with a digital, automated blood pressure monitor (OMRON digital device) with appropriate sized cuffs. Before taking the measurements, participants were asked to sit quietly and rest for 15 minutes with legs uncrossed. Three readings of the systolic and diastolic blood pressure were obtained. Participants rested for three minutes between each reading. The mean of the second and third readings were calculated. A medium cuff size was used for all participants. The digital sphygmomanometer cuff was placed on the left arm while the participant rested their forearm on a table with the palm facing upward. Participants were requested to remove or roll up clothing on the arm. The cuff was kept above the elbow aligning the mark for artery (ART) on the cuff with the brachial artery and making sure the lower edge of the cuff was placed 1.2 to 2.5 cm above the inner side of the elbow joint and with the level of the cuff at the same level as the heart. Hypertension was defined as having systolic blood pressure ≥140 mm Hg and/or diastolic blood pressure ≥90 mm Hg during the study.

or being previously diagnosed as having hypertension determined by sighting documentation such as a treatment record book or by the history of the participant taking medicine for high blood pressure.

Biochemical measurements: A separate mobile device was used for bio-chemical data collection. Mobile device has features of measuring a blood glucose level and cholesterol from 5 ml of blood. Fasting samples were taken to measure blood glucose and cholesterol. Participants were instructed to fast overnight for 12 hours. A capillary blood sample (5 ml of blood) was taken using a lancet needle with an aseptic technique.

Training of data collectors

The field interviewers underwent a 5 days extensive training on interview technique, questionnaire, physical measurement and blood pressure measurement,.

Data management and analysis

Mobile software was used to design and program the data collection tools in the PDAs. The use of the software and PDAs to collect the data helped to generate the final dataset quickly following the completion of data collection. The collected datasets were stored in the device and transferred to the server. The collected data files from the server were transferred to personal computers. The files were then transferred to a central computer, the format changed to Microsoft Excel and the files stored. The datasets from every individual PDA were then transferred to SPSS 16.0 and merged into a single SPSS file. Data cleaning and editing was done in the SPSS file. Analysis was done with Epi Info version 3.5.1 using prior developed analysis commands.

Ethical consideration

Ethical clearance was obtained from the Ethical Review Board (ERB) of NHRC. Written informed consent was obtained from research participants before data collection. In the process of obtained informed consent, detailed study related information was read out and explained in the local language from a printed information sheet. Information sheet contained objectives and methods of the study, duration of data collection, and frequency of contacts with research participants, clinical examination, risks and benefits of the study. Finger impression was obtained from participants who were unable to sign in the consent form.

The participants given the right to refuse to answer any question without providing the reason for their decisions and were allowed to withdraw from the study at any time. The information provided by the research participants was dealt with highest confidentiality and used only for this study. Privacy of the participants was maintained during data collection.

FINDINGS

This chapter presents the findings of the baseline survey. Ethnicity, marital status, employment status, smoking behavior, alcohol use behavior, physical activity level, fruit and vegetable consumption, anthropometric assessment, blood pressure, blood sugar and cholesterol level and knowledge of research participants regarding NCDs and risk factors have been presented in this chapter.

Socio-demographic characteristics

Age, sex, level of education, ethnicity, marital status and employment status have been covered under socio-demographic characteristics of research participants.

Table 1: Socio-demographic characteristics of research participants

Characteristics	Ilam District		Dhankuta District		National	
	Number	Percent age/year	Number	Percentage/ year	Number	Percentage / year
Age (Both sex)						
15-29	275	21.1	246	18.1	972	23.5
30-44	443	34.1	488	35.9	1558	37.6
45-69	584	44.8	627	46.0	1613	38.9
15-69	1302	100	1361	100	4143	100
Sex						
Male	562	43.2	563	41.4	1336	32.2
Female	740	56.8	798	58.6	2807	67.8
Level of Education						
Mean number of years of Education	1302	8.6	1361	4.9	4143	4.6

Table 1 describes the distribution of the participants age 15-69 by the level of education, age group, sex and employment status. Women and men constitute 56.8% and 43.2% of the participant's respectively in Ilam district whereas in Dhankuta, women and men constitute 58.6% and 41.4%. The largest age group in Ilam and Dhankuta was 45-69 years at 44.8% and 46.0 % percent respectively.

The level of education varied with small proportions having received post-graduate education in both district, Majority of the participants from both districts have completed primary education. Theme a number of years spent in school was found higher 8.6% (Men 9.2 years, women 8.3 years) in Ilam, than in Dhankuta (4.81%)

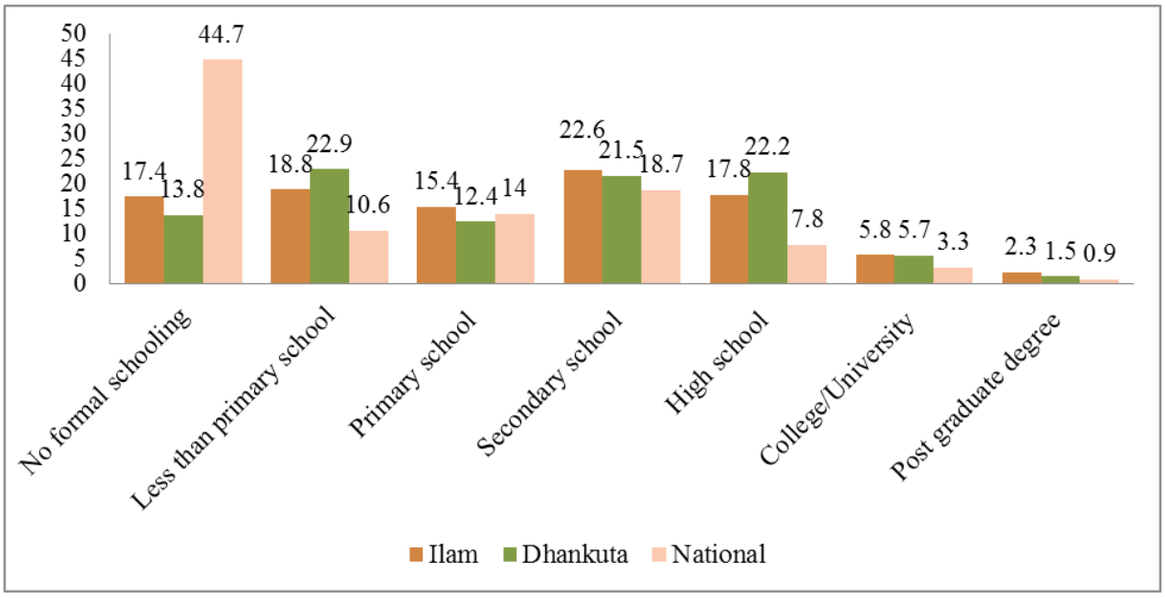

Figure 1: Education level of research participants

Approximately 17.4% participants in Ilam district and 13.8% of participants in Dhankuta had no formal schooling while 2.3% participants in Ilam and 1.8% participants in Dhankuta district had completed post graduate degree.

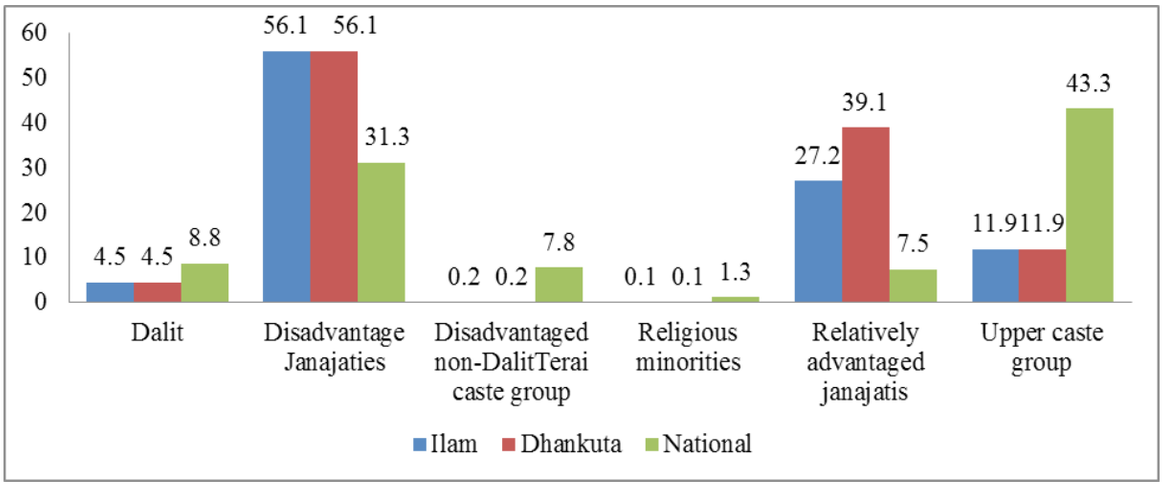

Figure 2: Ethnicity of the research participants

The ethnic group in Dhankuta district was mainly comprised of disadvantaged janajatis with 56.1% followed by relatively advantaged janajatis with 27.2%. Around 4.5% in each district were dalit whereas 11.9% in each districts belonged to upper caste group.

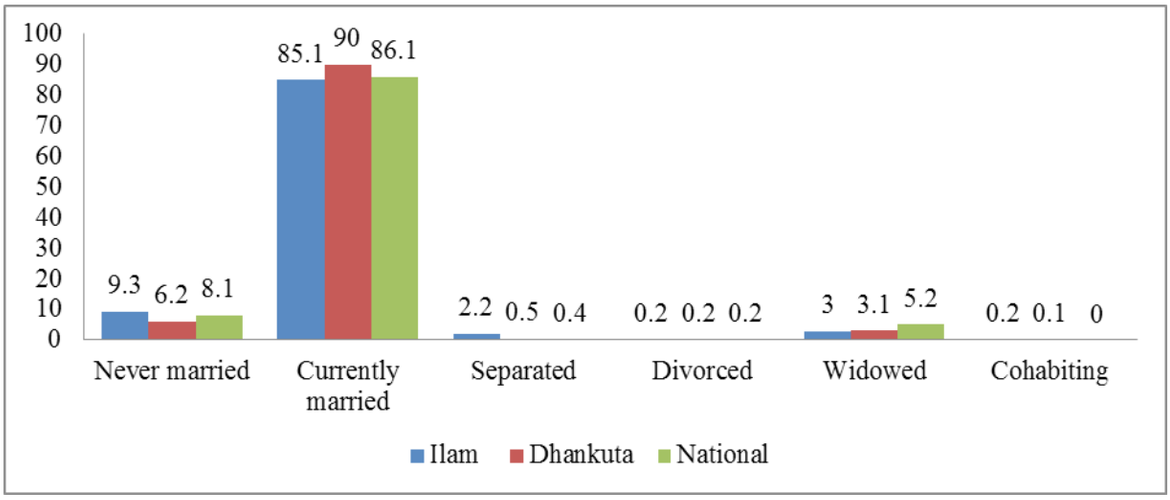

Figure 3: Marital Status of the research participants

Around 90% of the research participants in Dhankuta and around 85% of the research participants in Ilam districts were currently married. Around six percent of research participants in Dhankuta and nine percentages of research participants in Ilam were never married. These figures seem closer to that of national level as represented in STEPS survey of 2013.

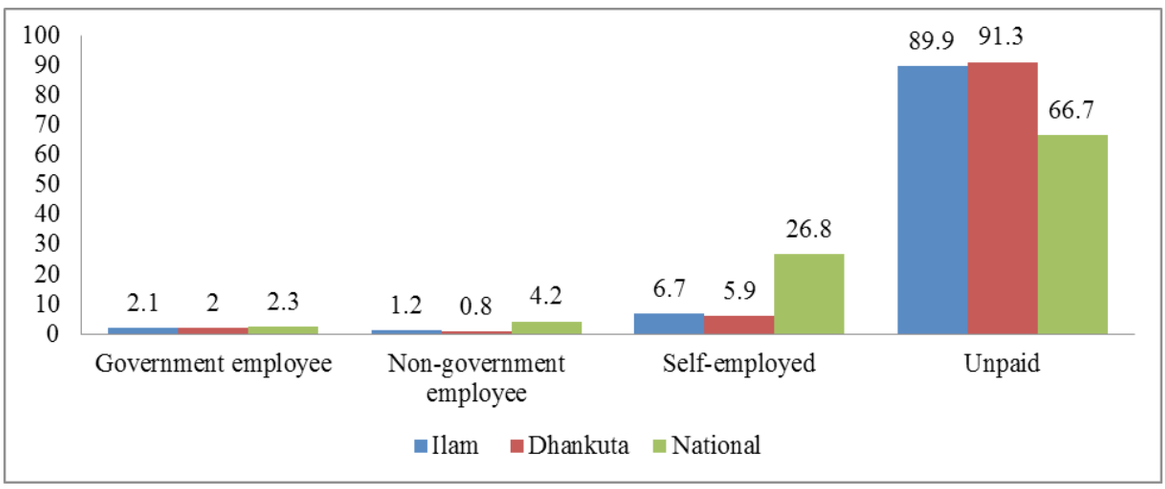

Figure 4: Employment status of research participants

Around 91 percentages of research participants in Dhankuta district and 91 percent in Ilam district were involved in unpaid works. Around seven percent of participants in Ilam and six percent in Dhankuta were self-employed while in both districts around two percent of research participants were government employees.

Behavioral and Dietary Risk Factors of NCD

Smoking and alcohol consumption behavior, level of physical activity and fruit and vegetable consumption were considered under behavioral and dietary risk factors of NCD in this study.

Table 2: Smoking behavior of research participants

Characteristics	Ilam District		Dhankuta District		National[3]	
	n	Percentage (95% CI)	n	Percentage (95% CI)	N	Percentage / day/ serving (95% CI)
Current smokers	1275	9.9 (7.4-12.3)	1349	15.8 (13.2-18.4)	4143	18.5 (16.5-20.5)
Current daily smokers among smokers	156	86.7 (79.6-93.8)	264	91.5 (86.4-96.7)	765	85.4 (81.0-89.8)
Mean age of starting smoking	120	17.8 (16.0-19.6)	223	17.6 (16.7-18.6)	685	18.2 (17.7-18.7)
Mean duration of smoking	120	18.3 (14.3-22.3)	223	26.9 (23.7-30.2)	685	24.0 (22.3-25.6)
Manufactured cigarette smokers among current smokers	74	99.2 (97.5-100.0)	187	99.7 (99.2-100.0)	765	86.1 (81.9-90.2)
Mean years since cessation of smoke	134	13.0 (10.6-15.3)	121	12.2 (8.7-15.6)	259	10.7 (9.2-12.3)
User of smokeless tobacoo	1255	19.3 (16.1-22.5)	1296	13.7 (11.1-16.2)	4143	17.8 (15.8-19.8)
Current (daily and non daily) tobaccousers (smoke and smokeless)	1230	26.5 (22.9-30.1)	1285	25.1 (21.7-28.6)	4143	27.7 (25.3-30.1)

The distribution of current tobacco use by selected demographic characteristics is detailed in Table 2.The survey indicated that 9.9% of the study participants in Ilam district were current smokers with 86.7% of all participants smoking daily compared to 15.8 % current smoker with 91.5% (86.4-96.7) smoking daily in Dhankuta district which was below the national figure. For all current daily smokers, the mean age of starting smoking in Ilam district was 17.8 years in comparison to Dhankuta 17.6 which was almost similar to the national figure. The mean duration of smoking in Ilam district was 18.3 years compared to 26.9 years in Dhankuta district. Mean duration of smoking in Dhankuta district was higher than national figure.

Table 3: Alcohol use behavior of research participants

Alcohol Measures	Ilam		Dhankuta		National[3]	
	n	Percentage	n	Percentage	N	Percentage
Percentage of life time abstainer	1302	69.1 (6.51-73.2)	1360	65.1 (60.1-70.0)	4143	73.5 (70.7–76.3)
Percentage of past 12 month abstainer	1302	5.4 (3.5-7.3)	1360	6.6 (4.6-8.6)	4143	4.5 (3.6–5.4)
Percentage who currently drink (drank alcohol in the past 30 days)	1302	22.6 (18.8-26.4)	1360	25.3 (20.8-29.8)	4143	17.4 (15.0–19.7)
Daily alcohol drinker in last 12 month among current drinker	404	38.5 (31.2-45.8)	445	57.1 (49.7-64.5)	802	17.8 (13.9-21.7)

Proportion of participants who had never used alcohol was higher in Ilam district (69%) than in Dhankuta district (65.1%) which was below the national level (73.5%). Furthermore, 5.4% abstained alcohol in 12 months in Ilam district whereas it was 6.6% in Dhankuta district. In both districts proportion of abstainer in last 12 month was higher than that of national level (4.5%).Almost one fourth (25.3%) of research participants were current drinkers in Dhankuta which was close to that of Ilam district (22.6) but higher than of national average (17.4%). More than half of the research participants (57.1%) used alcohol in last 12 months which higher than that of Ilam (38.5%) and almost threefold higher than that of national average (17.8%)

Table 4: Physical activity level of the research participants

Characteristics	Ilam		Dhankuta		National[3]	
	n	%/mean	n	%/mean	N	%/mean
Mean minutes of total physical activity on average per day	1285	367.4 (345.9-388.9)	1355	386.2 (362.7-409.8)	4117	267.4 (254.8-280)
Not meeting WHO recommendations on physical activity for health	1285	2.8 (1.6-4.0)	1355	3.4 (1.6-5.3)	4117	2.3
Level of Low physical activity	1128	4.7 (3.1-6.3)	1355	4.7 (2.4-7.1)	4117	3.5 (2.6-4.3)
Level of Medium physical activity	1128	6.2 (4.4-8.0)	1355	4.6 (2.8-6.5)	4117	11.6 (9.8-1.3)
Level of high physical activity	1128	89.1 (86.6-91.6)	1355	90.6 (87.8-93.5)	4117	85.0 (83.0-87.0)

The mean minutes of physical activity on average per day was 386.2 minutes in Dhankuta and 367.4 minutes in Ilam district. In both districts mean duration of physical activity per day was higher than that of national average of 267.4 minutes. As per the recommendation of WHO, adults aged 18–64 should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week or do at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week or an equivalent combination of moderate- and vigorous-intensity activity. Around three percentages of research participants in both districts (3.4% in Dhankuta and 2.8% in Ilam) did not meet WHO recommendation on physical activity. The level of high physical activity is higher in both the district and national figure and the level of high physical activity is high in Dhankuta (90.6%) as compared to Ilam (89.1%) and national (85%) figure respectively.

Table 5: Fruit and vegetable consumption (in a typical week)

Characteristics	Ilam		Dhankuta		National[3]	
	n	Percentage/ mean	n	Percentage/ mean	N	Percentage/ mean
Mean number of days fruits consumed per day	752	2.5 (2.2-2.7)	1046	3.6 (3.3-3.9)	4143	1.9 (1.8-2.1)
Mean number of servings of fruit consumed on an average per day	705	0.7 (0.6-0.8)	998	1.2 (1.0-1.3)	4142	0.5 (0.4-0.5)
Mean number of days vegetable consumed	1268	6.2 (6.0-6.4)	1046	3.6 (3.3-3.9)	4143	4.8 (4.6-4.9)
Mean number of serving of vegetable consumed on an average per day	1246	2.4 (2.2-2.6)	1312	1.9 (1.8-2.0)	4143	1.4 (1.3-1.4)
Percentage who ate less than 5 servings of fruits and / or vegetable on an average	1249	89.7 (85.9-93.5)	1317	2.8 (2.7-3.0)	4143	98.9 (98.4-99.4)

Above table shows that mean number of days fruit consumed per week was higher in Dhankuta district (3.6) than Ilam district (2.5). In both districts, the mean number of days fruit consumed per week was higher than the national figure (1.9). Similarly, average number of serving of fruit consumed per day was higher in Dhankuta (1.2%) than Ilam district (0.7%) while it was 0.5% at national level. Mean number of days vegetable consumed per week was higher in Ilam (6.2)

than Dhankuta district (3.6) and national average (4.8). Average number of serving of vegetable consumed per day was also higher in Ilam (2.4) than that of Dhankuta district (1.9) and national average (1.4).

Anthropometric Assessment

Table 6: Anthropometric assessment of research participants

Characteristics	Ilam		Dhankuta		National[3]	
	n	Percentage/ mean	n	Percentage/ mean	N	Percentage/ mean
Mean body mass index-BMI(kg/m^2)	1267	22.7 (22.3-23.0)	1334	22.9 (22.5-23.3)	4079	22.4 (22.2-22.6)
Percentage who are under-weight <18.5	1267	7.2 (4.8-9.6)	1334	7.0 (5.2-8.7)	4079	10.4 (8.8-12.1)
Percentage who are Normal weight(18.5-24.9)	1276	70.7 (67.0-74.4)	1334	67.1 (63.4-70.9)	4079	67.9 (65.6-70.3)
Percentage who are obese ≥30.0	1276	3.7 (2.4-5.1)	1334	4.0 (2.3-5.7)	4079	4.0 (3.1-4.8)

The mean BMI in both Ilam and Dhankuta district was around 23 which was slightly more than national average of 22.4.Around 7% of research participants were under-weight in both districts which was lower than national average of 10.4%. Ilam had higher proportion of normal weight (70.7%) participants as compared to Dhankuta (67.1%) and national proportion (67.9%). Ilam had comparatively lower proportion of obese participants (3.7%) as compared to Dhankuta and national figure (4% each).

Blood Pressure

Table 7: Blood Pressure of the research participants

Characteristics	Ilam		Dhankuta		National[3]	
	n	Percentage	n	percentage	N	percentage
Never measured	1302	27.3(23.1-31.6)	1360	30.6 (26.6-34.6)	4143	55.1 (39.4-45.9)
Diagnosed within past 12 months	1302	9.1 (6.9-11.2)	1360	6.0 (3.9-8.0)	4143	0.8 (0.3-1.4)
Mean systolic blood pressure (mmHg)	1301	128.1 (126.7-129.5)	1360	126.8 (125.4-128.3)	4124	127.4 (126.5-128.3)

Mean diastolic blood pressure (mmHg)	1301	81.7 (80.6-82.9)	1360	81.8 (80.8-82.7)	4124	79.8 (79.2-80.4)
SBP ≥140 and/or DBP ≥ 90 mmHg or currently on medication for raised blood pressure	1301	27.3 (24.1-30.5)	1360	24.3 (20.4-28.1)	4124	25.7 (23.5-27.9)
Percentage with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg) who are not currently on medication for raised BP	237	94.8 (91.7-97.9)	356	95.8 (93.3-98.4)	1203	88.3 (85.9–90.7)
SBP ≥140 and/or DBP ≥ 90 mmHg, excluding those on medication for raised blood pressure	1252	25.6 (22.4-28.8)	1345	23.5 (19.7-27.3)	3960	23.4 (21.3-25.6)

The percentage of research participants who never measured blood pressure was higher in Dhankuta (30.6) than Ilam district (27.3) which was lower than that at national level (55.1%). The proportion of research participants diagnosed of having high BP within past 12 monthswas 9.1% in Ilam and 6.0% in Dhankuta district which seemed higher than national figure (5.3%). Percentage of research participants with raised BP who are not currently on medication for raised BP was 95.8% in Dhankuta and 94.8% in Ilam district which was higher than national figure of 88.3%. The proportion of research participants with SBP ≥140 and/or DBP ≥ 90 mmHg, excluding those on medication for raised blood pressure was high in Ilam (25.6%) as compared to Dhankuta district (23.5%) and the national figure (23.4%). The overall prevalence of raised blood pressure including those having SBP ≥140 and/or DBP ≥ 90 mmHg or currently on medication for raised blood pressure was 27.3% in Ilam district and 24.3% in Dhankuta which shows resemblance with national prevalence of 25.7%.

Blood glucose and cholesterol

Table 8: Blood sugar and cholesterol level of the research participants

Characteristics	Ilam		Dhankuta		National[3]	
	n	Percentage	n	Percentage	N	Percentage
Never measured blood sugar	1302	87.4 (84.7%-90.0)	1360	87.9 (84.5-91.2)	4143	89.2 (87.4-91.1)
Diagnosed within past 12 months	1302	1 (0.2-1.8)	1360	1.7 (0.8-2.7)	4143	1.9 (1.4-2.5)
Currently taking drugs (medication) prescribed for diabetes among those previously diagnosed	48	49.6 (29.9-69.4)	38	36.8 (16.8-56.8)	107	63.4 (51.1-75.7)
Percentage with raised fasting blood glucose or currently on medication for raised blood glucose	1136	13.3 (10.0 – 16.7)	1281	6.5 (4.6-8.4)	3772	3.6 (2.9-4.4)
Percentage with raised total cholesterol (≥ 5.0 mmol/L or ≥ 190 mg/dl or currently on medication for raised cholesterol)	1136	11.6 (8.8 – 14.5)	1281	11.20% (8.7-13.7)	1197	22.7 (20.5–24.9)

Around 87.4% in Ilam and 87.9% in Dhankuta never measured blood sugar which seems closer to national percentage of 89.2. Percentage of research participants with raised fasting blood glucose was 13.3% in Ilam and 6.5% in Ilam which was higher than that at national level (3.6%). Among the previously diagnosed, 49.6% participants in Ilam and 36.8% participants in Dhankuta district were currently taking medicine prescribed for diabetes which was lower than the national figure of 89.2%. Similarly, prevalence of raised cholesterol was 11.6% in Ilam, 11.2% in Dhankuta which seem lower than that at national level (22.7%).

Knowledge about NCD

More than 90 percent of research participants in Dhankuta shared that tobacco and alcohol use as a risk factor of NCD. In each districts, more than 95% or research participants (96.6% in Ilam and 97.1% in Dhankuta) shared that smoking affects different health conditions. The percentage of research participants recognizing tobacco, excessive alcohol use and unhealthy diet as risk factors of NCDs, smoking as cause of cardiovascular disease , chronic respiratory disease and cancer ranged from 80 to 90% in Ilam. Around 88 % of research participants perceived

hypertension and cardiovascular diseases as preventable in Ilam. On other side, slightly more than 85% of research participants considered smoking as cause of cardiovascular and chronic respiratory diseases in Dhankuta. Similarly, more than 80% of the research participants perceived excessive alcohol use as cause of heart disease and cancer in Dhankuta. (Table has been presented in Annex)

CONCLUSION

The survey indicated that 9.9% of the study participants in Ilam district were current smokers with 86.7% of all participants smoking daily compared to 15.8 % current smoker with 91.5% of all participants smoking daily in Dhankuta district. Almost one fourth (25.3%) of research participants were current drinkers in Dhankuta which was close to that of Ilam district (22.6). The mean minutes of physical activity on average per day were 386.2 minutes in Dhankuta and 367.4 minutes in Ilam district with around three percentages of research participants in both districts not meeting WHO recommendation on physical activity. The mean BMI in both Ilam and Dhankuta district was around 23 which were slightly more than national average of 22.4. Ilam has comparatively lower proportion of obese participants (3.7%) as compared to Dhankuta and National figure (4% each).Around 27.3% of research participants in Ilam and 24.3% of research participants in Dhankuta were hypertensive. Strikingly, 95.8% of research participants in Dhankuta and 94.8% of in Ilam district were not under medication despite having high BP.

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ANNEX

Annex 1: Knowledge of research participants about NCDs

Questions	Ilam		Dhankuta	
	(%)	n	(%)	n
Knowledge towards tobacco use as a risk factor of NCD	89.7	1302	93.7	1361
Knowledge towards smoking as a cause of cardiovascular disease	82.7	1302	89.6	1361
Knowledge towards smoking as a cause of Diabetes Mellitus	53.8	1302	55.5	1361
Knowledge towards smoking as a cause of Chronic Respiratory Disease	83.8	1302	89.4	1361
Knowledge towards smoking as a cause of Cancer	88.4	1302	90.3	1361
Knowledge towards smoking affects on others health	96.6	1302	97.1	1361
Knowledge towards alcohol use as a risk factor of NCD	86.4	1302	90.7	1361
Knowledge towards excessive use of alcohol can cause heart disease	82.5	1302	87.3	1361
Knowledge towards excessive use of alcohol can cause chronic respiratory disease	72.2	1302	77.6	1361
Knowledge towards excessive use of alcohol can cause cancer	74.8	1302	81.1	1361
Knowledge towards excessive use of alcohol can cause Diabetes Mellitus	56.7	1302	59.2	1361
Knowledge towards unhealthy diet as a risk factor of NCDs	82.5	1302	84.2	1361
Knowledge towards unhealthy diet can cause heart disease	75.2	1302	75.8	1361
Knowledge towards unhealthy diet can cause chronic respiratory diseases	61.8	1302	66.9	1361
Knowledge towards unhealthy diet can cause cancer	67.2	1302	65.3	1361
Knowledge towards unhealthy diet can cause Diabetes Mellitus	47.5	1302	63.3	1361
Knowledge towards physical inactivity as a risk factor of NCDs	82.9	1302	85.6	1361
Knowledge towards physical inactivity can cause Heart Disease	75.3	1302	80.3	1361
Knowledge towards physical inactivity can cause Chronic Respiratory Disease	61.1	1302	69.2	1361

Knowledge towards physical inactivity can cause Cancer	53.8	1302	62.7	1361
Knowledge towards physical inactivity can cause Diabetes Mellitus	66.1	1302	66.9	1361
Knowledge about Hypertension as a non-communicable disease	73.9	1302	73.1	1221
Knowledge about Hypertension as a preventable and controlled disease	87.9	1302	82.1	1221
Knowledge about Cardiovascular Disease is a condition that can be prevented and or controlled	85.8	1016	80.7	1150
Knowledge towards CRD as a non-communicable Disease	70.6	1016	70.6	1180
Knowledge about CRD is a condition that can be prevented and or controlled	88.2	1016	81	1180
Knowledge about CRD occurs mostly in elderly people	73.3	1016	80.3	1180
Knowledge towards indoor air pollution as a risk factors of CRD	94.9	1016	92	1180
Knowledge towards Cancer as a non-communicable Disease	73.7	1302	74.3	1180
Knowledge towards Cancer as a preventable or controlled Disease	78.1	1302	75.5	1180
Knowledge towards non-communicable disease that cannot be spread	77.6	1302	25.2	1180
Knowledge towards NCDs as preventable disease through preventive measures	73.9	1302	70.4	1361
did you ever receive any health messages regarding risk factors of non-communicable diseases in the past 6 months	28.8	1302	23.4	1361

Annex 2: Attitude of research participants about NCDs and Risk factors of NCDs

	Ilam						Dhankuta					
	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly disagree	Total	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly disagree	Total
KT4	3.6	7.1	3.3	46.7	39.2	1302	1.4	3.7	5	56	33.9	1361
KT5	3.5	32.2	10.7	35.2	18.5	1302	4.3	27.6	17.3	37.4	13.5	1361
KT6	5.5	31.3	21.7	33.6	8.0	1302	3.8	21.9	31.9	32.2	10.2	1361
KT7	34.2	61.8	2.5	1.2	0.4	1302	26.2	63.1	4.6	3.5	2.6	1361
KT8	41.5	54.4	2.2	1.2	0.8	1302	30.6	60.4	4	3.5	1.5	1361
KT9	3.6	14.4	9.4	47.2	25.3	1302	3.2	13	14.3	44.8	24.6	1361
KT10	22.7	62.3	11.7	3.1	0.2	1302	26.8	61.4	9.4	1.9	0.4	1361
KT11	29.5	60.4	8.4	1.3	0.3	1302	25.9	64.1	8.7	1	0.2	1361
KA3	51.2	42.9	4.5	0.7	0.8	1302	36	57.8	4.6	1.2	0.4	1361
KA4	4.9	35.8	9.7	36.6	13	1302	6.3	38.8	11.6	32	11.3	1361
KA5	4.6	35.3	10.8	35.9	13.4	1302	7.2	39.5	10.4	33.1	9.8	1361
KA6	6.1	28.7	14	37.6	13.5	1302	4.3	31.8	13.9	37.8	12.1	1361
KA7	3.1	36.5	12.7	34.9	12.8	1302	5.5	36.3	11.8	36	10.4	1361
KA8	4.1	33.6	11.8	35.6	14.9	1302	5.7	32.7	17.1	32.8	11.6	1361
KA9	47.5	44.7	4.9	2.3	0.5		38.7	53.1	5.5	2.6		1361
KD3	47.5	50.5	2			1302	30.6	66.3	2.9	0.1		1361
KD4	39	58.5	2.4	0.1		1302	24.6	72.5	2.8	0.1		1361
KD5	33.6	61.6	4.4	0.5		1302	20.1	73.5	6.1	0.4		1361
KD6	24.5	62.5	8.4	4.3	0.3	1302	18.8	69.4	9.1	2.6		1361
KD7	35.8	61.2	3.0			1302	27	69.3	3.5	0.2		1361
KD8	18.7	66.7	11.1	3.3	0.2	1302	8.2	77.7	12	1.7	0.4	1361
KD9	16.8	59.1	13.2	10.5	0.3	1302	7.1	69.6	13.7	9	0.7	1361
KD10	11.0	84.0	4.8	0.2		1302	4.4	88.6	6.6	0.4		1361
KP4	16.2	60.7	20.7	2.4		1302	13.2	64.9	20.9	0.8	0.1	1361
KP5	17.8	66.5	14.4	1.3		1302	11.4	73.8	14.3	0.5		1361
KP6	13.1	57.5	27.3	2	0.1	1302	11.1	59.4	28.1	1.3		1361
KP7	10.8	54.4	33.1	1.8		1302	7.9	57.5	32	2.3	0.3	1361
KP8	5.8	50.2	39.4	4.5	0.2	1302	4.3	56.9	32.5	5.2	1	1361
KP9	5.8	46	41.2	6.5	0.5	1302	5.1	53.7	33.9	6.2	1.1	1361
KP10	31	58.8	9.6	0.5	0.1	1302	20.3	68.1	11.5	0.1	0.1	1361
KP11	32.1	60.8	6.9	0.2		1302	24.5	65	10.4	0.1		1361
KP12	29.3	61.1	9.4	0.2		1302	19	70.2	10.9			1361
KH4	36	54.7	6.9	1.8	0.5	1143	22.9	67.8	8.5	0.8		1221
KH5	12.9	41.4	21.1	21.3	3.3	1143	11.9	49.4	26.2	10.1	2.5	1150
KH6	14.3	53.8	17.8	13.6	0.5	1143	13.2	60.6	17.7	8.2	0.3	1221
KH7	14.5	67	15	3.5		1143	11.1	67.6	19.6	1.7		1221
KH8	14.5	81.5	96.5	100		1143	9.4	74.6	14.4	1.5	0.1	1221
KH9	17.3	63.3	15.9	3.2	0.2	1143	14.5	63.3	20	2	0.2	1221
KH10	12.9	64.8	20.4	1.7	0.2	1143	14.7	70.9	13.8	0.6		1221

KH11	77.9	22.1				1302	84.1	15.9				1361
KH12	71.2	10.1	18.7			1014	71	7.9	21			1145
KH13	87.1	1.6	11.3			1014	78.8	1.7	19.5			1145
KH14	14.7	35.6	23.1	22.1	4.5	1014	16.4	45.2	25.3	10.6	2.4	1145
KH15	18.4	59.4	17.3	4.3	0.6	1014	13	64.3	18.3	3.9	???	1145
KH16	11.5	53.6	27	7.2	0.7	1014	8.9	59.6	27.1	3.8	0.7	1145
KH17	11	62.6	23.9	2.4	0.1	1014	8.6	62	26.2	2.7	0.4	1145
K5	7.2	32.8	24.6	29	6.4	1016	8	44.3	31.6	13	3	1150
K6	12.3	61.5	23.5	2.4	0.4	1016	7.6	64.4	26.3	1.5	0.2	1150
K7	11.8	59.6	20.7	7.4	0.5	1016	7.7	65.1	22.4	4.5	0.2	1150
K8	13.6	62.6	20.6	3	0.2	1016	10.5	63.6	24.3	1.3	0.3	1150
K9	15.1	68.9	14.4	1.3	0.3	1016	9.9	71.8	17.9	0.3	0.1	1150
K10	13.7	60.6	22.4	3.2	0.1	1016	10.3	60.9	25.3	2.9	0.6	1150
K11	13.6	60.3	24.4	1.5	0.2	1016	8.2	59.1	30.8	1.5	0.4	1150
K12	8	49.3	39.4	3	0.3	1016	4.3	50.3	41.7	3.1	0.6	1150
K25	45.1	50.3	3.8	0.7		1302	25.2	68.5	6.2			1361
K26	28.6	55.3	14.7	1.2	0.2	1302	23.5	58.7	16.8	0.8	0.2	1361
K27	7.5	37.9	21.1	26.2	7.4	1302	3.1	46.0	24.7	21.1	5.1	1361

Annex 3: Variable codes for Knowledge and attitude

	Questions
KT1	Knowledge towards tobacco use as a risk factor of NCD
KT2a	Knowledge and attitude towards smoking as a cause of cardiovascular disease
KT2b	Knowledge and attitude towards smoking as a cause of Diabetes Mellitus
KT2c	Knowledge and attitude towards smoking as a cause of Chronic Respiratory Disease
KT2d	KT2d Knowledge and attitude towards smoking as a cause of Cancer
KT3	Knowledge towards smoking affects on others health
KT4	Knowledge and attitude towards tobacco use as good for health
KT5	Knowledge and attitude towards tobacco use help to relieve stress
KT6	Knowledge and attitude towards tobacco use maintain/reduce body weight
KT7	Knowledge and attitude towards tobacco use gives bad breath
KT8	Knowledge and attitude towards tobacco use is harmful to health
KT9	Knowledge and attitude towards using tobacco promotes long life
KT10	Knowledge and attitude towards using tobacco is more likely to die from heart disease
KT11	Knowledge and attitude towards using tobacco is more likely to die from cancer
KA1	Knowledge and attitude towards alcohol use as a risk factor of NCD
KA2a	Knowledge and attitude towards excessive use of alcohol can cause heart disease
KA2b	Knowledge and attitude towards excessive use of alcohol can cause chronic respiratory disease
KA2c	Knowledge and attitude towards excessive use of alcohol can cause cancer

	Questions
KA2d	Knowledge and attitude towards excessive use of alcohol can cause Diabetes Mellitus
KA3	Knowledge and attitude towards drinking excessive levels of alcohol can affect our health
KA4	Knowledge and attitude towards the use of alcohol beverages is something normal
KA5	Knowledge and attitude towards drinking one glass of alcohol is considered as drinking socially
KA6	Knowledge and attitude towards alcoholic drinks are pleasant and offer well-being
KA7	Knowledge and attitude towards drinking moderately is not harmful
KA8	Knowledge and attitude towards alcohol relaxes daily tension
KA9	Knowledge and attitude towards excessive alcohol use is dangerous to our health
KD1	Knowledge and attitude towards unhealthy diet as a risk factor of NCDs
KD2a	Knowledge and attitude towards unhealthy diet can cause heart disease
KD2b	Knowledge and attitude towards unhealthy diet can cause chronic respiratory diseases
KD2c	Knowledge and attitude towards unhealthy diet can cause cancer
KD2d	Knowledge and attitude towards unhealthy diet can cause Diabetes Mellitus
KD3	Knowledge and attitude towards fruits and vegetables have to consume daily for our health
KD4	Knowledge and attitude towards its good to include green leafy vegetable in our daily
KD5	Knowledge and attitude towards its important to eat fruits everyday
KD6	Knowledge and attitude towards low intake of fruits/vegetables can affect our health
KD7	Knowledge and attitude towards fruits and vegetables have to be consumed daily for our
KD8	Knowledge and attitude towards its good to avoid extra cooking oil/fat in our diet
KD9	Knowledge and attitude towards eating too much oily and spicy can increase obesity
KD10	Overall, what they usually eat (mistake: different in analysis and baseline code)
KP1	Knowledge and attitude towards physical inactivity as a risk factor of NCDs
KP2a	Knowledge and attitude towards physical inactivity can cause Heart Disease
KP2b	Knowledge and attitude towards physical inactivity can cause Chronic Respiratory Disease
KP2c	Knowledge and attitude towards physical inactivity can cause Cancer
KP2d	Knowledge and attitude towards physical inactivity can cause Diabetes Mellitus
Kp4	Knowledge and attitude towards Physical activity is important to prevent oneself from Hypertension
Kp5	Knowledge and attitude towards physical activity is important to prevent oneself from overweight and
Kp6	Knowledge and attitude towards physical inactivity is important to prevent oneself from Cardiovascular Disease

	Questions
Kp7	Knowledge and attitude towards physical inactivity is important to prevent oneself from Diabetes Mellitus
Kp8	Knowledge and attitude towards physical inactivity is important to prevent oneself from CRD
Kp9	Knowledge and attitude towards physical inactivity is important to prevent oneself from Cancer
Kp10	Knowledge and attitude towards regular physical activity has health benefits
Kp11	Knowledge and attitude towards Physical activity for at least 10 minutes is important
Kp12	Knowledge and attitude towards physical exercise can maintain the body fit and healthy
KH2	Knowledge about Hypertension as a non-communicable disease
KH3	Knowledge about Hypertension as a preventable and controlled disease
KH4	Knowledge and attitude towards consuming salt in excess increases risk of having HTN
KH5	Knowledge towards if your family members have HTN, you are also at risk of
KH6	Knowledge about obese people are more at risk of HTN than those who are
KH7	Knowledge about people with consistent stress and tension are at risk of HTN
KH8	Knowledge and attitude towards smoking increases risk of having HTN
KH9	Knowledge towards regular physical activity makes people less likely to have HTN
KH10	Knowledge and attitude towards excessive alcohol drinkers are at risk of having HTN
KH11	Have you ever heard word Diabetes before
KH12	Knowledge about Diabetes Mellitus as a non-communicable disease
KH13	Knowledge about Diabetes Mellitus as a preventable and controlled disease
KH14	Knowledge towards if your family members have DM, you are also at risk of
KH15	Knowledge about obese people are more at risk of DM than those who are
KH16	Knowledge about people with consistent stress and tension are at risk of DM
KH17	Knowledge towards regular physical activity makes people less likely to have DM
K4	Knowledge about Cardiovascular Disease is a condition that can be prevented and or controlled
K5	Knowledge towards if your family members have Cardiovascular diseases, you are also at risk
K6	Knowledge about people with HTN are at risk of Cardiovascular diseases
K7	Knowledge about obese people are more at risk of Cardiovascular diseases than those who
K8	Knowledge about people with consistent stress and tension are at risk of developing Cardiovascular
K9	Knowledge about smoking increases risk of developing Cardiovascular Diseases
K10	Knowledge towards regular physical activity makes people less likely to have Cardiovascular Diseases
K11	Knowledge about timely control of raised blood pressure helps to prevent oneself from Cardiovascular

	Questions
K12	Knowledge about timely control of DM helps to prevent oneself from Cardiovascular Diseases
k13	Have you ever heard about Chronic Respiratory Diseases
k14	Knowledge towards CRD as a non-communicable Disease
k15	Knowledge about CRD is a condition that can be prevented and or controlled
k16	Knowledge about CRD occurs mostly in elderly people
k17	Knowledge towards indoor air pollution as a risk factors of CRD
K18	Knowledge and attitude towards CRD are mostly
K19	Knowledge about CRD can be caused by inhaling dust for several years
K20	Knowledge and attitude towards CRD can be prevented by reducing indoor air pollution
K21	Knowledge towards physical activity helps preventing and controlling CRD
K22	Have you heard of Cancer Disease
K23	Knowledge towards Cancer as a non- communicable Disease
K24	Knowledge towards Cancer as a preventable or controlled Disease
K25	Knowledge and attitude towards smoking as a leading risk factor for Cancer
K26	Knowledge and attitude towards Cancer can be caused by exposure to pesticides and chemicals
K27	Knowledge towards Cancer as a curable disease
K28	Knowledge towards non-communicable disease that cannot be spread
K29	Knowledge towards NCDs as preventable disease through preventive measures
K30	did you ever receive any health messages regarding risk factors of non-communicable diseases in the past 6 months

Annex 4: Detail questionnaire of the study

COMMUNITY BASED INTERVENTION FOR PREVENTION AND CONTROL OF NCD RISK FACTORS: BASELINE SURVEY (CIPCON: BASELINE SURVEY)

Survey Information

This is a baseline survey for***C****ommunity based* ***I****ntervention for* ***P****revention and* ***Co****ntrol of* ***N****CD risk factors: Baseline survey (****CIPCON:*** Baseline Survey***)***which will be implemented in two hill districts (Ilam and Dhankuta) of Nepal. Ilam will be the intervention district, while Dhankuta will be the control district.

Location and Date	Response	Code
1.Cluster ID (District code, VDC code, Ward Number)	⌊_⌋ ⌊_⌋⌊_⌋ ⌊_⌋	I1
2. Name of VDC		I2
3. Interviewer ID	⌊_⌋⌊_⌋⌊_⌋	I3
4. Date of completion of the survey tool	⌊_⌋⌊_⌋ ⌊_⌋⌊_⌋ ⌊_⌋⌊_⌋⌊_⌋⌊_⌋ dd mm year	I4

Consent, Interview Language and Name	Response	Code
5.Consent has been read and obtained	Yes 1 No 2 If NO, END	I5
7.Time of interview (24 hour clock)	⌊_⌋⌊_⌋ : ⌊_⌋⌊_⌋ hrsmins	I7
8. Family Surname		I8
9.First Name		I9
Additional Information that may be helpful		
10. Contact phone number where possible		I10

Step 1 Demographic Information

Demographic Information		
Question	Response	Code
11.Sex (Record Male / Female as observed)	Male 1 Female 2	C1
13. How old are you? (Completed age in years)	Years ⌊_⌊_⌋	C3
14. In total, how many years have you spent at school and in full-time study (excluding pre-school)?	Years ⌊_⌊_⌋	C4
15. What is the highest level of education you have completed? [INSERT COUNTRY-SPECIFIC CATEGORIES]	Illiterate 1 Informal Education 2 Less than primary school 3 Primary school completed 4 Secondary school completed 5 High school completed 6 College/University completed 7 Post graduate degree 8	C5
16.What is your Ethnic background?	Dalit 1 Disadvantaged Janajatis 2 Disadvantaged non-dalitTerai Caste groups 3 Religious minorities 4 Relatively advantaged Janajatis 5 Upper caste groups 6	C6
17.What is your marital status?	Never married 1 Currently married 2 Separated 3 Divorced 4 Widowed 5 Cohabitating 6	C7
18. Which of the following best describes your mainworkstatus over the past 12 months?	Government employee 1 Non-government employee 2 Self-employed 3 Agriculture 4 Animal Husbandry 5 Student 6 Homemaker 7 Retired 8 Unemployed (able to work) 9 Unemployed (unable to work) 10 Refused 88	C8

19. How many people older than 15 years, including yourself, live in your household?	Number of people ⌊_⌊_⌋	C9
How many people aged 1-15 years live in your household?	Number of people ⌊_⌊_⌋	C10

EXPANDED: Demographic Information, Continued		
Question	Response	Code
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	C10a
	OR per month ⌊_⌊_⌊_⌊_⌊_⌊_⌊_⌋ Go to T1	C10b
	OR per year ⌊_⌊_⌊_⌊_⌊_⌊_⌊_⌋ Go to T1	C10c
	Refused 88	C10d

Step 1 Behavioural Measurements

CORE: Tobacco Use		
Now I am going to ask you some questions about tobacco use.		
Question	Response	Code
Do you currently smoke any tobacco products, such as cigarettes, bidi, tamakhu? (USE SHOWCARD)	Yes 1 No 2 If No, go to T8	T1
Do you currently smoke tobacco products daily?	Yes 1 No 2	T2
How old were you when you first started smoking?	Age (years) Don't know 77 ⌊_⌊_⌋ If Known, go to T5a/T5aw	T3
Do you remember how long ago it was? (RECORD ONLY 1, NOT ALL 3) Don't know 77	In Years ⌊_⌊_⌋ If Known, go to T5a/T5aw	T4a
	OR in Months ⌊_⌊_⌋ If Known, go to T5a/T5aw	T4b
	OR in Weeks ⌊_⌊_⌋	T4c
24. On average, how many of the following products do you smoke each day/week? (IF LESS THAN DAILY, RECORD WEEKLY) (RECORD FOR EACH TYPE, USE SHOWCARD) Don't Know 7777	DAILY↓ WEEKLY↓	
	Manufactured cigarettes ⌊_⌊_⌊_⌊_⌋ ⌊_⌊_⌊_⌊_⌋	T5a/ T5aw
	Hand-rolled cigarettes ⌊_⌊_⌊_⌊_⌋ ⌊_⌊_⌊_⌊_⌋	T5b/ T5bw
	Pipes full of tobacco ⌊_⌊_⌊_⌊_⌋ ⌊_⌊_⌊_⌊_⌋	T5c/ T5cw
	Cigars, cheroots, cigarillos ⌊_⌊_⌊_⌊_⌋ ⌊_⌊_⌊_⌊_⌋	T5d/ T5dw
	Number of Shisha sessions ⌊_⌊_⌊_⌊_⌋ ⌊_⌊_⌊_⌊_⌋	T5e/ T5ew
	Other ⌊_⌊_⌊_⌊_⌋ ⌊_⌊_⌊_⌊_⌋ If Other, go to T5other, else go to T6	T5f/ T5fw
	Other (please specify): ⌊_⌊_⌊_⌊_⌊_⌊_⌋	T5other
During the past 12 months, have you tried to stop smoking?	Yes 1 No 2 If No go to T7	T6

How many times you made an attempt to quit smoking in the past 12 months?	No of times └┴┘	X1
On your most recent quit attempt, how long were you able to stop smoking? (Record only one)	No of days └┴┘	X2a
	No of weeks └┴┘	X2b
	No of months └┴┘	X2c
What were your reasons for trying to stop smoking in the past 12 months?	Family Pressure 1 Health concern (Self) 2 Health concern (family members) 3 Advice & example from others 4 Restrictions on smoking in workplace, public place 5 Social stigma 6 Others 7	X3
	Other Reasons	X3 Others
What methods/ways do you often use to quit smoking?	Will Power 1 Behaviour approach (Stay away from smokers, distract, drink tea etc 2 Medical Measures (Nicotine replacement, traditional medicine) 3 Family help 4 Commercial cessation products 5 Others 6	X4
	Other methods used	X4 Others
What was the most influential trigger to continue smoking when you tried to quit smoking?	Social situations (Company of others) 1 Feeling stressed 2 Feeling negative or down 3 Feeling positive or elated 4 During entertainment (playing cards, watching sports) 5 While reading or writing 6 When alone 7 While consuming alcohol 8 After a meal 9 When feeling tired 10 Others 11	X5
	Other triggers	X5 Others

During any visit to a doctor or other health worker in the past 12 months, were you advised to quit smoking tobacco?	Yes	1 If T2=Yes, go to T12; if T2=No, goto T9	T7
	No	2 If T2=Yes, go to T12; if T2=No, go to T9	
	No visit during the past 12 months	3 If T2=Yes, go to T12; if T2=No, go to T9	
In the past, did you eversmoke any tobacco products? (USE SHOWCARD)	Yes	1	T8
	No	2 If No, go to T12	
In the past, did you ever smoke daily?	Yes	1 If T1=Yes, go to T12, else go to T10	T9
	No	2If T1=Yes, go to T12, else go to T10	

Tobacco Use continued			
Question	Response		Code
How old were you when you stopped smoking?	Age (years) Don't Know 77	⌊_⌋⌊_⌋ If Known, go to T12	T10
How long ago did you stop smoking? (RECORD ONLY 1, NOT ALL 3) Don't Know 77	Years ago	⌊_⌋⌊_⌋ If Known, go to T12	T11a
	OR Months ago	⌊_⌋⌊_⌋ If Known, go to T12	T11b
	OR Weeks ago	⌊_⌋⌊_⌋	T11c
Do you currently use any smokeless tobacco products such as [snuff, chewing tobacco, nasal snuff, khaini? (USE SHOWCARD)	Yes 1 No 2 If No, go to T15		T12
Do you currently usesmokeless tobacco products daily?	Yes 1 No 2 If No, go to T14aw		T13
On average, how many times a day/week do you use …. (IF LESS THAN DAILY, RECORD WEEKLY) (RECORD FOR EACH TYPE, USE SHOWCARD) Don't Know 7777		DAILY↓ WEEKLY↓	
	Snuff, by mouth	⌊_⌋⌊_⌋ ⌊_⌋⌊_⌋	T14a/ T14aw
	Snuff, by nose	⌊_⌋⌊_⌋ ⌊_⌋⌊_⌋	T14b/ T14bw
	Chewing tobacco	⌊_⌋⌊_⌋ ⌊_⌋⌊_⌋	T14c/ T14cw
	Betel	⌊_⌋⌊_⌋ ⌊_⌋⌊_⌋	T14d/ T14dw
	Other	⌊_⌋⌊_⌋ ⌊_⌋⌊_⌋ If Other, go to T14other, if T13=No, go to T16, else go to T17	T14e/ T14ew
	Other (please specify):	⌊_⌋⌊_⌋⌊_⌋⌊_⌋ If T13=No, go to T16, else go to T17	T14other/ T14 otherw
In the past, did you ever use smokeless tobacco products such as [snuff, chewing tobacco, nasal snuff, khaini, surti, gutka]?	Yes 1 No 2If No, go to T17		T15

In the past, did you ever use smokeless tobacco products such as [snuff, chewing tobacco, nasal snuff, khaini, gutka] daily?	Yes 1 No 2	T16
During the past 30 days, did someone smoke in your home?	Yes 1 No 2	T17
During the past 30 days, did someone smoke in closed areas in your workplace (in the building, in a work area or a specific office)?	Yes 1 No 2 Don't Work in closed area 3	T18

Tobacco Policy

Tobacco Policy		
You have been asked questions on tobacco consumption before. The next questions ask about tobacco control policies. They include questions on your exposure to the media and advertisement, on cigarette promotions, health warnings and cigarette purchase.		
Question	Response	Code
During the past 30 days, have you noticed information about the dangers of smoking cigarettes or that encourages quitting through the following media? (RECORD FOR EACH)		
Newspapers or magazines	Yes 1 No 2 Don't know 77	TP1a
Television	Yes 1 No 2 Don't know 77	TP1b
Radio	Yes 1 No 2 Don't know 77	TP1c
During the past 30 days, have you noticed any advertisements or signs promoting cigarettes in stores where cigarettes are sold?	Yes 1 No 2 Don't know 77	TP2
The next questions TP3 – TP6 are administered to current smokers only.		
During the past 30 days, did you notice any health warnings on cigarette packages?	Yes 1 No 2 If no, go to TP5 Did not see any cigarette packages 3 If "did not see any cigarette packages", go to TP5 Don't know 77If Don't know, go to TP5	TP3
During the past 30 days, have warning labels on cigarette packages led you to think about quitting?	Yes 1 No 2 Don't know 77	TP4

The last time you bought manufactured cigarettes for yourself, how many cigarettes did you buy in total?	Number of cigarettes ⌊_⌋⌊_⌋⌊_⌋⌊_⌋ Don't know or Don't smoke or purchase manuf. cigarettes 7777	If "Don't know or don't smoke or purchase manuf. cig.", end section	TP5
In total, how much money did you pay for this purchase? (DIGITS TO BE ADAPTED TO COUNTRY NEEDS)	Amount ⌊_⌋⌊_⌋⌊_⌋⌊_⌋ Don't know 7777 Refused 8888		TP6

Knowledge and Attitude on Tobacco Use

The next questions ask about your knowledge and attitude towards tobacco use and its health effects. Please respond to the truth possible from the knowledge you have about the issues.

Question	Response	Code
Is tobacco use (smoky or smokeless) a risk factor of NCD such as (HTN, DM, CVD, and CRD)?	Yes 1 No 2 Don't Know 3	KT1
Smoking can cause		
Cardiovascular diseases	Yes 1 No 2 Don't Know 3	KT2a
Diabetes Mellitus	Yes 1 No 2 Don't Know 3	KT2b
Chronic Respiratory Diseases	Yes 1 No 2 Don't Know 3	KT2c
Cancer	Yes 1 No 2 Don't Know 3	KT2d
Smoking around can affect others health	Yes 1 No 2 Don't Know 3	KT3
Please mention whether you agree or disagree with the following statements		
Tobacco Use is good for Health	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KT4
Tobacco Use help to relieve stress	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KT5

Tobacco Use Helps to maintain body weight/ reduce body weight	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KT6
Tobacco Use gives bad breath	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KT7
Tobacco Use is harmful to health	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KT8
People who consume tobacco live a longer life	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KT9
People who consume tobacco more likely to die from heart disease.	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KT10
People who consume tobacco more likely to die from cancer.	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KT11

CORE: Alcohol Consumption		
The next questions ask about the consumption of alcohol.		
Question	Response	Code
Have you ever consumed any alcoholic drink such as beer, wine, spirits fermented cider or [jaad, raksi, tumba]?	Yes 1 No 2 If No, go to KA1	A1
Have you consumed any alcohol within the past 12 months?	Yes 1 If Yes, go to A4 No 2	A2
Have you stopped drinking due to health reasons, such as a negative impact on your health or on the advice of your doctor or other health worker?	Yes 1 If Yes, go to KA1 No 2 If No, go to A4	A3
During the past 12 months, how frequently have you had at least one standard alcoholic drink? (READ RESPONSES)	Daily 1 5-6 days per week 2 1-4 days per week 3 1-3 days per week 4 Less than once a month 5	A4
Have you consumed any alcoholic drink within the past 30 days?	Yes 1 No 2 If No, go to KA1	A5
During the past 30 days, on how many occasions did you have at least one standard alcoholic drink?	Number ⌊_⌋⌊_⌋ Don't know 77	A6
During the past 30 days, when you drank alcohol, how many standarddrinks alcoholic drinks did you have during one drinking occasion?	Number ⌊_⌋⌊_⌋ Don't know 77	A7
During the past 30 days, what was the largest number of standard drinks you had on a single occasion, counting all types of alcoholic drinks together?	Largest number ⌊_⌋⌊_⌋ Don't Know 77	A8
During the past 30 days, how many times did you have for men:five or more forwomen four or more standard drinks in a single drinking occasion?	Number of times ⌊_⌋⌊_⌋ Don't Know 77	A9
During each of the past 7 days, how many standard drinks did you have each day? (USE SHOWCARD) Don't Know 77	Monday ⌊_⌋⌊_⌋	A10a
	Tuesday ⌊_⌋⌊_⌋	A10b
	Wednesday ⌊_⌋⌊_⌋	A10c
	Thursday ⌊_⌋⌊_⌋	A10d
	Friday ⌊_⌋⌊_⌋	A10e
	Saturday ⌊_⌋⌊_⌋	A10f
	Sunday ⌊_⌋⌊_⌋	A10g
Do you usually pay while drinking?	Yes No	A11
What is the average amount you spend on drinking in a typical week?	In Rs ..... Don't Know 777	A12

Have you ever felt you needed to cut down on your drinking?	Yes 1 No 2	A13
Have People annoyed you by criticizing your drinking?	Yes 1 No 2	A14
Have you ever felt guilty about your drinking?	Yes 1 No 2	A15
Have you ever felt you needed a drink as first thing in the morning as eye opener to steady your nerves or to get rid of a hangover?	Yes 1 No 2	A16

Knowledge and Attitude on Alcohol Use		
The next questions ask about your knowledge and attitude towards alcohol use and its health effects. Please respond to the truth possible from the knowledge you have about the issues.		
Question	Response	Code
Is alcohol use (smoky or smokeless) a risk factor of NCDs such as (HTN, DM, CVD, and CRD)?	Yes 1 No 2 Don't Know 777	KA1
Excessive use of alcohol can cause		
Heart Diseases	Yes 1 No 2 Don't Know 3	KA2a
Chronic Respiratory Diseases	Yes 1 No 2 Don't Know 3	KA2b
Cancer	Yes 1 No 2 Don't Know 3	KA2c
Diabetes Mellitus	Yes 1 No 2 Don't Know 3	KA2d
Please mention whether you agree or disagree with the following statements		
Drinking excessive levels of alcohol can affect our health	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KA3
The Use of alcohol beverages is something normal	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KA4

Drinking one glass of alcohol is considered as drinking socially	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KA5
Alcoholic Drinks are pleasant and offer wellbeing	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KA6
Drinking moderately is not harmful	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KA7
Alcohol relaxes daily tension	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KA8

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.

Question	Response	Code
In a typical week, on how many days do you eat fruit? (USE SHOWCARD)	Number of days ⌊_⌋⌊_⌋ If Zero days, go to D3 Don't Know 77	D1
How many servings of fruit do you eat on one of those days? (USE SHOWCARD)	Number of servings ⌊_⌋⌊_⌋ Don't Know 77	D2
In a typical week, on how many days do you eat vegetables?(USE SHOWCARD)	Number of days ⌊_⌋⌊_⌋ If Zero days, go to D5 Don't Know 77	D3

How many servings of vegetables do you eat on one of those days? (USE SHOWCARD)	Number of servings ⌊_⌊_⌋ Don't know 77 Mustard oil	D4

Dietary salt

The next questions, ask about your knowledge, attitude and behaviour towards dietary salt. Dietary salt includes ordinary table salt, unrefined salt such as rock salt, iodized salt, salty stock cubes and powders, and salty sauces such as soya sauce. The following questions are on adding salt to the food right before you eat it, on how food is prepared in your home, on eating processed foods that are high in salt such as [chauchau, Lays, chips, kurkure, salty biscuits canned fish, dry meat, Sekuwa, titaura, preserved pickle, bhujia, mixtures, papad etc.], and questions on controlling your salt intake. Please answer the questions even if you consider yourself to eat a diet low in salt.

How often do you add salt to your food right before you eat it or as you are eating it? (SELECT ONLY ONE)	Always 1 Often 2 Sometimes 3 Rarely 4 Never 5 Don't know 77	D5
How often is salt added in cooking or preparing foods in your household?	Always 1 Often 2 Sometimes 3 Rarely 4 Never 5 Don't know 77	D6
How often do you eat processed food high in salt,such aschauchau, Lays, chips, kurkure, salty biscuits, dry meat, titaura, preserved pickle, bhujia, mixtures, papad, sekuwaetc (USE SHOWCARD)	Always 1 Often 2 Sometimes 3 Rarely 4 Never 5 Don't know 77	D7
How much salt do you think you consume?	Far too much 1 Too much 2 Just the right amount 3 Too little 4 Far too little 5 Don't know 77	D8
How important to you is lowering the salt in your diet?	Very important 1 Somewhat important 2 Not at all important 3 Don't know 77	D9
Do you think that too much salt in your diet could cause a health problem?	Yes 1 No 2 Don't Know 77	D10

Dietary Salt continued	Response		Code
Do you do any of the following on a regular basis to control your salt intake? (RECORD FOR EACH)			
Limit the consumption of processed foods	Yes	1	D11a
	No	2	
Look at the salt or sodium content on food labels	Yes	1	D11b
	No	2	
Buy low salt/sodium alternatives	Yes	1	D11c
	No	2	
Use spices other than salt when cooking	Yes	1	D11d
	No	2	
Avoid eating foods prepared outside of a home	Yes	1	D11e
	No	2	
Do other things specifically to control your salt intake	Yes	1 If yes go to D11 Other	D11f
	No	2	
Other (please specify)	⌊_⌊_⌊_⌊_⌊_⌊_⌊_⌊_⌋		D11other
The next questions ask about the salt and oil or fat that is most often used for meal preparation in your household.			
Which type of oil or fat is most often used for meal preparation in your household?	Mustard Oil	1	D12
	Refined Vegetable Oil	2	
	Butter or Ghee	3	
	Others	4 If Other, go to D12 Other	
	Other type of fat or oil	....	D12 Other
Which type of salt is most often used for meal preparation in your household?	Crystal Salt	1	D13
	Powdered salt without logo	2	
	Powdered salt with 2 children logo	3	
	Others	4 If Other, go to X1Other	
	Other type of salt	....	D13Other
For how many days does 1 KG sugar last for your family?	No of Days	⌊_⌊_⌋	D14

Knowledge and Attitude on Diet (Fruits and vegetables intake)		
The next questions ask about your knowledge and attitude towards consumption of fruits and vegetables and other dietary factors in relation to health. Please respond to the truth possible from the knowledge you have about the issues.		
Question	Response	Code
Is unhealthy diet a risk factor of NCDs such as (HTN, DM, CVD, and CRD)?	Yes 1 No 2 Don't Know 3	KD1
Unhealthy diet can cause		
Heart Diseases	Yes 1 No 2 Don't Know 3	KD2a
Chronic Respiratory Diseases	Yes 1 No 2 Don't Know 3	KD2b
Cancer	Yes 1 No 2 Don't Know 3	KD2c
Diabetes Mellitus	Yes 1 No 2 Don't Know 3	KD2d
Please mention whether you agree or disagree with the following statements		
Fruits and Vegetables have to be consumed daily for our health	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KD3
It's good to include green leafy vegetable in your daily diet	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KD4
It's important to eat fruits every day	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KD5
Low Intake of fruits/Vegetables can affects Your health	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KD6
Fruits and Vegetables have to be consumed daily for our health	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KD7

It is good to avoid extra Cooking oil/fat in your diet	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KD8
Eating too much oily and Spicy can increase obesity	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KD9
Overall, would you say that what you usually eat is…	Very Healthy 1 Quite Healthy 2 Not Very Healthy 3 Very unhealthy 4	KD10

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.

Question	Response	Code
Work		
63. Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like [carrying or liftingheavy 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
64.In a typical week, on how many days do you do vigorous-intensity activities as part of your work?	Number of days ⌊__⌋	P2
65. How much time do you spend doing vigorous-intensity activities at work on a typical day?	Hours : minutes ⌊__⌋⌊__⌋ : ⌊__⌋⌊__⌋ hrsmins	P3 (a-b)
66. Does your work involve moderate-intensity activity, that causes small increases in breathing or heart rate [such as brisk walking, carrying light loads, washing clothes, gardening]for at least 10 minutes continuously? (USE SHOWCARD)	Yes 1 No 2 If No, go to P 7	P4
67. In a typical week, on how many days do you do moderate-intensity activities as part of your work?	Number of days ⌊__⌋	P5
68. How much time do you spend doing moderate-intensity activities at work on a typical day?	Hours : minutes ⌊__⌋⌊__⌋ : ⌊__⌋⌊__⌋ hrsmins	P6 (a-b)

Travel to and from places		
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 etc.		
69. 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
70. 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
71. How much time do you spend walking or bicycling for travel on a typical day?	Hours : minutes ⌊__⌋⌊__⌋ : ⌊__⌋⌊__⌋ hrsmins	P9 (a-b)

Physical Activity, Continued		
Question	Response	Code
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), [such as swimming, volleyball, badminton, yoga etc.].		
72. Do you do any vigorous-intensity sports, fitness or recreational (leisure) activities that cause large increases in breathing or heart rate such as[running or playing football] for at least 10 minutes continuously? (USE SHOWCARD)	Yes 1 No 2 If No, go to P 13	P10
73. In a typical week, on how many days do you do vigorous-intensity sports, fitness or recreational (leisure) activities?	Number of days ⌊__⌋	P11
74. How much time do you spend doing vigorous-intensity sports, fitness or recreational activities on a typical day?	Hours : minutes ⌊__⌋⌊__⌋ : ⌊__⌋⌊__⌋ hrsmins	P12 (a-b)
75. Do you do any moderate-intensity sports, fitness or recreational (leisure) activities that cause a small increase in breathing or heart rate such as brisk walking,[cycling, swimming, volley ball, badminton, yoga] for at least 10 minutes continuously? (USE SHOWCARD)	Yes 1 No 2 If No, go to P16	P13
76. In a typical week, on how many days do you do moderate-intensity sports, fitness or recreational (leisure) activities?	Number of days ⌊__⌋	P14
77. How much time do you spend doing moderate-intensity sports, fitness or recreational (leisure) activities on a typical day?	Hours : minutes ⌊__⌋⌊__⌋ : ⌊__⌋⌊__⌋ hrsmins	P15 (a-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, traveling in car, bus, reading, playing cards or watching television, but do not include time spent sleeping. (USE SHOWCARD)		
78.How much time do you usually spend sitting or reclining on a typical day?	Hours : minutes ⌊__⌋⌊__⌋ : ⌊__⌋⌊__⌋ hrsmins	P16 (a-b)

Knowledge and Attitude on Physical Activity		
The next questions ask about your knowledge and attitude towards Physical Activity and related factors in relation to health. Please respond to the truth possible from the knowledge you have about the issues.		
Question	Response	Code
Is Physical Inactivity a risk factor of NCDs such as (HTN, DM, CVD, and CRD)?	Yes 1 No 2 Don't Know 3	KP1
Physical Inactivity (or lack of physical activity) can cause		
Heart Diseases	Yes 1 No 2 Don't Know 3	KP2a
Chronic Respiratory Diseases	Yes 1 No 2 Don't Know 3	KP2b
Cancer	Yes 1 No 2 Don't Know 3	KP2c
Diabetes Mellitus	Yes 1 No 2 Don't Know 3	KP2d
Please mention whether you agree or disagree with the following statements		
Physical Inactivity/low levels of physical activity can lead to obesity/overweight	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KP3
Physical activity is important to prevent oneself from Hypertension	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KP4
Physical activity is important to prevent oneself from Overweight and Obesity	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KP5
Physical activity is important to prevent oneself from Cardiovascular Diseases (Heart Diseases)	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KP6
Physical activity is important to prevent oneself from Diabetes Mellitus	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KP7

Physical activity is important to prevent oneself from Chronic Respiratory Diseases	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KP8
Physical activity is important to prevent oneself from Cancer	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KP9
Regular Physical Activity has health benefits	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KP10
It is important to be involved in Physical activity for at least 10 minutes	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KP11
Physical Activity can maintain the body Fit and Healthy	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KP12

CORE: History of Raised Blood Pressure		
Question	Response	Code
Have you ever had your blood pressure measured by a doctor or other health worker?	Yes 1 No 2 If No, go to H6	H1
Have you ever 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	H2a
Have you been told in the past 12 months?	Yes 1 No 2	H2b
In the past two weeks, have you taken any drugs (medication) for raised blood pressure prescribed by a doctor or other health worker?	Yes 1 No 2	H3
Have you ever seen a traditional/alternative medicine practitioner or traditional healer for raised blood pressure or hypertension?	Yes 1 No 2	H4
Are you currently taking any herbal or traditional remedy for your raised blood pressure?	Yes 1 No 2	H5

CORE: History of Diabetes		
Have you ever had your blood sugar measured by a doctor or other health worker?	Yes 1 No 2 If No, go to KH1	H6
Have you ever been told by a doctor or other health worker that you have raised blood sugar or diabetes?	Yes 1 No 2 If No, go to KH1	H7a
Have you been told in the past 12 months?	Yes 1 No 2	H7b
In the past two weeks, have you taken any drugs (medication) for diabetes prescribed by a doctor or other health worker?	Yes 1 No 2	H8
Are you currently taking insulin for diabetes prescribed by a doctor or other health worker?	Yes 1 No 2	H9
Have you ever seen a traditional/alternative medicine practitioner or traditional healer for diabetes or raised blood sugar?	Yes 1 No 2	H10
Are you currently taking any herbal or traditional remedy for your diabetes?	Yes 1 No 2	H11

Knowledge and Attitude on Hypertension and Diabetes Mellitus		
The next questions ask about your knowledge and attitude towards Hypertension (Raised Blood Pressure) and Diabetes Mellitus and related factors in relation to health. Please respond to the truth possible from the knowledge you have about the issues.		
Question	Response	Code
Hypertension		
Have you ever heard word Hypertension before?	Yes 1 No 2 if no please go to KH11	KH1
Hypertension is a non communicable disease	Yes 1 No 2 Don't Know 3	KH2
Hypertension is a disease that can be preventable and or controlled	Yes 1 No 2 Don't Know Don't Know 3	KH3
Please mention whether you agree or disagree with the following statements		
Consuming salt in excess increases risk of having hypertension.	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KH4

If your family members have hypertension, you are also at risk of hypertension.	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	1 2 3 4 5	KH5
Obese people are more at risk of hypertension than those who are not obese.	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	1 2 3 4 5	KH6
People with consistent stress and tension are at risk of hypertension	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	1 2 3 4 5	KH7
Smoking increases risk of having hypertension.	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	1 2 3 4 5	KH8
Regular physical activity makes people less likely to have hypertension	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	1 2 3 4 5	KH9
Excessive alcohol drinkers are at risk of having hypertension.	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	1 2 3 4 5	KH10
Diabetes			
Have you ever heard word Diabetes before?	Yes No	1 2 if no go to H12	KH11
Diabetes Mellitus is a non communicable disease	Yes No Don't Know	1 2 3	KH12
Diabetes Mellitus is a disease that can be preventable and or controlled	Yes No Don't Know	1 2 3	KH13
Please mention whether you agree or disagree with the following statements			
If your family members have diabetes mellitus, you are also at risk of diabetes mellitus.	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	1 2 3 4 5	KH14

Obese people are more at risk of diabetes than those who are not obese.	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KH15
People with consistent stress and tension are at risk of diabetes	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KH16
Regular physical activity makes people less likely to have diabetes mellitus	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	KH17

CORE: History of Raised Total Cholesterol		
Question	Response	Code
91.Have you ever had your cholesterol (fat levels in your blood) measured by a doctor or other health worker?	Yes 1 No 2If No, go to H17	H12
92.Have you ever been told by a doctor or other health worker that you have raised cholesterol?	Yes 1 No 2 If No, go to H17	H13a
93.Have you been told in the past 12 months?	Yes 1 No 2	H13b
94.In the past two weeks, have you taken any oral treatment (medication) for raised total cholesterol prescribed by a doctor or other health worker?	Yes 1 No 2	H14
95.Have you ever seen a traditional/alternative medicine practitioner or traditional healer for raised cholesterol?	Yes 1 No 2	H15
96. Are you currently taking any herbal or traditional remedy for your raised cholesterol?	Yes 1 No 2	H16

CORE: History of Cardiovascular Diseases		
97. Have you ever had a heart attack or chest pain from heart disease (angina) or a stroke (cerebrovascular accident or incident)?	Yes 1 No 2	H17
98. Are you currently taking aspirin regularly to prevent or treat heart disease?	Yes 1 No 2	H18
99. Are you currently taking statins (Lovastatin/ Simvastatin/Atorvastatin or any other statin) regularly to prevent or treat heart disease?	Yes 1 No 2	H19

CORE: Lifestyle Advice		
100. During the past three years, has a doctor or other health worker advised you to do any of the following? (RECORD FOR EACH)		
Quit using tobacco or don't start	Yes 1 No 2	H20a
Reduce salt in your diet	Yes 1 No 2	H20b
Eat at least five servings of fruit and/or vegetables each day	Yes 1 No 2	H20c
Reduce fat in your diet	Yes 1 No 2	H20d
Start or do more physical activity	Yes 1 No 2	H20e
Maintain a healthy body weight or lose weight	Yes 1 If C1=1 go to K1 No 2 If C1=1 go to K1	H20f

CORE (for women only): Cervical Cancer Screening		
The next question asks about cervical cancer prevention. Screening tests for cervical cancer prevention can be done in different ways, including Visual Inspection with Acetic Acid/vinegar (VIA), pap smear and Human Papillomavirus (HPV) test. VIA is an inspection of the surface of the uterine cervix after acetic acid (or vinegar) has been applied to it. For both pap smear and HPV test, a doctor or nurse uses a swab to wipe from inside your vagina, take a sample and send it to a laboratory. It is even possible that you were given the swab yourself and asked to swab the inside of your vagina. The laboratory checks for abnormal cell changes if a pap smear is done, and for the HP virus if an HPV test is done.		
Question	Response	Code
Have you ever had a screening test for cervical cancer, using any of these methods described above?	Yes 1 No 2 Don't know 77	CX1

Knowledge and Attitude on Other NCDs such as Cardiovascular Diseases, Chronic Respiratory Diseases, Cancer and Health seeking behaviour		
The next questions ask about your knowledge and attitude towards Cardiovascular disease, chronic respiratory diseases and cancer. Please respond to the truth possible from the knowledge you have about the issues.		
Question	Response	Code
Cardiovascular disease		
Have you heard of Cardiovascular Diseases?	Yes 1 No 2 if no please go to K13	K1
Cardiovascular disease is a non-communicable disease	Yes 1 No 2 Don't Know 3	K2

Cardiovascular diseases occurs mostly in elderly people	Yes 1 No 2 Don't Know 3	K3
Cardiovascular diseases is a condition that can be prevented and or controlled	Yes 1 No 2 Don't Know 3	K4
Please mention whether you agree or disagree with the following statements		
If your family members have any cardiovascular diseases, you are also at risk of having cardiovascular diseases.	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	K5
People with hypertension are at risk of cardiovascular diseases	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	K6
Obese people are more at risk of cardiovascular diseases than those who are not obese.	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	K7
People with consistent stress and tension are at risk of developing cardiovascular diseases	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	K8
Smoking increases risk of developing cardiovascular diseases.	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	K9
Regular physical activity makes people less likely to develop cardiovascular diseases	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	K10
Timely control of raised blood pressure helps prevent oneself from cardiovascular diseases.	Strongly Agree 1 Agree 2 Neither Agree nor Disagree 3 Disagree 4 Strongly Disagree 5	K11

Timely control of diabetes mellitus helps prevent oneself from cardiovascular diseases.	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	1 2 3 4 5	K12
Chronic Respiratory Diseases			
Have you heard of Chronic Respiratory Diseases?	Yes No	1 2 if no please go to K22	K13
Chronic respiratory disease is a non communicable disease	Yes No Don't Know	1 2 3	K14
Chronic respiratory diseases is a condition that can be prevented and or controlled	Yes No Don't Know	1 2 3	K15
Chronic respiratory diseases occurs mostly in elderly people	Yes No Don't Know	1 2 3	K16
Indoor Air Pollution is a risk factor for CRD	Yes No Don't Know	1 2 3	K17
Please mention whether you agree or disagree with the following statements			
Chronic respiratory diseases are mostly caused by smoking	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	1 2 3 4 5	K18
Chronic respiratory diseases can be caused by inhaling dust for several years	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	1 2 3 4 5	K19
Chronic respiratory diseases can be prevented by reducing indoor air pollution	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	1 2 3 4 5	K20
Physical activity helps preventing and controlling chronic respiratory diseases	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	1 2 3 4 5	K21

Cancer			
Have you heard of Cancer Diseases?	Yes No	1 2 if no please go to K28	K22
Cancer is a non communicable disease	Yes No Don't Know	1 2 3	K23
Cancer is a disease that can be prevented and or controlled	Yes No Don't Know	1 2 3	K24
Please mention whether you agree or disagree with the following statements			
Smoking is one of the leading risk factor for cancer	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	1 2 3 4 5	K25
Cancer can be caused by exposure to pesticides and chemicals	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	1 2 3 4 5	K26
Cancer is a curable disease	Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree	1 2 3 4 5	K27
Health Seeking Behaviorand Miscellanious			
A non communicable disease is one that cannot be spread between people	Yes No Don't Know	1 2 3	K28
NCD's are diseases that can be prevented through preventive measures	Yes No Don't Know	1 2 3	K29
Did you ever receive any heath messages regarding risk factors of Non-communicable diseases in the past 6 months?	Yes No	1 if yes go to K31a 2 if no go to MH1	K30

What was the source of information from where you received the health messages? (multiple responses)	TV/Radio	1	K31a
	Newspaper	2	K31b
	Poster/pamphlets	3	K31c
	Health Workers	4	K31d
	Books/Study Materials	5	K31e
	Friends/Neighbors	6	K31f
	Family Members	7	K31g
	Others	8	K31h
	Other Sources	....	K31Others
If Yes, please mention in which of the following you received the health messages. (multiple responses)	Tobacco Use and/or Smoking	1	K32a
	Alcohol Use	2	K32b
	Physical Activity	3	K32c
	Diet (Fruits and Vegetables intake)	4	K32d
	Dietary Salt	5	K32e
	Others	6	K32f
	Other areas of health message	....	K32Other

Mental health / Suicide

Mental health / Suicide

The next questions ask about thoughts, plans, and attempts of suicide. Please answer the questions even if no one usually talks about these issues.

Question	Response		Code
During the past 12 months, have you seriously consideredattempting suicide?	Yes	1	MH1
	No	2If No, go to MH3	
	Refused	88	
Did you seek professional help for these thoughts?	Yes	1	MH2
	No	2	
	Refused	88	
During the past 12 months, have you made a plan about how you would attempt suicide?	Yes	1	MH3
	No	2	
	Refused	88	
Have you ever attempted suicide?	Yes	1	MH4
	No	2If No, go to MH9	
	Refused	88	
During the past 12 months, have you attempted suicide?	Yes	1	MH5
	No	2	
	Refused	88	
What was the main method you used the last time you attempted suicide? (SELECT ONLY ONE)	Razor, knife or other sharp instrument	1	MH6
	Overdose of medication (e. g. prescribed, over-the-counter)	2	
	Overdose of other substance (e.g. heroin, crack, alcohol)	3	
	Poisoning with pesticides (e.g. rat poison, insecticide, weed-killer)	4	
	Other poisoning (e.g. plant/seed, household product)	5	
	Poisonous gases from charcoal	6	
	Other	7 If Other, go to MH6other	
	Refused	88	
	Other (specify)	_____	MH6other
Did you seek medical care for this attempt?	Yes	1	MH7
	No	2 If No, go to MH9	
	Refused	88	

Were you admitted to hospital overnight because of this attempt?	Yes 1 No 2 Refused 88	MH8
Has anyone in your close family (mother, father, brother, sister or children) ever attempted suicide?	Yes 1 No 2 Refused 88	MH9
Has anyone in your close family (mother, father, brother, sister or children) ever died from suicide?	Yes 1 No 2 Refused 88	MH10

Step 2 Physical Measurements

CORE: Blood Pressure

Question	Response	Code
Interviewer ID	⌊_⌋⌊_⌋⌊_⌋	M1
Device ID for blood pressure	⌊_⌋⌊_⌋	M2
Cuff size used	Small 1 Medium 2 Large 3	M3
Reading 1	Systolic (mmHg) ⌊_⌋⌊_⌋⌊_⌋	M4a
	Diastolic (mmHg) ⌊_⌋⌊_⌋⌊_⌋	M4b
Reading 2	Systolic (mmHg) ⌊_⌋⌊_⌋⌊_⌋	M5a
	Diastolic (mmHg) ⌊_⌋⌊_⌋⌊_⌋	M5b
Reading 3	Systolic (mmHg) ⌊_⌋⌊_⌋⌊_⌋	M6a
	Diastolic (mmHg) ⌊_⌋⌊_⌋⌊_⌋	M6b
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	M7

CORE: Height and Weight

For women: Are you pregnant?	Yes 1 If Yes, go to M 16 No 2	M8
Interviewer ID	⌊_⌋⌊_⌋⌊_⌋	M9
Device IDs for height and weight	Height ⌊_⌋⌊_⌋ Weight ⌊_⌋⌊_⌋	M10a M10b
Height	in Centimetres (cm) ⌊_⌋⌊_⌋⌊_⌋.⌊_⌋	M11
Weight If too large for scale 666.6	in Kilograms (kg) ⌊_⌋⌊_⌋⌊_⌋.⌊_⌋	M12

CORE: Waist		
Device ID for waist	⌊_⌋⌊_⌋	M13
Waist circumference	in Centimetres (cm) ⌊_⌋⌊_⌋⌊_⌋.⌊_⌋	M14

Hip Circumference and Heart Rate			
115.Hip circumference		in Centimeters (cm) ⌊_⌋⌊_⌋⌊_⌋.⌊	M15
116.Heart Rate			
Reading 1	Beats per minute	⌊_⌋⌊_⌋⌊_⌋	M16a
Reading 2	Beats per minute	⌊_⌋⌊_⌋⌊_⌋	M16b
Reading 3	Beats per minute	⌊_⌋⌊_⌋⌊_⌋	M16c

Step 3 Biochemical Measurements

CORE: Blood Glucose		
Question	Response	Code
During the past 12 hours have you had anything to eat or drink, other than water?	Yes 1 No 2	B1
Technician ID	⌊_⌋⌊_⌋⌊_⌋	B2
Device ID	⌊_⌋⌊_⌋	B3
Time of day blood specimen taken (24 hour clock)	Hours : minutes ⌊_⌋⌊_⌋:⌊_⌋⌊_⌋ hrsmins	B4
Fasting blood glucose [CHOOSE ACCORDINGLY: MMOL/L OR MG/DL]	mmol/l ⌊_⌋⌊_⌋.⌊_⌋⌊_⌋	B5
	mg/dl ⌊_⌋⌊_⌋⌊_⌋.⌊_⌋	
Today, have you taken insulin or other drugs (medication) that have been prescribed by a doctor or other health worker for raised blood glucose?	Yes 1 No 2	B6
CORE: Blood Lipids		
Device ID	⌊_⌋⌊_⌋	B7
Total cholesterol [CHOOSE ACCORDINGLY: MMOL/L OR MG/DL]	mmol/l ⌊_⌋⌊_⌋.⌊_⌋⌊_⌋	B8
	mg/dl ⌊_⌋⌊_⌋⌊_⌋.⌊_⌋	
During the past two weeks, have you been treated for raised cholesterol with drugs (medication) prescribed by a doctor or other health worker?	Yes 1 No 2	B9

CORE: Urinary sodium and creatinine		
Had you been fasting prior to the urine collection?	Yes 1 No 2	B10
Technician ID	⌊_⌊_⌊_⌋	B11
Device ID	⌊_⌊_⌋	B12
Time of day urine sample taken (24 hour clock)	⌊_⌊_⌋ : ⌊_⌊_⌋ Hours : minutes hrsmins	B13
Urinary sodium	mmol/l ⌊_⌊_⌊_⌋ . ⌊_⌋	B14
Urinary creatinine	mmol/l ⌊_⌊_⌋ . ⌊_⌊_⌋	B15

Annex 5: Community based Intervention for Prevention and Control of NCD risk factors (CIPCoN Study) Intervention Protocol

Introduction

Non Communicable Diseases (NCD) Risk Factor: STEPS Survey Nepal 2013 traced out a huge figure, 99.60% population with at least one risk factor of NCD. Equally, a Hospital based study 2009 determined prevalence of NCD in Nepal as 36.50%. Of total NCD cases, 38.00% had cardiovascular diseases, 33.00% had chronic obstructive pulmonary disease (COPD) and, proportion of diabetes and cancer were 19.00% and 10.00% respectively. Blend of these studies signified that the burden of NCD is likely to become unbearable in future, given that the Government of Nepal (GoN) does not address the issue in time.

Ministry of Health (MOH) is in underway to introduce the PEN package (Package for Essential NCD prevention and control) for NCD prevention and control in Nepal. The package is highly focused in secondary prevention (diagnosis and treatment) rather than primary prevention. Nevertheless, primary prevention is crucial to bring changes in the behavioural factors along with health seeking behaviour, which plays an important role in prevention and control of NCDs. This study is designed to introduce a community based NCD primary prevention package using interventional package on in selected district(s).

Rational of Study

Globally in 2012 there were 38 million deaths from non-communicable disease which was about 31 million deaths in 2000 and out of that 38 million deaths cardiovascular disease, cancer and chronic respiratory diseases were major cause, which represent 82 % of total NCD related death.

Similarly, there were 28 million deaths on low and middle income countries due to non-communicable disease which indicates problem of non-communicable in developing countries also is as threatening as in developed part of world. South-East Asia Region (SEAR) region countries also share a similar situation, where age standardized death is about 650 per 100000 equal to that of African and Eastern Mediterranean region. Same report has stated that 30 year old people residing on SEAR are 25 % more likely to die by any one form of NCDs before reaching 70 years, which is the highest probability of dying than other regions.

Nepal one of the SEAR country also share similar situation as that of other member countries. Nepal STEPS Survey 2013 has revealed that about 99.60% populationslive with at least one risk factor of NCDs. Report has further revealed that out of 100, 26 and 4 person of age between15-69 years were suffering from raised blood pressure and raised blood glucose respectively. Similarly, baseline survey conducted on Ilam district of this study has revealed a different scenario than that of national status, where out of 100, 28 and 13 person of age between 15-69 years are suffering from raised blood pressure and raised blood glucose.

Above mentioned fact provides figure about severity of NCD problem from global to national level. The most cost-effective and efficient strategy to deal with the escalating burden of NCDs is primary prevention as proven in the global scenario.

Objectives of overall research:

The main objective of this interventional study is to assess the effectiveness of community based interventional package to reduce magnitude of non-communicable disease and risk factors associated with it. More specifically, research can be detailed as below:

1) To assess the effectiveness of primary intervention package regarding knowledge and awareness level of NCD and its related factors.
2) To assess the effectiveness of primary intervention package in decreasing prevalence of NCD related risk factors.

Intervention Hypothesis:

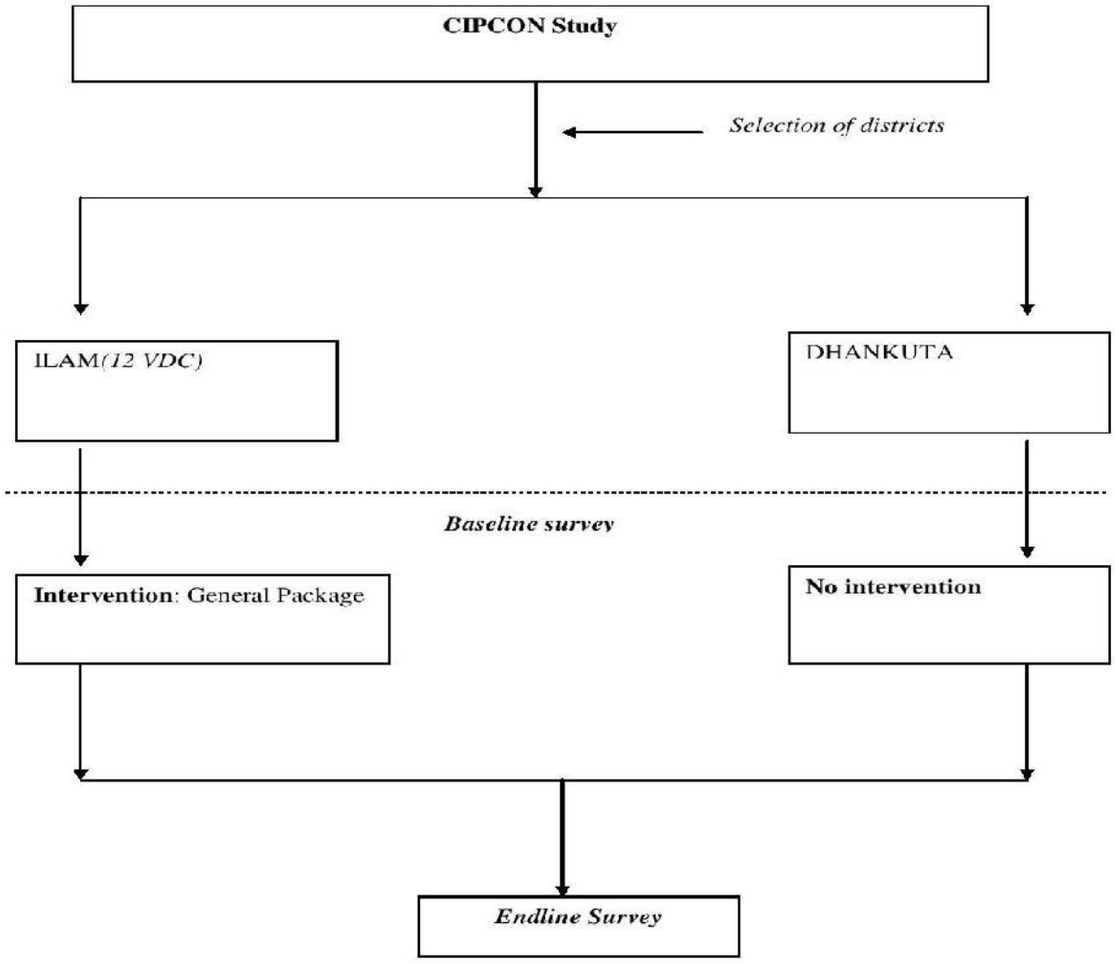
3) 1) There will be significant difference in the knowledge and awareness level related to NCD risk factors and associated behaviours between the intervention and control communities after implementation of primary prevention package
4) **2)** There will be significant difference in NCD risk factors in interventional and control communities afterimplementation of primary prevention package.

Goals of intervention package

To meet the aforementioned objective of research, general package intervention and health system strengthening support intervention package will be intervene in the Intervention district. Furthermore, additional interventions that of customized yoga and acupuncture in two different clusters within the same district will also be intervened to measure its effectiveness without affecting former intervention plan. However, these two components will be designed in clinical trial modality with individual as the target group unlike the community in the above mentioned study. Details of these interventional plans will be stipulated another protocol.

Methodology

OVERVIEW INTERVENTIONAL DESIGN



Intervention package

Basically intervention packages will be focused on primary intervention of non-communicable diseases and its related risk factors. Moreover, proposed primary intervention packages will be community based. Proposed intervention packages are designed are as below:

***General package*:** This interventional package will consists of purely behavioral communication change approach (BCC). This approach will basically focus on promoting healthy lifestyles, eating habits, avoiding overuse of alcohol and tobacco etc. through conducting relevant activities.

Similarly, in this package health system support and strengthening activities will also be conducted. Basically, health system support strengthening activities will include logistics support (Blood pressure measurement sets, Glucometers including test strips, Weight measuring scale, selected essential drugs for Diabetes and Hypertension etc.) as well as advocacy for continuous supply of drugs related to NCDs.

Target group: People aged 15-69 years will be the target group of this study.

Ethical Consideration: Ethical approval of the study was obtained from the Ethical Review Board of the Nepal Health Research Council. Written consent was obtained from all participantswho were free to discontinue their participation at any time, with no explanation required. The findings of this research will be disseminated through conference presentations, peer-reviewed publications and the general media.

Monitoring and evaluation follow up plan:

Monitoring is an ongoing process which will be carried out throughout intervention, more specifically monitoring will be carried by responsible authority. Every activities as part of intervention will be continuously observed and controlled if any deviance get occurred. Monitoring will be assessed by using different tools, techniques and indicators as the nature of activities. Following monitoring plan will be executed:

Intervention monitoring

Monitoring framework matrix

Monitoring Issues	Frequency	Indicators	Method
School health program	2 monthly	i)Number of audio-visual class conducted related with NCD ii)Change knowledge level regarding NCD	Record of audio-visual class conducted. Quiz contest type of program
Media program	2 monthly	Number of Radio/FM station broadcasting Coverage area Number of clippings/ advertise broadcasted/ printed	
Community Health Program awareness **a) Mother group awareness orientation**		Conduction of orientation	Records

Log framework Matrix

Objectives	Indicators	Means of verification	Assumptions
Goal: To measure efficacy and efficiency of community based intervention package	Percentage of change in prevalence rate of non-communicable disease risk factors	- Base line survey findings - End line survey findings	

Outputs: • Increase in knowledge about non-communicable disease and its related risk factors • Increase in attitude about non-communicable disease and its related risk factor • Increase in utilization of general health packages against non-communicable diseases	• Percentage of people who response correctly about knowledge and attitude related question	End line survey findings	
Outcomes: • Reduced prevalence of risk factors related with non-communicable disease	• Prevalence of risk factors of non-communicable diseases	- Base line survey findings - End line survey findings	
Activities:			

Program	Target group	Activities
School Health Program	Adolescent student	• Conducting NCD related classes on regular manner • Promoting extracurricular activities by distributing sports item • BMI Measurement
	Teacher and School Monitoring Committee	• Raising awareness about NCD related diseases • Blood pressure and blood glucose measurement campaign
	Other responsible authority	• Advocating with responsible authority for prohibiting sale of cigarettes and alcohol in nearby of schools and colleges
Awareness program through newspaper and radio	All age group	• Information dissemination through electronic media(Doctor interview) • Information release through newspaper
Creating awareness through mothers group	Mothers	• Orientation about NCD related diseases and its preventing measures • Advocating mothers group about healthy diet(fruits and vegetables consumption, oil and salt)

Annex 6: Field Team members

Research Supervisors

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Research Assistants

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