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Review of the prevalence of risk factors of non-communicable diseases in Kashmir valley

Abstract

Background: Non-communicable diseases (NCD) are known threats to socio economic development not only in developing countries but worldwide. Urbanization and lifestyle changes happening rapidly around the globe including India have resulted in increased prevalence of NCD and Jammu & Kashmir is no exception to this worldwide problem. The rising trend in NCD here warrants continuous surveillance and awareness amongst population. Estimating burden of modifiable risk factors contributing to NCD for intervention and prevention of NCDs is mandatory.

Method: This cross sectional study was carried out from June 2018 and continued till January 2019 in one of the blocks of District Budgam of Jammu & Kashmir. A detailed predesigned health questionnaire was used to record the parameters like age, dwelling, marital status, socio economic status, history of dependencies & duration, family and personal history of cardiovascular disease (CVD), hypertension, diabetes, behavioral history including lifestyle dependencies etc. of study participants, apparently healthy adults. Blood pressure, Random levels of blood sugar RBS and BMI of participant was recorded. The diagnosis of hypertension was done as per JNC 8 criteria and RBS levels >140mg/dl or patient on anti-diabetic medication was defined as diabetes. BMI of more than 23-29.9 and more than 30 was defined as overweight and obesity respectively.

Results: Adults with mean age of 46.8±8.54 in males and 40.3±16.15 females with the similar proportion of males and females in different age groups was recorded with 19.8% populace in the age group of 25-34 as compared to 4.3% population in the age group of 75-84.Smoking was significantly higher in males as compared to females ($p<0.001$) pointing towards gender predilection.86.6% females were living a sedentary life as compared to 72.4% of males (p value <0.001) revealing gender as independent factor for sedentary life as females remain mostly confined to their homes. Health behaviors, physical inactivity and obesity, show statistically significant association with NCD factors like hypertension and diabetes in this study ($p<0.002$ $p<0.023$ resp. table) In present study only 2.6% males and 5.7% females had their hypertension controlled 8% and 11.2% males and females respectively were not controlled.12% of males and 10.8% of females were not aware and they were diagnosed hypertensive during study. Similarly for diabetes only (1.7%m & 3.2%f) were known diabetes with controlled blood sugar levels .However major chunk of the affected population were either uncontrolled (3.2% m & 4.7%f) or unaware (9.6% m & 7.0%f) of the disease.

Conclusion: The study conducted in the semi urban area of J&K revealed that behavioral and biological cardio vascular risk factors are prevalent in the population. Awareness about these NCD is low. Physical inactivity and increasing BMI were the two important modifiable health risk behaviors associated with hypertension. Making common people aware about seeking health care for screening of these risk factors of NCD for detection of high risk group and implementation of evidence based management to reduce the mortality and morbidity related NCD is the need of the hour.

Keywords & abbreviations: NCD, non communicable disease; RBS, random blood sugar; JNC 8, joint national committee 8, BMI, body mass index

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Introduction

Non-communicable diseases (NCDs) have been recognized as known threats to socio-economic development worlwide.[1–3] In low and middle-income countries, where urbanization and lifestyle changes are happening at a rapid pace, they have emerged out as additional burden on healthcare system.[4] In developing countries cardiovascular diseases (CVD) prevalence has reached to an alarming proportion[5,6] which contributes to 23% and 30% of the total mortality in rural and urban population, respectively, in India.[7–10] It is further on an increase in the state of Jammu and Kashmir like other community undergoing life style changes and the stress for the last 25 years due to disturbed situation in the state that has apparently contributed to increased prevalence.[11] Besides bringing industrial, social and economical upliftment, urbanization has unfortunately increased unhealthy habits of consumption of high calorie foodstuffs, sedentary and stressful life and addictions in the community, thus adding more risk.[12] These risk factors are measurable and modifiable therefore become the most important targets for cost effective intervention for prevention and control of CVD risk factors.[13] Previous epidemiological studies have demonstrated rising trends of NCD[11] which mandates the continuous surveillance for capturing the current trend. This article aims at estimating the present burden of the biological and behavioral risk factors contributing to NCD, to prioritize the health policies and programme for prevention of risk factors. The study was carried out

in the adult population of the semi-urbanised area namely Chattergam of block B.K Pora in District Budgam.

Material and methods

After obtaining formal approval from the IEC of DHSK this cross sectional community based study was carried amongst the apparently healthy adult residents of the area Chattergam in the block BK Pora of District Budgam of Jammu and Kashmir state which is a semi urban region. It lies about 9 kms towards east from district headquarters Budgam and 11kms from state capital Srinagar. Area has a population of 99812 as per 2011 census. On the basis of assumed prevalence of diabetes of 6.56% in the area sample size was calculated. Written informed consent was obtained from participants selected by random sampling method after explaining the purpose of study in detail in their own local language. Survey team comprising of health workers were trained before for carrying out the study which included brief introduction about NCD and the role of (both biological and behavioral) risk factors. Methods of recording anthropometry, Blood Pressure, estimation of Blood Sugar with glucometer were demonstrated in detail to enhance skills for using survey tools. A detailed predesigned health questionnaire including parameters like age, dwelling, marital status, socio economic status, history of dependencies their duration, family and personal history of CVD, hypertension, diabetes, behavioral history including lifestyle dependencies etc. was used for record. Three recordings of blood pressure were taken of each participant in a comfortable sitting posture. Average of the three readings was recorded as final reading and the diagnosis of hypertension was done as per JNC 8 criteria. Random levels of blood sugar of participants were estimated by glucometer and RBS levels >140mg/dl or patient on anti-diabetic medication was defined as diabetes. BMI of more than 23-29.9 and more than 30 was defined as overweight and obesity respectively. Survey was carried from June 2018 and continued till January 2019.

Statistical methods: Data compiled was entered in a spreadsheet (Microsoft Excel) and then exported to data editor of SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA). Continuous variables were expressed as Mean±SD and categorical variables were summarized as frequencies and percentages. Graphically the data was presented by bar diagrams. Chi-square test or Fisher's exact test, whichever appropriate, was applied for comparison of categorical variables.A P-value of less than 0.05 was considered statistically significant. All P-values were two tailed.

Discussion

In September 2011United Nations Summit declared NCDs as leading global public health problem.[14] Non communicable diseases (NCDs) contribute to around 5.87 million (60%) of all deaths in India, having a population of 1.3 billion approximately.[15] Majority of global NCD related deaths are reported from developing countries like India which is undergoing an epidemiological health transition owing to rapid urbanization.[16] In our region (J&K) due to increased load of cardiac patients in the hospitals, studies regarding prevalence of various risk factors associated have been conducted from time to time. Changing trends in lifestyle and behavioral factors resulting in ever increasing number of CVD patients requires more comprehensive picture of the recognition and correlation of these behavioral practices with the prevalence of different risk factors for prevention and management of the disease effectively. With this objective in mind this study was conducted. In the present study the surveyed population comprised of adults with mean age of 46.8±8.54 in males and 40.3±16.15females with the similar proportion of males and females in different age groups (Table 1).19.8% populace in the age group of 25-34 as compared to 4.3% population in the age group of 75-84 was recorded according to demography of region (Table 1). Health behavior and life style of the surveyed population revealed that smoking was significantly higher in males as compared to females (p <0.001 Table 2) pointing towards gender predilection an important determinant of tobacco consumption behavior in the semi urban locale of JK and is being consumed primarily by males as reported by other study as well.[17] 86.6% females were living a sedentary life as compared to 72.4% of males (p value <0.001 Table 2) revealing gender as independent factor for sedentary life as females remain mostly confined to their homes like other regions of country. Similarly obesity and overweight population was significantly higher in females (p<0.001 Table 2). Health behaviors, physical inactivity and obesity, show statistically significant association with NCD factors like hypertension and diabetes in this study (p<0.002 p <0.023 resp. Table 3 & Table 4.) (Figure 1) as is reported by other epidemiological studies also. Association of behavioral risk factors with hypertension and diabetes are independent risk factors for these NCDs. However, its association with tobacco consumption is not consistent.[18,19] These observations of an independent and significant association of physical inactivity and increasing BMI have important implications from the perspective of public health intervention for prevention of these NCD.

Table 1 Age and gender wise distribution of surveyed population

Age (years)	Male		Female		Total	
	No.	%age	No.	%age	No.	%age
18-24	94	14.5	131	17.7	225	16.2
25-34	100	15.4	174	23.5	274	19.8
35-44	104	16.0	156	21.1	260	18.7
45-54	109	16.8	116	15.7	225	16.2
55-64	85	13.1	80	10.8	165	11.9
65-74	112	17.3	58	7.8	170	12.3
75-84	40	6.2	19	2.6	59	4.3
>85	4	0.6	5	0.7	9	0.6
Total	648	100	739	100	1387	100
Mean±SD	46.8±18.54		40.3±16.15		41.7±17.03	

1387 randomly selected subjects were surveyed to estimate the prevalence of NCD risk factors. Mean age of population was 41.7±17.03 years of which 648 were men and 739 women

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Table 2 Gender wise distribution of NCD risk factors

Risk factor	Male [n=648]		Female [n=739]		P-value
	No.	%age	No.	%age	
Tabacco smokers	300	46.3	21	2.8	<0.001*
Sedentary lifestyle	469	72.4	640	86.6	<0.001*
Over weight and obese (BMI≥23)	378	58.3	579	78.3	<0.001*
Total no of known Hypertension	69	10.6	125	16.9	0.002*
Hypertension Diagnosed and controlled	17	2.6	42	5.7	0.005*
Hypertension Diagnosed, but not controlled	52	8.0	83	11.2	0.044*
Newly detected HTN	78	12.0	80	10.8	0.478
Total no of known DM	32	4.9	59	8.0	0.023*
known Diabetes on medicine controlled B/S below 140	11	1.7	24	3.2	0.067
Known Diabetes on medicine but B/S not controlled Above 140	21	3.2	35	4.7	0.158
Newly detected DM	62	9.6	52	7.0	0.086

*Statistically Significant Difference (P-value<0.05)

The prevalence of diagnosed controlled as well as uncontrolled was significant high in females (p value <0.005, <0.044). Similarly prevalence of diabetes controlled as well as uncontrolled was significantly higher in females (p value <0.023). Behavioral risk factors tobacco smoking and physical inactivity was significantly higher in males (p value <0.001, <0.001 respectively)

Table 3 Showing Association of various risk factors with hypertension in study population

Risk factor	Hypertensive [n=456]		Non-hypertensive [n=931]		P-value
	No.	%age	No.	%age	
Smoking	112	24.6	209	22.4	0.381
Sedentary lifestyle	382	83.8	727	78.1	0.013*
Over weight and obese (BMI≥23)	337	73.9	620	66.6	0.006*

*Statistically Significant (P-value<0.05)

Sedentary life style and increased BMI had a significant association correlation with hypertension (p value <0.013, <0.006 resp).Strong association of smoking was also found with smoking (p value<0.381)

Table 4 Showing association correlation of various risk factors with diabetes in study population

Risk factor	Diabetic [n=205]		Non-diabetic [n=1182]		P-value
	No.	%age	No.	%age	
Smoking	52	25.4	269	22.8	0.413
Sedentary lifestyle	184	89.8	925	78.3	<0.001*
Over weight and obese (BMI≥23)	160	78.0	797	67.4	0.002*

*Statistically Significant (P-value<0.05)

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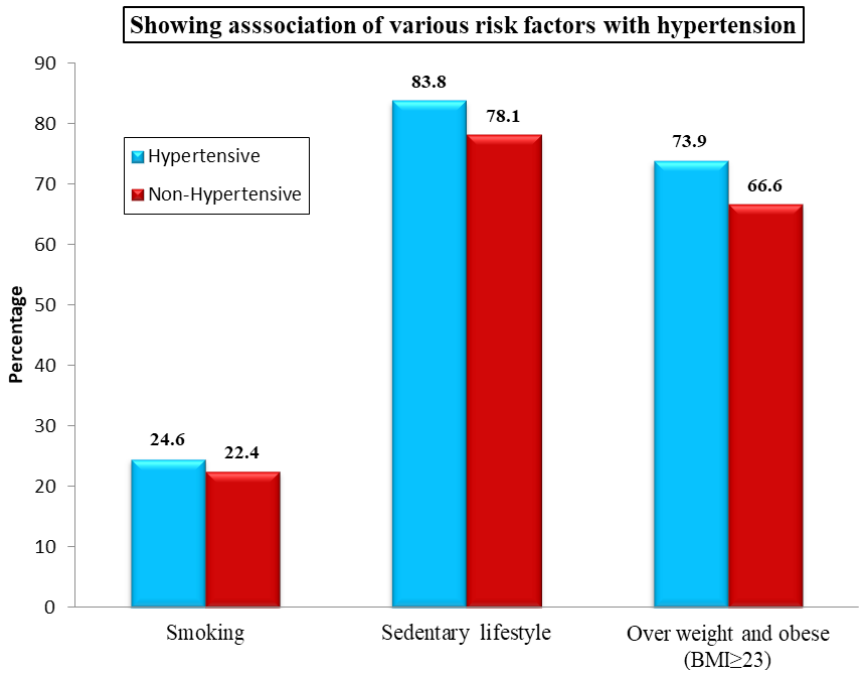

Figure 1 Associate of risk factors & hypertension.

Physical inactivity and obesity show significant association with diabetes also (p value <0.001, <0.002 resp) In present study only 2.6% males and 5.7% females had their hypertension controlled 8% and 11.2% males and females respectively were not controlled.12% of males and 10.8% of females were not aware and they were diagnosed hypertensive during study. Similarly for diabetes only (1.7% m & 3.2%f) were known diabetes with controlled blood sugar levels .However major chunk of the affected population were either uncontrolled (3.2% m & 4.7% f) or unaware (9.6% m & 7.0% f) of the disease. This shows very small number of patients having hypertension and diabetes have controlled blood pressure and blood glucose and large proportion of population are either not aware of or are having uncontrolled levels. This remains the major challenge in reducing the mortality and morbidity related to CVD. This lack of awareness and compliance to medication needs to be addressed by identifying and addressing the barriers in improving early detection, compliance and control of diseases.

Conclusion

The study conducted in the semi urban area of J&K to know prevalence of NCD risk factors and their determinants revealed that behavioral and biological cardio vascular risk factors are prevalent in the population. Awareness about these NCD is low. Physical inactivity and increasing BMI were the two important modifiable health risk behaviors associated with hypertension mandating the urgent need for launching aggressive community health education to create awareness about health risk behaviors and their health consequences. There is a need to create the awareness about seeking health care for screening of these risk factors of NCD for detection of high risk group and implementation of evidence based management to reduce the increasing trend of NCD risks factors and thereof reducing the mortality and morbidity related to them.

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None.

Conflicts of interest

The authors declare that there is no conflict of interest.

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