A Survey Report of Non-Communicable Diseases in Village Khubi of Karad Block Maharashtra, India: A Retrospective Observational Study.

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Abstract

Background: *Non-communicable diseases (NCDs) in villages as the inhabitants adopt an urbanized lifestyle which places them at a higher risk. For lack of awareness about the morbidity, complications and large percentage of undetected and untreated cases.*

Methods: *This survey polled 732 respondents from Khubi village, in Karad block, western Maharashtra in October 2014. We investigated the incidence of hypertension, diabetes and obesity. Respondents signed consent forms and their health conditions were documented based on self-reported history of diabetes, hypertension and family history using a semi-structured questionnaire. Diagnostic tests; weight and height for body mass index, blood glucose, and blood pressure were performed.*

Results: *More than 25(3.42%) participants were suffering from hypertension and only half of this was diagnosed earlier. Therefore on screening, it had been possible to diagnose over two hundred respondents, who were not previously aware of their health status. The respondents' BMI showed that near about half of them were obese or overweight and are at risk for diabetes, while 8.3% were confirmed their sugar levels greater than the normal range out of that 2% were newly detected.*

Conclusion: *This study revealed that absence of screening programs for NCD's directly proportional to hypertension, diabetes and obesity in villages. This was very good awareness that peoples know about recent status of their health.*

Keywords: *Non-communicable diseases, Hypertension, Diabetes, Obesity.*

Introduction

Non communicable diseases (NCDs) are a group of diseases that affect individuals over an extended period of time causing socio-economic burden to the nation. The major NCDs share four behavioral risk factors- unhealthy diet, lack of physical activity, and use of tobacco and alcohol. Factors contributing to the rise of NCDs also include ageing, rapid unplanned urbanization and globalization. [1] A non-communicable disease, or NCD, is a medical condition or disease which by definition is non-infectious and non-transmissible among people. NCDs may be chronic diseases of long duration and slow progression, or they may result in more rapid death such as some types of sudden stroke. They include heart disease, hypertension, stroke, many cancers, asthma, diabetes, osteoporosis, cataracts, and more.

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Overall, more than 10% of the world's adult population was obese. In 2011, more than 40 million children under the age of five were overweight. Once considered a high-income country problem, overweight and obesity are now on the rise in low- and middle-income countries, particularly in urban settings. [2]

Non communicable diseases (NCDs), also known as chronic diseases, are not passed from person to person. They are of long duration and generally slow progression. The four main types of non communicable diseases are cardiovascular diseases (like heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructed pulmonary disease and asthma) and diabetes. [3] NCDs are the leading cause of death globally. In 2012, they caused 68% of all deaths (38 million) up from 60% in 2000. [3] About half were under age 70 and half were women. [4]

Previously, chronic NCDs were considered a problem limited mostly to high income countries, while infectious diseases seemed to affect low income countries. The burden of disease attributed to NCDs has been estimated at 85% in industrialized nations, 70% in middle income nations, and nearly 50% in countries with the lowest national incomes. [5] The major risk factors for non-communicable diseases are smoking, alcohol abuse, a sedentary lifestyle, and an unhealthy diet. If these could be addressed adequately, 40–50% of non-communicable disease-related, premature deaths are preventable. [6]

According to the NFHS report, the prevalence of smoking in men and women in context of using tobacco in any form, the prevalence in males and females was 57% and 10.8% respectively. [7] Alcohol consumption is much higher in slum areas of Meerut, Indore, Mumbai, Nagpur, and Chennai. [8] Overweight is more prevalent among female, urban and high socioeconomic status (SES) groups. [9] The prevalence of overweight and obesity had increased slightly over the past decade in India, the prevalence of overweight in females increased from 5.9% to 7.4% and of obesity from 0.9% to 1.3% [10, 11]. The National Nutrition Monitoring Bureau (NNMB) data for adults also showed a moderate increase in the combined prevalence of overweight and obesity between 2000–2001 and 2005–2006 among men (5.7% to 7.8%) and women (8.2% to 10.9%) in the rural population [12, 13]. Now days it is very important to aware peoples regarding such diseases related to our day to day activity. My aim to ensure the peoples at the middle age who don't have such non communicable diseases. If it was in early stage of that person we can overcome it in early stages that helps to peoples serve remaining life without pain.

Aim : Our aim was to create a pilot program for access to care in rural areas for NCD's.

Study Design: A community based observational study. (Pro Health Check Up Screening)

Study Sample: 732 consecutive samples as per inclusion and exclusion criteria of study.

Ethical consideration and consent documentation:

Prior to the commencement of the project, ethical clearance was obtained from the Institutional Review Board of the Krishna Institute of Medical Sciences Deemed University. Informed consent of the participants in the community was received. Permission to carry out the project in the selected village

Study Methodology :

Here we had used secondary data for this study. This community based pro health check up screening study was conducted from 01 October 2014 to 10 October 2014 in village Khubi. Study samples were selected from adult of aged 18-90 years and irrespective of caste, religion & sex. These participants would be further investigated for Weight, Height, Pulse, Blood Pressure, Blood sugar, Body mass index, body fat percentage.

Research design and Sampling:

A retrospective observational survey was employed to elicit essential information from the respondents. Before the commencement of the survey, training was provided on a one to one basis to all research assistants selected to participate in the study, with the aim of enhancing their understanding of the research protocols and competence in administering the NCD's questionnaire. They were also trained to use the electronic machine to measure blood pressure and Glucometer for estimating blood glucose. The training helped to avoid biases or errors in the procedures employed and ensured their understanding and unified interpretation of basic terminologies that were used in the

study. After the training, there was a pilot study which helped the team to have a foretaste of problems that might be encountered during the main survey and also to test the reliability, validity and applicability of the research instruments. A random sampling method was used to sample 732 household members across different socioeconomic background. The survey made use of a semi-structured questionnaire, while the units of analysis for the survey were households. The questionnaire included details regarding demographic and socio-economic characteristics like participant's self reported age, sex, educational status and occupational status. Health conditions were documented based on self-reported history of diabetes, and hypertension and family history for the conditions was also collected.

Body mass index, blood pressure/glucose measurements:

Body mass index (BMI) was calculated using the formula weight (Kg)/height (m2). Weight was measured with traditional weighing balance that was kept on a firm horizontal surface.

Height was measured with a calibrated pole to the nearest cm. Subjects were requested to stand upright without shoes with their back against the wall, heels together and eyes directed forward. Participant's blood pressure levels were measured in mmHg in a sitting position and after a rest of five minutes using a pre-tested electronic machine, while random blood glucose was determined using the Glucometer

Data quality control and analysis:

The survey made use of a semi-structured questionnaire, while the units of analysis for the survey were households. The questionnaire included details regarding demographic and socio-economic characteristics like participant's self reported age, sex, educational status and occupational status. Health conditions were documented based on self-reported history of diabetes, and hypertension and family history for the conditions was also collected. In order to ensure quality control, credibility, reliability and precision of data collected, the research assistants were recruited among undergraduates with previous fieldwork experience. In addition, they had both written and spoken competence of the local and English languages, and good geographical knowledge of the village condition. To further enhance report, quality of information and report, interviews and discussions were conducted in Marathi language as was convenient for the participants. Completed questionnaires were checked on the spot and re-checked in the office for validation before data entry. Similarly, the electronic BP apparatus and Glucometer were validated. The Glucometer was calibrated every day with a standard provided along with the machine.

Data was entered in MS-Excel and was analyzed using the Statistical Package for Social Sciences (SPSS) Window version 20.0.

Tools: Screening form, Health check up card, BMI machine, Glucometer, BP apparatus. Ht chart.

Criteria for inclusion:

Adult having age between 18 to 90 yrs and wish to participate in screening program for health check up.

Criteria for exclusion:

Patients with serious illness and not willing to participate in the study.

Observations and results:

In this study totally 732 individuals were recruited, among them 336(45.9%) were male while 396(54.09%) were female participants. Most of participants 573(78.3%) were having vegetarian food habit followed by 159(21.7%) were having mixed type of food. 699(95.5%) participants were married, 23(3%) participants were unmarried and 10(1.5%) participants were widowed.

Table 1: Age Wise Distribution of Participants

Age	No of Participants	Percentage%
>18-30	139	18.99
31-40	152	20.77
41-50	147	20.08
51-60	116	15.85
61-70	126	17.21
71-80	42	5.74
> 80	10	1.37
Total	732	100

Anthropometric Measurements:

Table 2: Distribution of BMI of Participants.

BMI	No. of participants	%
<20	175	23.9
20-24.99	300	40.9
25-29.99	193	26.3
>30	64	8.7
Total	732	100

BMI: Body Mass Index

It was observed that 175(23.9%) participants were having BMI less than 20kg/m2, 300 (40.9%) participants were having BMI between 20-24.99kg/m2,193(26.3%) participants were having BMI between 25-29.99 kg/m2 while very few 64(8.7%) participants having BMI more than 30 kg/m2.Overall mean BMI observed was 27.08.

Blood Sugar Level:

In mass testing of random blood sugar level among all participants, most of participants 637(87.02%) were having less than 140 mg/dl and 95(12.9%) participants were having above 140 mg/dl.

Table 3: Distribution of HTN of Participants

Systolic	No. of participants	%
<130	531	72.55
>130	201	27.46
Total	732	100
Diastolic.	No. of participants	%
< 90	619	84.57
> 90	113	15.44
Total	732	100

HTN-Hypertension

In parameters blood pressure, 531(72.5%) participants were having systolic blood pressure less than 130 mm of Hg, while 201(27.4%) noted above than 130 mm of Hg. 6

In diastolic blood pressure, 619(84.5%) participants were having diastolic blood pressure less than 90 mm of Hg, while 113(15.4%) noted above than 90 mm of Hg.

In this study out of 732(100%) participants 61(8.33%) participants were diabetic, 25(3.42%) participants were hypertensive and 4(0.6%) participants were having both diabetic and hypertensive. In diabetic cases 2% were newly detected at the time of survey and blood sugar level was so high in that cases.

Table 4: Distribution of Study Variables.

Study Variables	Mean	S.D
Age	47.58	16.04
Weight	57.01	11.88
Height	153.2	8.278
BMI	27.09	99.31
Body fat %	30.57	8.869
Visceral Fat %	7.717	5.368
RM Kcal	1262	239.9
Body Age	49.98	50.18
Blood Sugar	113.1	49.39
Pulse	75.19	8.995
Systolic BP	119.7	16.29
Diastolic BP	80.23	13.42

Discussion

NCD's is a disease which is correlated with factors such as person's lifestyle, genetics or environment. Among these risk factors, maximum time non communicable diseases are as a result of poor and sedentary lifestyle choices such as drug abuse, alcoholism, tobacco, heavy diet, lack of exercise or stress. NCD's such as obesity, hypertension and diabetes are recognized. This should be nice experience to healthy peoples from Khubi village. Awareness involves not only treating disease but also addressing the underlying social and living conditions of villagers.

The prevalence of obesity was highest in Chandigarh (31.3%) followed by Tamil Nadu (24.6%), Maharashtra (16.6%) and Jharkhand (11.8%).¢Abdominal obesity, as measured by waist circumference, is considered to be a more significant predictor of morbidity and mortality as compared to generalized obesity, as measured by body mass index. ¢Obesity, in addition to being an important NCD's in itself, acts as a major risk factor for other NCD's. The prevalence of NCD's was significantly higher among urban residents compared to rural residents. The ratio of newly diagnosed to self-reported hypertension was 3.8:1 suggesting that the 'rule of halves' for hypertension is still valid in India¢ Salt intake more than 6.5g/day conferred 1.4 times higher risk for Hypertension. ¢Prevalence was higher in urban areas. ¢The prevalence of Hypertension was highest in Tamil Nadu (27.6%), followed by Chandigarh (25.8%), Maharashtra (25%) and Jharkhand (23.8%). High blood pressure is ranked as the third most important risk factor for traceable burden of disease in India.

Conclusion

This was first awareness program of NCD's in Khubi vilaage. As a result of changes in the peoples' sedentary lifestyles, Such NCDs program rapidly minimizes as a public health challenge in rural areas. This type of study prevents NCD's in early stage for overcome economical burden in India. The burden of the NCDs will be unbearable to the developing countries like India. This study had provided setup on NCDs in rural areas for NCDs burden and their risk factors. The Indian Ministries of Health can develop priority based infrastructures and modules to prevent and control the NCD's at different state level at various stages. They can also develop village and state levels policies and plans of action.

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