Lifestyle diseases and their risk factors in a rural population of Jammu, India

Parveen Z[1], Hussain S[2], Jamwal DS[3], Shora TN[2]

[1]Medical Officer, J&K Health Services.[2]Senior Resident, Department Of Community Medicine Govt. Medical College Jammu J&K, India.[3] Head, Department Of Community Medicine, Chintpurni Medical College and Hospital Punjab, India.

ABSTRACT

Introduction: A large percentage of NCDs are preventable through the reduction of their main behavioural risk factors. In India, the availability of data on core risk factor indicators to monitor the increasing burden of Non Communicable Diseases is inadequate.

Aims and Objectives: To find the prevalence of lifestyle diseases and risk factors associated with them.

Methods: A house to house community based cross-sectional study was carried out among rural adults aged 30 years and above in rural area of Jammu from Jan to Jun 2012. Information on various risk factors like daily physical activities, smoking status, alcohol consumption, history of hypertension and diabetes mellitus was obtained using pretested questionnaire. Weight and height was also measured using standardized instruments.

Results : Out of total 5346, people aged 30 years and above were 2085(39% of the total) with 53.5% males and 46.5% females. Overall 50.1% of the study population was found to be suffering from at least one lifestyle disease. Hypertension and Diabetes Mellitus together affected 42.5% while other diseases affected approximately 8%. Hypertension was equally prevalent in males (33.8%) and females (35.0%) while males were twice as diabetics (10.8%) than females (5.8%). 54.0% were involved in moderate physical activity across all age groups except 60 years and above. 22.7% were smokers and 23.3% were alcoholics. Obesity and overweight (42.2%) was more prevalent among female population. Prevalence of smoking among males and females was 39.4% and 3.5% respectively.

Conclusion: Unless serious action is taken to halt NCD risk factors the burden of NCDs will reach levels that are beyond the capacity of all stakeholders to manage.

KEYWORDS: Prevalence, non-communicable disease, risk factors, rural area

*Correspondence to:
Dr. Tajali N Shora
Senior Resident
Department Of
Community Medicine
Govt. Medical College
Jammu J&K, India.
Email:
tajalishora@gmail.com

INTRODUCTION

Lifestyle diseases also known as Non-Communicable diseases (NCD'S) like Hypertension, Coronary heart disease, Type 2 Diabetes Mellitus etc have emerged as a serious threat to health and longevity. These diseases are characterized by a triad of less visibility, slow progression and under diagnosis. In 2008, of the 57 million global deaths, 36 million, or 63%, were due to NCDs. Deaths from non communicable diseases globally are expected to climb to 49.7 million in 2020 and increase in their share of the total from 55% in 1990 to 73% in 2020. As populations age, annual NCD deaths are projected to rise worldwide, and the greatest increase is expected to be seen in low- and middle-income regions.[1] A long standing assumption that lifestyle diseases exist primarily in urban societies is no longer true due to changing lifestyle patterns of people including improvements in their purchasing power.

The increasing burden of Non-Communicable diseases in developing countries like India has also been attributed to adopting the unhealthy lifestyle. It is said that, the possibility of an Indian suffering from a lifestyle disease is 4% greater than those from other nationalities.[2]

A large percentage of NCDs are preventable through the reduction of their four main behavioural risk factors: tobacco use, physical inactivity, harmful use of alcohol and unhealthy diet. Worldwide, approximately 22% of heart diseases are believed to be attributable to physical inactivity and a further 22% to smoking in industrialized countries.[3] Approximately 2.3 million die each year from the harmful use of alcohol, accounting for about 3.8% of

all deaths in the world. Although hypertension is an emerging modern epidemic worldwide, its awareness, treatment and control rates are very poor.[4] Hypertension, diabetes mellitus and obesity together form 24% of the global risk for mortality. In India, tobacco-attributable mortality is estimated to increase from 1% of total mortality in 1990 to 13% by 2020.[5] Cardiovascular diseases caused 2.3 million deaths in India in the year 1990; this is projected to double by the year 2020. Hypertension is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease deaths in India.[6] The proportion of people with type 2 diabetes mellitus and obesity have increased in Asia and the rate of increase shows no signs of slowing. Asian people tend to develop diabetes at younger ages with a lesser degree of obesity, suffer longer with complications of diabetes and die sooner as compared to Caucasians.[7] Today's 24x7 world order leaves little room for entertainment, social life, exercise and regular eating and sleeping patterns. Only when our body starts showing signs of fatigue and inability, we look at our daily routine and think how the same impacts our personal lives.

In India, the availability of data on core risk factor indicators to monitor the increasing burden of Non Communicable Diseases is inadequate.[8] Accurate data from countries are vital to reverse the global rise in death and disability from NCDs. But a substantial proportion of countries have little usable mortality data and weak surveillance systems and data on NCDs are often not integrated into national health information systems. Improving country-level surveillance and monitoring must be a top priority in the fight against NCDs. In low-resource settings with limited capacity, viable and sustainable systems can be simple and still produce valuable data. Three essential components of NCD surveillance constitute a framework that all countries should establish and strengthen. These components are: a) monitoring exposures (risk factors); b) monitoring outcomes (morbidity and disease-specific mortality); and c) health system responses. There was paucity of literature on lifestyle diseases risk factors and assessment of their awareness about their diseases in this part of the country. Keeping this in mind, the present study was conducted in a rural area of Jammu.

MATERIALS &METHODS

This community based cross-sectional study was carriedout among rural adults aged 30 years and above in Ranbir Singh Pura area which is field practice area of Post Graduate Department of Community Medicine, Government Medical College Jammu. The study period was from Jan to Jun 2012.

After obtaining clearance from Institutional Ethics Committee a two step random sampling was employed to select the study area. Sub-centre Langotian and all the six villages falling under this sub-centre were chosen to conduct the present study.

A house to house survey was conducted. In each household adults aged ≥30years were interviewed after taking consent. Information on various risk factors like daily physical activities, smoking status, alcohol consumption, history of hypertension and diabetes mellitus was obtained. Physical activity was measured using International physical Activity Questionnaire, modified as per local conditions and classified as Mild, Moderate, Vigorous. Households which were found locked were revisited and if found locked again were excluded from the study. This was followed by general physical examination including weight, and height measurement. The data thus collected was compiled, tabulated and prevalence was presented as percentages. Chi-square test was applied to determine the statistical significance using Open-Epi 3.03a.

RESULTS

Total population of the study area was 5346 out of which population aged 30 years and above was 2085(39% of the total). Males were 53.5% and females were 46.5%, Fig 1. Overall 50.1% of the study population was found to be suffering from at least one lifestyle disease. Hypertension and Diabetes Mellitus together affected 42.5% while other diseases affected approximately 8%, Table 1.

Majority of the people (54.0%) showed their involvement in moderate physical activity across all age groups except 60 years and above where mild physical activity was more common. Majority in all age groups had normal BMI while obesity and overweight was most prevalent in people aged 60-69 years. 22.7% were smokers and 23.3% were alcoholics and as the age advanced more people were found to smoke and consume alcohol. Bidi smoking was most prevalent (63.5%) followed by cigarettes (32.3%). Hookah/Chillam smoking was least prevalent (4.2%), Fig 3. Hypertension and Diabetes Mellitus was most prevalent in 40-49yrs old and 50-59yrs old subjects respectively, Table 2 & Fig 2. The statistical significance was seen between risk factor and age across all age groups. Majority (51.1%) of females were involved in mild physical activity whereas males were predominantly involved in moderate (60.1%) and vigorous (16.1%) physical activity. Obesity and overweight (42.2%) was more prevalent among female population. Prevalence of smoking among males and females was 39.4% and 3.5% respectively. Overall there were 23.3% alcoholics which constituted of only males. Hypertension was equally prevalent in males (33.8%) and females (35.0%) while males were twice as diabetics (10.8%) than females (5.8%). Except hypertension all other risk factors were significantly associated with sex, Table 3.
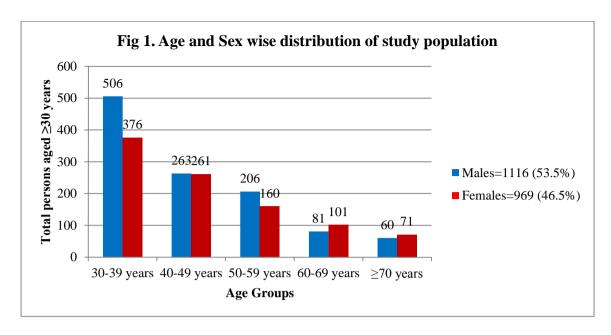
Fig 1. Age and Sex wise distribution of study population

Table 1: Distribution of common lifestyle diseases in the study population 30 years and above.

Lifestyle Diseases	No. of cases	Population 30 years & above	Prevalence %
Hypertension	718		34.4
Diabetes Mellitus	170		8.1
COPD	67		3.3
CHD	64	2085	3.1
Stroke	07		0.3
Mental Illness (Depression, Schizophrenia Etc.)	07		0.3
Cancers (Lung, Liver, Breast Etc.)	12		0.6
Total	1045	2085	50.1

Table 2: Age group and risk factor wise distribution of study population.

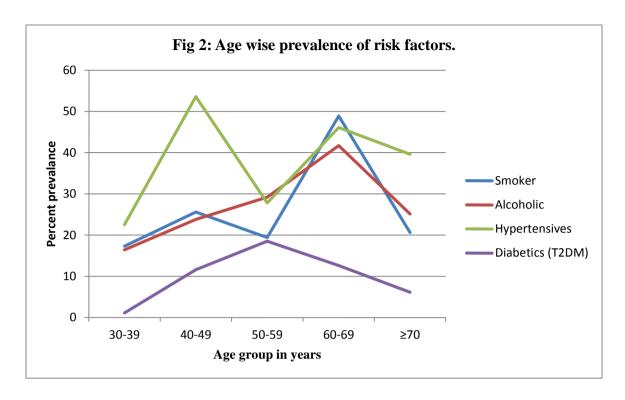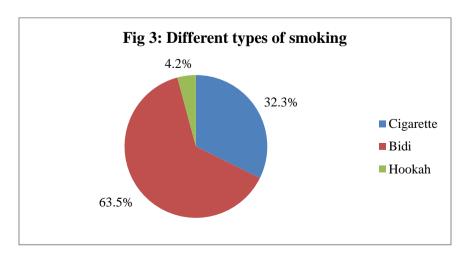|	Risk Factor	Percent prevalence of risk factors in various age groups						P value
		30-39	40-49	50-59	60-69	≥70	Overall	
Physical activity	Mild	35.4	22.7	36.3	52.7	77.9	36.6	<0.01
	Moderate	51.3	68.7	56.6	42.9	22.1	54.0	
	Vigorous	13.3	08.6	07.1	04.4	00.0	09.4	
BMI	Normal(BMI <25)	83.8	64.7	62.3	41.2	63.4	70.2	<0.001
	Overweight (BMI 25-29.99)	12.7	25.9	23.7	38.5	16.8	20.5	
	Obese (BMI ≥30	03.5	09.4	14.0	20.3	19.8	09.3	
	Smoker	17.3	25.6	19.4	48.9	20.6	22.7	<0.001
	Alcoholic	16.4	23.8	29.2	41.7	25.1	23.3	<0.001
	Hypertensives*	22.5	53.6	27.8	46.1	39.6	34.4	<0.001
	Diabetics (T2DM)*	01.1	11.6	18.5	12.6	06.1	08.1	<0.001

*as a risk factor for non-communicable diseases

Fig 2: Age wise prevalence of risk factors.

Table 3: Sex wise prevalence of risk factors in study population.

Risk Factor		Prevalence of risk factors in different genders		P value
		Males	**Females**	
Physical activity	**Mild**	23.8	51.1	<0.01
	Moderate	60.1	47.0	
	Vigorous	16.1	01.8	
BMI	**Normal (BMI <25)**	81.0	57.8	<0.01
	Overweight (BMI 25-29.99)	14.9	26.9	
	Obese (BMI ≥30)	04.1	15.3	
Smoker		39.4	03.5	<0.001
Alcoholic		43.5	00.0	<0.001
Hypertensives*		33.8	35.0	0.27
Diabetics (T2DM)*		05.8	10.8	<0.001

Fig 3: Different types of smoking

DISCUSSION

Life-style diseases, also called as "diseases of civilization", characterize those diseases whose occurrence is primarily based on daily habits of people and are a result of inappropriate relationship of people with their environment. Onset of these diseases is insidious, take years to develop and once developed are difficult to cure.

In the present study, overall prevalence of life-style diseases was found to be 50.1%, of which hypertension accounted for maximum (34.4%) followed by Diabetes Mellitus (8.1%). These findings are in accordance with Ananya Laskar et al[9] findings in which they reported prevalence of hypertension as 36.9% and Diabetes 10.53% in Delhi with sample size of 619. This study also highlighted a high prevalence of risk factors for chronic diseases and poor health seeking behavior despite accessibility and affordability to all levels of health care. Present study is in contrast to a study done by Midha T et al[10] conducted in randomly selected areas of urban and rural parts of Lucknow in which prevalence of hypertension was 14.5% out of which 9.2% had co-existing diabetes mellitus. In a study by Bansal SK et al[11] in rural areas of Uttarakhand, reported hypertension in 30.9% males and 27.8% females and concluded that rates of hypertension in rural community are similar to those seen in urban areas which proves that the rural urban gap is exponentially decreasing. Avadaiammal Vimala et al[12] reported overall prevalence of hypertension as 47%, with equal distribution in males and females.

In present study Diabetes mellitus affected females twice (10.8%) as compared to males (5.8%). This is similar to findings of Schipf S et al[13] in which prevalence of diabetes mellitus was 8.6%, however higher prevalence was seen in men (9.7%) than in women (7.6%). In another study comparing prevalence of Diabetes Mellitus in rural and urban population by Sadikot SM et al[14] the standardized prevalence rates in India, Urban and Rural population was 4.3, 5.9 and 2.7 % respectively. Myriad of risk factors, known as well as unknown, are responsible for the causation of NCD's and suppressing their emergence at the primordial level can bring about a drastic change in NCD profile across globe. These risk factors once thought to be restricted to richer populace are now rapidly invading the poorer section of the world. People living in rural areas owing to their predominant involvement in agrarian occupation are more likely to be active and hence are at lesser risk of habiting risk factors like reduced physical activity and obesity. Bull FC et al[15] identified physical inactivity as the 4th leading risk factor for non-communicable diseases, preceded only by tobacco use, hypertension and high blood glucose levels. The present study population was mainly involved in moderate physical activity.

Obesity which is increasing at an alarming rate is mainly influenced by two critical factors dietary patterns and levels of physical activity. In the present study 9.3% were obese and 20.5% were overweight with population aged 60-69years maximally affected. Among obese, 4.1% were males and 15.3% were females. In overweight category, 14.9% were males and 26.9% were females. Singh RB et al[16] observed the highest prevalence of obesity (7.8%) and overweight (36.9%) among subjects aged 35 to 44 years in both sexes. Pooja Goyal et al[17] observed that overall prevalence of central obesity was 41.4% and was significantly higher among females (64.4%) than males (17.1%).

Daily smoking of even a small amount of tobacco was associated with increased mortality. Excess deaths among smokers, as compared with non-smokers, were chiefly from tuberculosis. Tobacco smoking in most parts of India except Punjab, Maharashtra and Sikkim is reported in about one fourth to half of adult men of over 15 years of age as observed by Rani M et al.[18] In current study the prevalence of smoking has been observed more in males (39.42%) as compared to females (3.50%) out of total prevalence of 22.73%. Bidi was the commonest form of smoking (63.50%). S.K. Jindal et al[19] has reported high prevalence of non-communicable disease among smokers with maximum bidi consumption in rural area.

Alcohol consumption is associated with increased morbidity and mortality, in addition to having a major impact on family, children and community at large. In the present study, total prevalence of alcohol intake as a risk factor was 23.30%. Alcohol consumption was not observed in females and prevalence among males was 43.54%. In a study by Sugathan TN et al[20] a sample of 6579 individuals of age 30 to 74 year from Kerala state was observed and found that two fifths (40%) were current smokers as well as current users of alcohol (41%).

CONCLUSIONS

The NCD epidemic exacts an enormous toll in terms of human suffering and inflicts serious damage to human development in both the social and economic realms. The epidemic already extends far beyond the current capacity of lower-income countries to cope with it, which is why death and disability are rising disproportionately in these countries. This state of affairs cannot continue. There is a pressing need to intervene. Unless serious action is taken, the burden of NCDs will reach levels that are beyond the capacity of all stakeholders to manage.

REFERENCES

1. Description of the global burden of NCDs, their risk factors and determinants. Global status report on non-

communicable diseases 2010. Available from: http://www.who.int/nmh/publications/ncd_report2010/en/.[Last accessed on 07 Dec 2015. (World Health Organization,2005. Preventing Chronic Diseases: A Vital Investment. World Health Organization, Geneva).

2. Prospects for food, nutrition, agriculture and major commodity groups, Interim Report: World Agriculture Toward 2030/2050. Global Perspective Studies Unit Food and Agriculture Organization of the United Nations Rome, Rome. June 2006. Available from: http://www.fao.org/docrep/009/a0607e/a0607e00.HTM. [Last accessed on 29 Dec 2015].

3. The world health report 2002 - Reducing risks, promoting healthy life: World Health Organization. Available from: http://www.who.int/whr/2002/en/. [Last accessed on 29 Dec 2015].

4. Chobanian AV, Bakris GL, Black HR, Cushman WC, Green AL, Izzo JL et al. National High Blood Pressure Education Program Coordinating Committee. Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. Hypertension. 2003; 42:1206-1252. doi:10.1161/01.HYP.0000107251.49515.c2

5. Global health risks: Mortality and burden of disease attributable to selected major risks. WHO, Dec 2010. ISBN-13 9789241563871. Available from: http://www.who.int/healthinfo/global_burden_disease/global_health_risks/en/. [Last accessed on 29 Dec 2015].

6. Gupta R. Trends in hypertension epidemiology in India. J Hum Hypertens 2004 (18):73-8 doi:10.1038/sj.jhh.1001633.

7. Raban MZ, Dandona R, Dandona L. Availability of data for monitoring non-communicable disease risk factors in India. Bull World Health Organ 2012 ;90(1):20-9. doi: 10.2471/BLT.11.091041

8. Popkin BM. Nutritional patterns and transitions. Popul Dev Rev 1993; 19: 138–57.

9. Laskar A, Sharma N, Bhagat N. Lifestyle diseases risk factors in North Indian community in Delhi. Indian J Community Med. 2010;35(3):426-28.

10. Midha T, Idris MZ, Saran RK, Srivastav AK, Singh SK. Prevalence and determinants of hypertension in the urban and rural population of a north Indian district. East Afr J Public Health. 2009 ;6(3):268-73.

11. Bansal SK, Saxena V, Kandpal SD, Gray WK, Walker RW, Goel D. The prevalence of hypertension and hypertension risk factors in a rural Indian community: A prospective door-to-door study. J Cardiovasc Dis Res. 2012;3(2):117-23.

12. Vimala A, Ranji SA, Jyosna MT, Chandran V, Mathews SR, Pappachan JM.The prevalence, risk factors and awareness of hypertension in an urban population of Kerala (South India). Saudi J Kidney Dis Transpl. 2009;20(4):685-9.

13. Schipf S, Werner A, Tamayo T, Holle R, Schunk M, Maier W, Meisinger C, Thorand B, Berger K, Mueller G, Moebus S, Bokhof B, Kluttig A, Greiser Kh,Neuhauser H, Ellert U, Icks A, Rathmann W, Völzke H. Regional differences in the prevalence of known Type 2 diabetes mellitus in 45-74 years old individuals: results from six population-based studies in Germany (DIAB-COREConsortium).Diabet Med. 2012;29(7):e88-95. doi: 10.1111/j.1464-5491.2012.03578.x

14. Sadikot SM, Nigam A, Das S, Bajaj S, Zargar AH, Prasannakumar KM, Sosale A, Munichoodappa C, Seshiah V, Singh SK, Jamal A, Sai K, Sadasivrao Y, Murthy SS, Hazra DK, Jain S, Mukherjee S, Bandyopadhay S, Sinha NK, Mishra R, Dora M, Jena B, Patra P, Goenka K. The burden of diabetes and impaired glucose tolerance in India using the WHO 1999 criteria: prevalence of diabetes in India study (PODIS). Diabetes Res Clin Pract. 2004;66(3):301-7.

15. Bull FC, Bauman AE. Physical inactivity: the "Cinderella" risk factor for non communicable disease prevention. J Health Commun. 2011;16 Suppl 2:13-26. doi: 10.1080/10810730.2011.601226.

16. Singh RB, Pella D, Mechirova V, Kartikey K, Demeester F, Tomar RS, Beegom R, Mehta AS, Gupta SB, De Amit K, Neki NS, Haque M, Nayse J, Singh S, Thakur AS, Rastogi SS, Singh K, Krishna A. Prevalence of obesity, physical inactivity and under nutrition, a triple burden of diseases during transition in a developing economy. The Five City Study Group. Acta Cardiol. 2007;62(2):119-27.

17. Goyal P, Sachar RK, Soni RK. Is Central Obesity A Predictor Of Lifestyle Diseases- A Cross Sectional Study In Adult Punjabis. Indian J Prev Soc Med. 2011;42:44–47

18. M Rani, S Bonu, P Jha, SN Nguyen, L Jamjoum. Tobacco use in India: prevalence and predictors of smoking and chewing in a national cross sectional household survey. Tob Control. 2003 Dec;12(4):e4. doi:10.1136/tc.12.4.e4.

19. Jindal SK, Aggarwal AN, Chaudhry K, Chhabra SK, D'Souza GA, Gupta D, Katiyar SK, Kumar R, Shah B, Vijayan VK. Tobacco smoking in India: prevalence, quit rates and respiratory morbidity. Indian J Chest Dis Allied Sci. 2006;48(1):37-42.

20. 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.Available from: http://medind.nic.in/iby/t08/i6/ibyt08i6p555.pdf. [Last accessed on 29 Dec 2015]