ORIGINAL RESEARCH

Behavioural risk factors for non-communicable disease among urban adults in Kolkata

[1]Dr. Kajal Kumar Patra, [2]Dr. Kishore P Madhwani, [3]Jitendra Kumar Singh

[1]Ex-Professor and Head, Department of Gynae and Obstetrics, Gouri Devi Institute of Medical Science, Durgapur, West Bengal, India
[2]Senior Medical Consultant, Mumbai, Maharashtra, India
[3]MSW, KPC Medical College and Hospital, Kolkata, West Bengal, India

Corresponding author
Dr. Kishore P Madhwani
Senior Medical Consultant, Mumbai, Maharashtra, India
Email: wellnesspartners2018@gmail.com, drmch2000@gmail.com

Received: 12 March, 2024 Accepted: 15 April, 2024

ABSTRACT

Background: Increasing burden of non-communicable diseases (NCDs) across the globe is largely due to the rise in prevalence of various risk factors. These risk factors are measurable and largely modifiable. Quantifying the present levels of risk factors exposure in a community is helpful in predicting the future risk and driving the public health policy for prevention and control of NCDs. **Aim:** Keeping this in mind, present study was planned to estimate the prevalence of various behavioral risk factors for NCDS in urban adults in Kolkata and to evaluate the socio-demographic characteristics associated with these risk factors. **Methods:** This community based cross sectional study was conducted in Tangra area of Kolkata between March and July 2023. A sample of 200 adults was selected by the standard random sampling technique. Various risk factors assessed were smoking and alcohol intake, physical inactivity, obesity, hypertension and stress among participants. Chi-square test and multiple logistic regression were employed using SPSS software package. **Results:** The mean age of participants was 52.32±12.46 years. Most of the participants 68 (34%) were belonged to age group of 55-640 years followed by 62 (31%) of the age group > 65 years. A total of 148 (74%) participants were having at least one risk factor present for NCDs. The analysis indicated that older age of participants (p = 0.000; OR= 1.089), male gender(p=0.001;OR=2.342), illiteracy (p = 0.008; OR= 0.924) and lower socio- economic status (p=0.001;OR=0.842) were risk factors determining the presence of at least one risk factor. **Conclusion:** High prevalence of risk factors among the urban population of Kolkata warrants an immediate attention. There is a need for careful monitoring and control of non-communicable disease risk factors in urban area.

Keywords: Behavioral Risk Factor, Non Communicable Disease, Urban Area

INTRODUCTION

Of the significant changes in health that have occurred in the twenty-first century, the increasing prevalence of non-communicable diseases (NCDs) has been the most widespread worldwide. Non-communicable diseases (NCDs) are now the leading cause of morbidity and premature death globally, displacing communicable diseases. NCDs claimed the lives of 38 million people annually, of whom 28 million perished in low- and middle-income nation.[1]

Each year, 5.87 million fatalities in India are attributed to NCDs.[2]In 2011, NCDs accounted for 2/5 of all fatalities; by 2014, that number had risen to 60%, and by 2030, estimates place that number at 67%.[3] According toestimate, there are 2.8 million cases of cancer, 39 million of chronic respiratory diseases, 64million of cardiovascular diseases[4] and 69million people with diabetes.[5]

The nation's economy is greatly impacted by the growing prevalence of NCDs. According to estimates, the total cost of NCDs in 2010 was US$ 6.15 trillion.[6]According to a study, the expenses of diagnosing and treating these NCDs force 39 million Indians into poverty each year.[7]Because of the multifaceted effects of NCDs on people, households, the health system, and the macroeconomic environment, they have been dubbed the global "chronic emergency".

The rise in the prevalence of several risk factors is a major factor contributing to the establishment of the NCD epidemic. The World Health Organization has determined that four specific lifestyle-related

behavioral risk factors—tobacco use, physical inactivity, eating an unhealthy diet, and drinking alcohol excessively—are responsible for the majority of non-communicable diseases (NCDs). These factors lead to four major metabolic/physiological changes, such as elevated blood pressure, overweight/obesity, elevated blood glucose, and elevated cholesterol levels.[8]

Research indicates that if risk factors are managed, 40–50% of early deaths linked to non-communicable diseases may be avoided. It is logical and obvious that reducing these risk factors should be the main goal of efforts to prevent these serious chronic diseases.[8]Since these are quantifiable, it is crucial for NCD control to continuously monitor the amounts of risk variables in a community.

The purpose of this study wasto estimate the prevalence of various behavioral risk factors for NCDs in urban adults in Kolkata and to evaluate the socio-demographic characteristics associated with these risk factors.

MATERIALS AND METHODS

Type of study: Present study was community based cross sectional study.

Place of study: Tangra area of Kolkata, West Bengal, India.

Time of study: March 2023 to July 2023

Study Population: A total of 200 adults aged 35 years and above were included in the study through purposive sampling during the study period

Inclusion criteria: Adults who were permanent residents of age 35 years and above, gave their voluntary consent to participate were included in the study.

Exclusion criteria: The critically ill, bed ridden, pregnant females were excluded from study.

A semi-structured questionnaire was created that had two sections: baseline characteristics of the study population, which included age, sex, educational and employment status, household income, family size and type, and other factors; and various risk factors, which included the participants' physical inactivity, alcohol and tobacco use, overweight/obesity, hypertension, and stress.

Measurement: To estimate body mass index (BMI), height was measured using an upright posture and a stadiometer set to the nearest 0.1 cm. Weight was measured with a standard weighing scale while wearing the least amount of clothing and making sure there was sufficient inter- and intra-rater reliability. Based on their BMI, the subjects were divided into three categories: normal, overweight, and obese. The mercury sphygmomanometer was used to measure blood pressure. The diastolic and systolic readings were obtained twice, and the schedule was used to record the average of those readings. According to Joint National Committee VII Criteria, hypertension was diagnosed if the patient's blood pressure was higher than 140/90 mm Hg or if they were receiving medication for the condition.[9] One way to identify behavioral risk factors was to evaluate one's existing drinking and smoking habits. A current drinker is defined as someone who drank one or more drinks of any type of alcohol in the year before to the survey, whereas a current smoker is defined as someone who smokes tobacco in any form on a daily or seldom basis.[10] Both occupational and non-occupational physical activity was taken into account when assessing the respondents' physical activity. If a person had only ever engaged in modest amounts of sedentary physical activity, they were deemed to be "inactive."[11]

Data Analysis plan- The data was tabulated in Microsoft Excel software and analysed with SPSS V.20 software.An alpha level of 5% has been taken that is if any p value is<0.05, it was considered as significant.

RESULTS

Table 1: Distribution of participation according to their baseline characteristics

Variables	Number	Percentage (%)
Age in years		
35-44	38	19
45-54	32	16
55-64	68	34
> 65	62	31
Sex		
Male	112	56
Female	88	44
Educational status		
Illiterate	64	32
Schooling	122	61
Tertiary	14	7
Socioeconomic status (as per Kuppuswamy classification)		
Upper Middle	18	9

Lower middle	42	21
Upper Lower	124	62
Lower	16	8

The mean age of participants was 52.32±12.46 years. Most of the participants 68 (34%) were belonged to age group of 55-640 years followed by 62 (31%) of the age group > 65 years. Males accounted for 112 (56%) of the total sample whereas females represented 88 (44%) of the total sample size. A total of 122 (61%) participants were educated up to schooling. Only 14 (7%) had tertiary education and 64 (32%) were illiterate. The majority of participants 124 (62%) were belonging to the upper lower socio-economic status whereas 42 (21%) were categorized as lower middle class. (Table 1)

Table 2: Prevalence of various risk factors among the study participants (n=200)

Risk factors	Presence of Risk factor in participants			
	Yes		No	
	Number	Percentage (%)	Number	Percentage (%)
Hypertension	72	36	128	64
Alcohol	68	34	132	66
Physical inactivity	56	28	144	72
Stress	62	31	138	69
Smoking	48	24	152	76
Unhealthy diet	28	14	172	86
Obesity/overweight	14	7	186	93
At least one risk factor	148	74	52	26

Table 2 demonstrates the prevalence of various risk factors among participants. A total of 148 (74%) participants were having at least one risk factor present for NCDs.

Table 3: Socio-demographic predictors of NCD risk factors among participants.

Variables	*P*	OR(95%CI)
Age	0.000	1.089(1.046-1.247)
Male gender	0.001	2.342(2.148-4.648)
Illiteracy	0.008	0.924(0.862-0.984)
Lower SES	0.001	0.782(0.726-0.869)

Table 3 reveals a binary logistic regression analysis of various socio-demographic predictors for the outcome of the presence of NCD risk factors. The analysis indicated that older age of participants (p = 0.000; OR= 1.089), male gender (p = 0.001; OR= 2.342), illiteracy (p =0.008; OR= 0.924) and lower socio- economic status (p = 0.001; OR= 0.782) were risk factors determining the presence of at least one risk factor.

DISCUSSION

High prevalence of various risk factors for NCDs was observed among participants. Majority of them 1 4 8 (74%) were having at least one risk factor. The prevalence of hypertension in our study was 36%. A study conducted by Subburam et al reported 33% of the prevalence of hypertension and Kokiwar et al reported 19% of prevalence,12,13 whereas Singh et al reported a prevalence of 21.3% among the respondents.14 The difference in the results may be attributed to the different age structure and geo graphic variation of the studied population.

Among the various risk factors alcohol intake among participants was 34% and current smokers were 24%. A study conducted by Sugathan et al reported two major risk factors among males which were smoking 40% and alcohol consumption 41%.11 Similar high prevalence of smoking and alcohol use were also reported by Bhardwaj et al and Katyal et al.15,16 A total of 28% of the individuals in the present study were having the sedentary lifestyle. The lack of physical activity leads to obesity, hyperlipidemia, diabetes mellitus, hypertension, and coronary heart disease.

Sugathan et al reported nearly a quarter of the target population (23% males and 22% females) as inactive and Thankappan et al reported total 6.8% of the student population as physically inactive.11,17 The differences in the results can be ascribed to socio-demographic variables as well as the criteria used for measuring the activity level. A total of 31% of participants were experiencing stress in their day to day life in the present study. Our findings are consistent with the findings of Sugathan et al who reported 23% of the samples were having stress.11 The present study showed that 14% of individuals were consuming vegetables and fruits less than once daily. Similar kind of low fruits and vegetable intake was reported by Bhardwaj et al and Sugathan et al among studies conducted.11,15 Prevalence of at least one risk factor was significantly associated with age, gender, educational and socioeconomic status of the respondents in the present study. Socio-demographic patterning plays a role in non- communicable disease risk factors as evidenced by various studies. Kinra S

et al and Hosseinpoor AR et al reported a varying degree of socioeconomic inequalities associated with risk factors.18,19

CONCLUSIONS

Given the high frequency of risk factors in urban populations, prompt treatment is necessary. Across a variety of sociodemographic groups, the majority of risk variables had a high prevalence; this information can be used to create preventive measures. In India's metropolitan areas, risk factors for non-communicable diseases must be closely monitored and managed.

Acknowledgements: Authors would like to acknowledge the patients who participated in this research study.
Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the institutional ethics committee

REFERENCES

1. World Health Organization. A primer for mainstreaming health promotion. Working draft for the Nairobi global conference on health promotion. Kenya. Oct 2009. Available at: http//www.who.int/ healthpromotion/conferences/7gchp/overview/en/in dex.html. Accessed on April 2017.
2. World Health Organization. Epidemics of NCDs. Available at: www.searo.who.int/india/topics/non-communicablediseases/ncdsituationglobalreportncds 2014.pdf. Accessed on Aug 2017.
3. World Health Organization. Non-communicable Diseases (NCD) Country Profiles, 2014. Available at http://www.who.int/countries/ind/en. Accessed on 24 November 2017.
4. Srivastava RK, Bachani D. Burden of NCDs, policies and programs for prevention and control of Non-communicable Diseases in India. Indian J Community Med. 2011;36:7-12.
5. World Health Organization. Prevalence of NCDs. Available at: www.diabetesatlas.org/resources/ 2015.atlas.html. Accessed on 23 September 2017.
6. Harvard Initiative for Global Health. The economic impact of Non-communicable Diseases in China and India: Estimates, projections and comparisons. 2013. Available at http://www.hsph.harvard.edu/ pgda/WorkingPapers/2013/PGDA_WP_107.pdf. Accessed on 23 September 2017.
7. World Health Organization. Epidemics of NCDs. Available at www. who.int/gho/publications/ world_health_statistics/2012. Accessed on 23 September 2017.
8. Narayan KM, Ali MK, Koplan JP. Global noncommunicable diseases-where worlds meet. N Engl J Med. 2010;363(13):1196-8.
9. Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, Izzo JL Jr, et al. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: The JNC 7 Report. JAMA 2003;289:2560-72.
10. National Institute of Medical Statistics, Indian Council of Medical Research (ICMR), 2009, IDSP Non-Communicable Disease Risk Factors Survey, Phase-I States of India, 2007-08.National Institute of Medical Sta- tistics and Division of Non-Communicable Diseases, In- dian Council of Medical Research, New Delhi, India.
11. Sugathan TN, Soman CR, Sankaranarayanan K. Behavioural risk factors for non communicable diseases among adults in Kerala, India. Indian J Med Res 2008;127:555-63.
12. Subburam R, Sankarapandian M, Gopinath DR, Selvaranjan SK, Kabilan L. Prevalence of Hypertension and Correlates among Adults of 45 – 60 Years in a Rural Area of Tamil Nadu. Indian J Public Health 2009;53:37- 40.
13. Kokiwar PR, Gupta SS,Durge PM. Prevalence of Hyper- tension in a Rural Community of Central India. Int J Biol Med Res. 2011; 2(4): 950 – 953
14. Singh S, Dubey D K, Kushwah S S, Patel M. Effect of life style risk factors on prevalence of hypertension in a de- fined urban population of rewa. National Journal of Community Medicine 2012; 03:570-75.
15. Bhardwaj SD, Shewte MK, Bhatkule PR, Khadse JR. Prevalence of risk factors for non-communicable disease in a rural area of nagpur district, maharashtra – A WHO STEP wise approach. Int J Biol Med Res 2012; 3: 1413- 1418
16. Katyal R, Bansal R, Goel K, Sharma S. An epidemiologi- cal study on association between alcohol and tobacco use in an urban Slum of meerut. National Journal of Community Medicine 2013;04:30-34.
17. Thankappan KR, Shah B, Mathur P, Sarma PS, Srinivas G, Mini GK et al. Risk factor profile for chronic non- communicable diseases: results of a community-based study in Kerala, India. Indian J Med Res 2010;131:53-63.
18. Kinra S, Bowen LJ, Lyngdoh T, Prabhakaran D, Reddy KS, Ramakrishnan L et al. Sociodemographic patterning of non-communicable disease risk factors in rural India: a cross sectional study. BMJ 2010;341:4974.
19. Hosseinpoor AR, Bergen N, Kunst A, Harper S, Guthold R, Rekve D, d'Espaignet ET, et al. Socioeconomic in- equalities in risk factors for non communicable diseases in low-income and middle-income countries: results from the World Health Survey.BMC Public Health 2012 28;12:912.