Assessment of Risk Factor of NCD in Nachangaon Village at Wardha District

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ABSTRACT

Introduction: *Non-communicable diseases (NCDs) and the resultant morbidity and mortality due to them are ever increasing. Cardiovascular diseases are the major contributors to morbidity burden in South Asia. Deaths from (NCDs) are projected to rise from 4 million to 8 million a year in India.* ***Aim:*** *Assessment of risk factors of NCD in the age group of (25-60) in the Nachangaon village at Wardha district.* ***Methodology:*** *Observational community based cross-sectional study in Nachangaon village, Wardha district. Around 413 people were enrolled who were living in Nachangaon with the age group of (25-60).* ***Results:*** *The burden of NCD risk factors was high in our sample. Prevalence of behavioural and each of the biochemical risk factors increased with age, adjusting for other factors including sex and the place of residence. The odds ratios relating anthropometric variables to biochemical variables were modest, suggesting that anthropometric variables may not be useful surrogates for biochemical risk factors for population screening purposes. Total 413 interviewees were surveyed. Age range was 25-60 years. One-tenth of the interviewees had adequate dietary habits.*

Keywords: NCDs, dietary habits, Nachangaon, risk factors

INTRODUCTION

Non-communicable diseases (NCDs) are emerging as the major cause of death and disability worldwide. This is the result of demographic and epidemiological transition, along with the increases of risk factors resulting from social and economic changes. Non-communicable diseases (NCDs)-mainly cardiovascular diseases, chronic respiratory diseases, diabetes, and cancer-are top killers in the South-East Asia region, claiming an estimated 8.5 million lives each year where 62% of all deaths in the Region are due to NCDs and 48% of all deaths from NCDs in the region are below 70 years of age [1]. Based on current trends, these diseases are predicted to account for 73% of global deaths and 60% of the global burden of disease by the year 2020 [2].

People living in developing countries are more likely to develop and die prematurely from chronic disease, because they have limited access to comprehensive health services for NCDs and live in countries that do not have effective policies for NCDs (tobacco, alcohol, air pollution, etc.).

Non-communicable diseases (NCDs) and the resultant morbidity and mortality due to them are ever increasing. Cardiovascular diseases are the major contributors to morbidity burden in South Asia. Deaths from (NCDs) are projected to rise from 4 million to 8 million a year in India [3].

NCDs have common risk factors such as tobacco use, unhealthy diet, physical inactivity, and excess adiposity. Policies and programmes focusing on reducing the burden of these common risk factors are likely to make a substantial impact on mitigating the mortality and morbidity due to NCDs [4,5]. By keeping this in mind these study is done to assess the risk factors of NCDs in the Nachangaon village at Wardha district to reduce the mortality and morbidity due to NCDs.

Aim

Assessment of risk factors of NCD in the age group of (25-60) in the Nachangaon village at Wardha district.

Objectives

1) To find out the burden of NCD risk factors.

2) Estimate the relations of behavioural risk factors to socio-demographic correlates, anthropometric risk factors with behavioural risk factors.

3) Evaluate if socio-demographic, behavioural and anthropometric risk factors predicted biochemical risk factors.

4) Estimate awareness, treatment, and adequacy of control of hypertension and diabetes.

Methodology

Study setting: This study was done in Nachangaon village.

Study design: Observational community based cross-sectional study.

Study duration: 3 months (Jan to April 2016).

Study population: The people residing in Nachangaon within the age group of (25-60).

Sample size: $\frac{n = Z^2 \, p \, q}{d^2}$ = $\frac{1.96 \times 1.96 \, (0.56 \times 0.44)}{0.05 \times 0.05}$ = 413 (L.O.S 5% i.e. value of z=1.96 according to normal distribution) Therefore, 413 people were enrolled.

Sampling method: Simple random sampling method was used.

Data collection instrument: A pretested & predesigned data collection tool was used to collect the data.

Data collection procedure

The information was collected with the help of a self-administered questionnaire. The socio-economic status was classified using the Kuppuswamy's socioeconomic scale. Interviewee smoking daily or having smoked in the past 30 days was considered as current smoker; one who hadn't smoked at all was considered as a non-smoker, while one who had smoked at least once was considered as ever smoker. A standard measure of 30 ml was used to assess information on the amount of alcohol consumed. A measurement cup having markings till 100 ml was shown to the interviewee to help in estimating and reporting the intake. Information on total fruits and vegetables consumed was obtained by asking the serving size (100 g was taken as one serving; a standard 100 g bowl was shown to the interviewee) of consumed vegetables and fruits. The type of physical activity undertaken by the interviewee was assessed by guidelines provided by the Centre for Disease Control (CDC), Atlanta, USA. Based on these guidelines, activities undertaken as part of work, travel and leisure were measured and classified as moderate and vigorous intensity. The subjects undertaking at least 30 minutes of moderate-intensity activity daily in any sphere of their daily routine activities (during work hours, travelling and leisure) were considered as active. Interviewers who had three or more than three risk factors were considered to be "at risk".

Data analysis

Data thus collected was analyzed using software Systat 12.0 version. The descriptive analysis was in depicted terms of percentages, graphs, tables etc. and analytic analysis will be done by using Chi-square test and multivariate analysis. The significance level was considered at P<0.05.

Ethical consideration

Permission from Institutional Ethical Committee of DMIMS (D.U) was obtained to conduct the study.

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RESULTS

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The burden of NCD risk factors was high in our sample. Prevalence of behavioural and each of the biochemical risk factors increased with age, adjusting for other factors including sex and the place of residence. The odds ratios relating anthropometric variables to biochemical variables were modest, suggesting that anthropometric variables may not be useful surrogates for biochemical risk factors for population screening purposes.

Total 413 interviewees were surveyed. Age range was 25-60 years. One-tenth of the interviewers had adequate dietary

habits. Though most interviewers were physically active, the type and duration of activity was inadequate. Two interviewees were obese, both females. There were statistically significant differences among various socioeconomic classes, type of school and the presence of certain risk factors. Alcohol intake among interviewer of upper class was significant (P=0.005).

Table 1 Socio-demographic characteristics of the interviewer

S.N.	Variables		Number (n=413)	Percentages (%)
1	Sex	Male	233	56.4
		Female	180	43.6
2	Age	25-35	204	49.4
		36-46	120	29.1
		47-60	89	21.5
3	Socio-economic status Kuppuswamy's socioeconomic scale	Upper	188	45.5
		Upper middle	27	6.5
		Lower middle	180	43.6
		Lower	18	4.4

Table 1 shows that 49.4% males are within the age group of 25-35 years and males with upper socio-economic status (45.5%) are involved in the study.

Table 2 shows that 80% of the male smoked in the past 30 days, 4.7% male are alcoholic, 51.1% males' intake of fruits is <3 days/week whereas 92.8% females' intake of fruit is <400 mg/day, 22.8% females' intake of vegetable is <3 days/week whereas 12.9% males' intake of vegetable is <400 g/day. About 45.1% males' intake of fast food is >3 times/week. About 41.7% females' activity was vigorous <3 days/week, 6.1% females' activity are moderate <3 days/week where 58.3% females time for vigorous activity <30 min and 32.2% females time for moderate activity <30 mins and 26.7% females were in stress.

Table 2 Prevalence of risk factors in males and females

S.N.	Risk factor	Male (n=233) (%)	Female (n=180) (%)	P value
1	Smoked in the past 30 days	4 (80)	0 (0)	-
2	Alcohol	11 (4.7)	8 (4.4)	γ^2=0.018 P=0.894
3	Intake of fruits <3 days/week	119 (51.1)	69 (38.2)	γ^2=0.645 P=0.422
4	Intake of fruits <400 mg/day	211 (90.6)	167 (92.8)	γ^2=10.327 P=0.168
5	Intake of vegetable <3 days/week	47 (20.2)	41 (22.8)	γ^2=0.411 P=0.521
6	Intake of vegetable <400 g day	30 (12.9)	18 (10.0)	γ^2= 0.817P=0.366
7	Fast food >3 times per week	105 (45.1)	74 (41.1)	γ^2=5.509 P=0.625
8	Vigorous activity <3 days/week	78 (33.5)	75 (41.7)	γ^2=2.921 P=0.087
9	Moderate activity <3 days/week	9 (3.9)	11 (6.1)	γ^2=1.114 P=0.291
10	Time for vigorous activity <30 min	128 (54.9)	106 (58.3)	γ^2=1.184 P=0.552
11	Time for moderate activity <30 min	64 (27.4)	57 (32.2)	γ^2=6.632 P=0.036
12	Stress	58 (24.9)	48 (26.7)	γ^2=0.186 P=0.682

Table 3 shows that 98.8% participants said that they are not smokers, 95.4% said that they do not have habit of alcohol, 74.3% participants told that they are not in any stress, 56.7% participants said that they do not have habit of fast food for >3 days/week, 92.1% participants told that they take inadequate fruits whereas 86.4% participants have inadequate intake of vegetables. About 74.4% participants said that they perform inadequate vigorous activity whereas 66.3% perform adequate moderate activity.

Table 3 Overall prevalence of risk factors of NCDs among the students (n=413)

S. N.	Habit	Perception	n and percent
1	Smokers (%)	Yes	5 (1.2)
		No	408 (98.8)
2	Alcohol intake (%)	Yes	19 (4.6)
		No	394 (95.4)
3	Stress	Yes	106 (25.7)
		No	307 (74.3)

4	Fast food >3 days/week (%)	Yes	179 (43.3)
		No	234 (56.7)
5	Intake of fruits (%)	Adequate	33 (7.9)
		Inadequate	380 (92.1)
6	Intake of vegetables (%)	Adequate	56 (13.6)
		Inadequate	357 (86.4)
7	Vigorous activity (%)	Adequate	106 (25.6)
		Inadequate	307 (74.4)
8	Moderate activity (%)	Adequate	274 (66.3)
		Inadequate	139 (33.7)

DISCUSSION

In this study of community-based sample in Nachangaon, high burden of NCD risk factors was observed. Interviewees should be educated about having adequate amount of fruits and vegetables and advised to reduce the consumption of fast food. Vigorous activity should be encouraged amongst the interviewees to prevent them from getting obese. With increasing age, individuals are less under the supervision of parents and have more peer influence. In the present study, the number of current smokers was less compared to other studies carried out in India and elsewhere in the world. On the contrary, studies in Brazil and Europe showed higher number of females smoking than men [6,7]. Consuming fruits and vegetables is very essential. They form a very important component of a balanced diet. In this study, although majority of interviewees consumed fruits and all interviewees consumed vegetables, very few consumed adequate amount of fruits and vegetables respectively (adequate amount being 400 g or more of each every day. Fast food consumption leads to obesity. Fast food is now replacing daily meals, thus depriving individual of adequate nutrients, loading them with more calories and fat. Interviewees consuming fast food were higher (43.3%). In the present study, 45.1% men and 41.1% women consumed fast food. Physical activity keeps the men active, keeps the heart and lungs healthy. Sedentary lifestyle will lead to obesity, lethargy, and eventually giving rise to diseases in the body. In the present study, 74.4% of the interviewees did not do adequate vigorous activity and 33.7% interviewees did not do adequate moderate activity. This proportion was higher in the females than in the males, and this was higher compared to any study done in India or elsewhere in the world. We found that only two Interviewees were obese which is comparatively much lower than the studies carried out elsewhere in India. The sample studies currently was found to be healthy compared to the studies conducted elsewhere, although there were many risk factors prevalent in the present population. Risk factors of non-communicable diseases lead to chronic, morbid diseases. Hence, identifying them early and trying to modify them would help in combating non-communicable disease. We recommend that the interviewees should be educated about having healthy diets and should be advised to lessen the consumption of fast food. Vigorous activity should be encouraged amongst the interviewees to prevent them from getting obese [8,9].

CONCLUSION

From the present study, it is concluded that Nachangaon is not "at risk" for non-communicable disease although many interviewees were found to have certain risk factors. There was no significant difference between males and females regarding the various risk factors. However, there were statistically significant differences among various socioeconomic classes and the presence of certain risk factors. People should be educated about the importance of playing games and balanced diet.

REFERENCES

[1] Mozaffarian, Dariush, et al. "Global sodium consumption and death from cardiovascular causes." *New England Journal of Medicine* 371.7 (2014): 624-634.

[2] Lopez, Alan D., and Christopher, J. L. Murray, eds. *The Global Burden of Disease: A Comprehensive Assessment of Mortality and Disability from Diseases, Injuries, and Risk Factors in 1990 and Projected to 2020; Summary.* Harvard School of Public Health, 1996.

[3] Jain, Animesh, et al. "Assessment of risk factors of non-communicable diseases among high school students in Mangalore, India." *International Journal of Health & Allied Sciences* 1.4 (2012): 249.

[4] Epping-Jordan, JoAnne E., et al. "Preventing chronic diseases: Taking stepwise action." *The Lancet* 366.9497 (2005): 1667-1671.

[5] Khan, Faisal S., et al. "The burden of non-communicable disease in transition communities in an Asian megacity: Baseline findings from a cohort study in Karachi, Pakistan." *PloS one* 8.2 (2013): e56008.

[6] Castro, Inês Rugani Ribeiro de, et al. "Surveillance of risk factors for non-communicable diseases among adolescents: The experience in Rio de Janeiro, Brazil". *Cadernos de Saúde Pública* 24.10 (2008): 2279-2288.

[7] Nath, Anita, et al. "A study of the profile of behavioral risk factors of non-communicable diseases in an urban setting using the WHO steps 1 approach." *Annals of Tropical Medicine and Public Health* 2.1 (2009): 15.

[8] Lim, Stephen S., et al. "A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010." *The lancet* 380.9859 (2013): 2224-2260.

[9] Mozaffarian, Dariush, et al. "Global sodium consumption and death from cardiovascular causes." *New England Journal of Medicine* 371.7 (2014): 624-634.