

Final Report of Non-Communicable Disease (NCD) Risk Factor Survey in Moranbong District of Pyongyang, DPR Korea

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2. Title and Dates of the Activity

Title: Non-Communicable Disease (NCD) risk factor survey in Moranbong District of Pyongyang DPR Korea

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3. Operational Officer:

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4. Budget: 565,000WON

5. Place of Survey – Moranbong District, Pyongyang City

A. INTRODUCTION

Non-Communicable Diseases (NCD)/chronic diseases are reported to be responsible 60% of all deaths (35 million deaths out of a total 58 million) in the year 2005. Eighty percent of all these deaths occur in low and middle income countries (WHO 2006). Similarly close to half of the disease burden measured in terms of disability adjusted life years lost (DALYs) is also due to chronic diseases. Approximately 86% of the chronic diseases occur in people below the age of 70 years. In developing countries the burden of disease caused by NCD is increasing rapidly and will have significant social, economic and health consequences.

Based on current trends, by the year 2020 non-communicable diseases are expected to account for 75% of deaths and 60% of the global disease burden. Most of this increase will result from the epidemiological transition in developing countries. The key to control the global epidemics of NCDs is primary prevention based on comprehensive population wide programs. The aim is to avert these epidemics wherever possible and to control them as quickly as possible

Leading NCDs are cardiovascular diseases, cancer, chronic obstructive pulmonary disease (COPD) and diabetes. The above four diseases together caused 30 million deaths globally. A number of risk factors have been identified to be attributable to the above major NCDs. These risk factors are tobacco use, physical inactivity, overweight and obesity, excessive alcohol intake, low intake of fruits and vegetables and raised blood pressure. Most of these risk factors are common to all the major NCDs. Today's risk factors are tomorrow's disease burden. Therefore there is a window of opportunity to control the above risk factors at population level in order to control the epidemic of NCDs. In order to take effective action at the population level we need to know the current level of these risk factors in the population. The STEPs approach developed by the World Health Organization is an appropriate tool to undertake surveillance of NCD risk factor surveillance in most countries.

In the south East Asia region also the proportion of NCD mortality and morbidity is rapidly increasing. According to WHO estimates for 2002, 50% of all deaths and 42% of the disease burden measured by DALYs lost in the South East Asia Region were attributed to NCDs.

There is no nationally representative data on NCD risk factors in the DPR Korea. Since NCD was not considered as an important public health problem in the country, not much data were collected on NCD or its risk factors. However there is anecdotal evidence that the proportion of NCD is increasing all over the country. In addition some of the estimates on tobacco use in the county particularly among males are very

high. In one of the recent surveys conducted by the MOPH among adults aged 16 years and above tobacco use was found to be 59.8% among males. Therefore there is a need to conduct a systematic survey on the risk factors of NCD in the country in order to understand the risk factor prevalence and to make appropriate action at the population level.

B. OBJECTIVES

1. The major objective of this study was to find out major risk factors of NCDs namely tobacco use, alcohol use, elevated blood pressure and body mass index among the sample population. The following data were planned to be collected.

- Tobacco use
- Blood pressure
- Alcohol Use
- Body mass index

2. To use the findings of the survey to make appropriate policy changes at the MoPH level

C. METHODOLOGY

We intended to use a modified version of the WHO STEP wise approach for the risk factor survey. In this survey, data on some of the relevant risk factors were collected using STEP 1 and 2 approaches of the WHO.

Sample size

We wanted to collect data on tobacco use in the age group of 15-64 years and blood pressure and body mass index data in the age group of 25-64 years. Anticipating some dropouts we selected 2920 individuals in the age group of 15-64 years from 3895 households. The age and sex group of selected individuals is given in table 1.

One district namely Moranbong district in Pyongyang was selected based on convenience. This district was located only 2 kilometers away from the Ministry of Public Health (MOPH) office. This helped the ministry people to supervise the survey and will be convenient in the future for implementation of the preventive activities in the area.

Table 1. Age and sex distribution of selected individuals for the survey

Age group	Male	Female	Total
15-24	292	292	584
25-34	292	292	584
35-44	292	292	584
45-54	292	292	584
55-64	292	292	584
Total	1460	1460	2920

The district was divided into 16 Dongs. Out of these 16 dongs two dongs were selected randomly. The two selected dongs had 61 and 65 bans respectively. The 126 bans had 3895 households, an average of 31 households for each ban.

Data collection

All the selected individuals were requested to report to the respective Poly clinic which was located closely to the selected dong. Each dong had a polyclinic. Each day 25 people were invited to the respective poly clinic (50 in two polyclinics). Information on demographic details, tobacco use and alcohol use was collected using the Korean version of the STEPS instrument by trained investigators. The STEPs instrument was translated into Korean language and back translated into English to make sure that the translation was appropriate. In addition to the information collected through the questionnaire (STEP 1), weight, height and blood pressure were measured using standardized equipments in the polyclinic. Weight was taken using standard weighing scales which was regularly used in the poly clinic. Similarly Height was also measured using the height scale which was regularly used in the polyclinic. Both weight and height were taken using minimum clothing. Waist circumference was not measured because that was not usually done in the polyclinic and the instrument for measuring waist circumference was not available during this survey.

Blood pressure was measured as per the standard protocol described in the STEPs manual using the blood pressure apparatus available in the polyclinic. Two readings were taken and a third reading was taken if there was a difference of more than 10 mm of Hg in the first two readings. Blood pressure, height and weight were collected from individuals aged 25 years and above only.

In each poly clinic one doctor, two data collectors, and two people to make measurements were posted only for this data collection. In each day 25 individuals

were surveyed in one polyclinic. So a total of 50 individuals were surveyed in one day in both the clinics. The survey was organized 25 days a month. We completed the survey in two months (50 individuals per day for 50 days = 2500) If some of the selected persons did not report to the clinic on the date given to them one more chance was given to that person on another day to complete the survey. A record of the missing individuals was kept in the poly clinic and the concerned family doctor informed them the next day of survey. Each household has a family doctor, which was very useful to complete the survey as we planned.

Period of data collection

We completed the data collection during the months of September and October, 2005

Training of staff

Two days training was given to the team in the poly clinic by the key trainers who were trained in the Institute of public health administration. Training involved introduction of the STEPs instrument. Each question was explained to the participants and how the information was intended to be collected and entered into the schedule. The trainers used the STEPs field manual for the training purpose. Each participant was asked to collect information from one of the other participant so that they actually got practical information in collecting data. These filled –up questionnaire was verified by the trainers and doubts were clarified. Similarly each participant took measurements on a few of the other participants. This was supervised by the trainers and any problems identified were corrected during the training itself.

Supervision.

Each polyclinic was under the supervision of one the trained persons, who were trained by the WHO short term consultant during March 2005 at the Institute of public health administration.

Pilot Testing of the instrument

Pilot testing of the translated instrument was done on at least two individuals in the 10 year age and sex groups (a total of 20 individuals). Some changes were made in the instrument based on the feedback from the pilot test.

Data entry and Analysis

The collected data sheets were checked for completeness on the same day by the data collector and counter checked by the supervisor. The completed data sheets were transported to the Institute of Public Health Administration, a WHO Collaborating centre for primary health care. The data were entered in EPI info 2000. Data analysis was done as per the recommendation of the WHO. All mean values in the different age and sex groups were reported for continuous variables including 95% confidence intervals. The manual for report writing was followed for completeness of report writing. This was completed in the month of November.

D. RESULTS

Out of the 2920 individuals selected for the survey 2655 individuals participated providing a response rate of 90.92%.

Table 2. Age and sex group of participants in the survey

Age group	Male	Female	Total
15-24	272	258	530
25-34	255	274	529
35-44	274	277	551
45-54	264	274	538
55-64	251	256	507
Total	1316	1339	2655

Smoking prevalence (current smoker)

Tobacco use was limited to tobacco smoking in the sample population

Table 3. Smoking prevalence in different age groups of men (current smoker)

Sex	Age group	Prevalence	95%CI
M	15-24	25.2	22.7-27.7
	25-34	56.6	53.9-59.3
	35-44	60.8	58.5-63.1
	45-54	65.6	63.7-67.5
	55-64	70.8	68.4-73.2
	15-64	55.8	53.6-58.0

Total prevalence of tobacco use in the total study population was 27.9% (95 % CI 26.1-29.7)

Table 4. Heavy drinking (more than five drinks per day) among males %

Sex	Age group	Prevalence	95%CI
M	15-24	7.5	4.1-10.9
	25-34	19.4	17.0-22.8
	35-44	22.7	19.3-26.1
	45-54	24.8	21.4-28.2
	55-64	30.1	26.7-33.5
	15-64	20.9	17.5-24.3

None of the females in the sample reported heavy drinking.

Table 5. Mean systolic blood pressure (SBP) in the study population (mm of hg)

Sex	Age group	Mean SBP	95% CI
Male	25-34	120.8	116.1-125.5
	35-44	126.1	121.4-130.8
	45-54	130.5	125.8-135.2
	55-64	145.4	140.7-150.1
	25-64	130.7	126.0-135.4
Female	25-34	120.1	114.7-125.5
	35-44	125.7	120.3-131.1
	45-54	128.4	123.0-133.8
	55-64	142.8	137.4-148.2
	25-64	129.2	123.8-134.6

Table 6. Mean diastolic blood pressure among male and female population in the study population.

Sex	Age group	Mean DBP	95% CI
Male	25-34	82.5	79.2-85.8
	35-44	85.4	81.2-89.6
	45-54	91.3	86.6-96.0
	55-64	96.7	91.5-101.9
	25-64	89.0	84.9-93.1
Female	25-34	79.8	76.7-82.9
	35-44	84.3	79.9-88.7
	45-54	90.1	85.1-95.1
	55-64	94.6	89.7-99.5
	25-64	87.2	82.9-91.5

Table 7. Prevalence of HTN* in the study population

Sex	Age group	Prevalence of HTN	95% CI
Male	25-34	1.2	0.3-2.1
	35-44	18.7	17.8-19.6
	45-54	22.2	21.3-23.1
	55-64	35.8	34.9-36.7
	25-64	19.4	18.5-20.3
Female	25-34	1.0	2.4-3.4
	35-44	18.1	16.7-20.5
	45-54	22.7	20.3-25.1
	55-64	30.3	27.9-32.7
	25-64	18.0	15.6-20.4

* HTN (Hypertension) was defined as individuals who had a systolic blood pressure of ≥ 140 mm of hg and /or a diastolic blood pressure of ≥ 90 mm of hg. Those who were on medication for HTN was not considered as hypertensives because that information was not collected in this study.

Table 8. Mean BMI in the sample population

Sex	Age group	Mean BMI	95% CI
Male	25-34	22.8	22.1-23.7
	35-44	23.1	22.2-24.0
	45-54	22.5	21.6-23.4
	55-64	21.7	20.8-22.6
	25-64	22.5	21.6-23.4
Female	25-34	21.8	20.6-23.0
	35-44	22.9	21.7-23.1
	45-54	22.4	21.2-23.6
	55-64	22.1	20.9-23.3
	25-64	22.3	21.1-23.5

The mean BMI was 22.5(22.1-23.7) in male and 22.3(21.1-23.5) in female.

CONCLUSION

In our study tobacco use among male population was found to be 55.8 percent. Tobacco use increased with age. None of the females reported any tobacco use. Other than smoking there was no other form of tobacco use reported in the sample. With regards to the use of alcohol we collected data on heavy drinking only. It was found that the proportion of male population using heavy drinking was 20.9%. Heavy drinking was defined as five or more standard drinks per day. None of the female reported hazardous drinking. The mean systolic blood pressure in the population aged 25- 64 years was found to be 130.7 mm of hg and that for females was 129.2 mm of hg. The mean diastolic blood pressure was found to be 89 mm of hg for males and 87.2 mm of hg for females. Hypertension prevalence was found to be 19.4 percent for males and 18.0 percent for females. Since those who were under medication for hypertension was not included in this classification of hypertensives this could be an underestimate of the actual hypertensives in the population. The mean BMI was found to be 22.5 for male and 22.3 for female. The major risk factors in our study were found to be tobacco use and excessive use of alcohol. Both heavy drinking and

tobacco use increased with age. Mean blood pressure increased with age in both males and females as reported from many parts of the world. Information on intake of fruits and vegetables and physical activity was not collected because of the difficulty in adapting the WHO instrument into our culture.

RECOMMENDATIONS

Based on the findings from our survey we need to highlight the importance of controlling tobacco use among the population. The health promotion activities should target tobacco control and reducing excessive use of alcohol particularly among male population. These activities can be undertaken by the Ministry of public health in collaboration with the Institute of public health administration. A proposal has been submitted to the WHO country office to set up a health promotion centre within the institute of public health administration. One of the major objectives of this health promotion centre will be to develop health education materials targeting tobacco users and heavy alcohol drinkers.