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Original Research Article

Prevalence and distribution of behavioural risk factors for non communicable diseases among students in 15 to 25 year age group in Jammu, Jammu and Kashmir

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ABSTRACT

Background: Non-communicable diseases (NCDs) refer to a group of conditions that result in long-term health consequences and create a need for long-term treatment and care. In addition to the affliction and tragedy of pre-mature illness and death, these diseases extract a growing toll on the economy. They are costly to diagnose and even more expensive to treat, leading to heavy economic burden. These can be prevented by reducing the risk factors like tobacco use, harmful alcohol use, physical inactivity and eating unhealthy diets.
Methods: Present cross-sectional study was conducted on 300 students hailing from different regions of Jammu, Kashmir and Ladakh, in the age group of 15-25 years, studying in various schools, colleges in Jammu city and the university of Jammu. Stratified systematic sampling technique was used to select equal number of male and female students from equal number of government and private institutes.
Results: The 36% and 9.33% of the students were taking inadequate servings of fruits and vegetables respectively. 45.33% and 65%of students consume salty and sweet snack food, respectively. Nine percent students are physically inactive, 69.33% and 21.66% of students engage in moderate and vigorous activities, respectively. Prevalence of students smoking tobacco and consumption of smokeless tobacco is 11.33% and 2%. The 24.66% of the students consume alcohol.
Conclusions: The study showed a generalized increased in prevalence of all risk factors with advancing age which indicates the importance of generating awareness on the risk factors leading to non-communicable disease early in adolescence.

Keywords: Non-communicable diseases, Students, Behaviour risk factors, Lifestyle diseases

INTRODUCTION

The twentieth century heralded one of the most accelerated health transitions which brought NCDs to the forefront of global public health challenges.[1] Traditionally, these diseases were associated with economic development and so-called diseases of the rich.[2] However, the burden of NCDs in the low and middle income countries is becoming strikingly apparent. This epidemiologic transition has been linked to urbanization, industrialization and globalization leading to lifestyle changes that promote NCDs.[3,4] This is also reflected by the fact that, globally, NCDs contributed 60% of deaths and 43% of burden of diseases in the year 2002.[5] In 2012, out of 68% of all deaths 74% occurred in low and middle income countries alone.[6] About 16 million deaths occur between the ages of 30 and 70, the most productive age group.[7,8]

In 2017, in India, 61% of deaths were from NCDs, and risk of premature death from target NCDs was 23%.[9]Age-standardized mortality rate for NCDs (per 100 000 population), for both sexes was 599.8 (males 671.0 and females 531.1).[10]

NCDs not only affect health, but also productivity and economic growth. Over the period 2011-2030 global economic loss is estimated at nearly US$ 47 trillion.[36] India stands to lose $4.58 trillion before 2030 due to NCDs. Cardiovascular diseases, accounting for $2.17 trillion, will lead the way in economic loss.[11]

In view of this huge burden of disease, WHO, in May 2013, drafted a global monitoring framework under the name of 'global action plan, for the prevention and control of NCD, 2013- 2020.[12] Government of India, in June 2013, included 'national monitoring framework' in the national programme for prevention and control of cancers, diabetes, cardiovascular diseases and stroke (NPCDCS), now called as national programme for the control of NCD (NP-NCD).[13,14]

The current study aims to assess the prevalence and distribution of behavioural risk factors leading to NCD among students in the age group of 15-25 years. This is need of the hour so that the interventions aimed at deescalating the burden of NCDs must include addressing risk factors during early days of childhood and adolescence only.

METHODS

The present cross-sectional study was of one year duration and was conducted from January 2020 to January 2021, on students hailing from different regions of Jammu, Kashmir and Ladakh, in the age group of 15-25 years and studying in various schools, colleges in Jammu city and postgraduate (PG) departments of the university of Jammu.

Each PG department of Jammu university (JU) was treated as one separate institution for the purpose of selection and sampling. Permission from institutional ethics committee GMC, Jammu was sought and the study was initiated. A sample of 300 students, 75 students each from schools, professional colleges, degree colleges and departments of JU was taken. Stratified systemic sampling technique was followed for the selection of the participants.

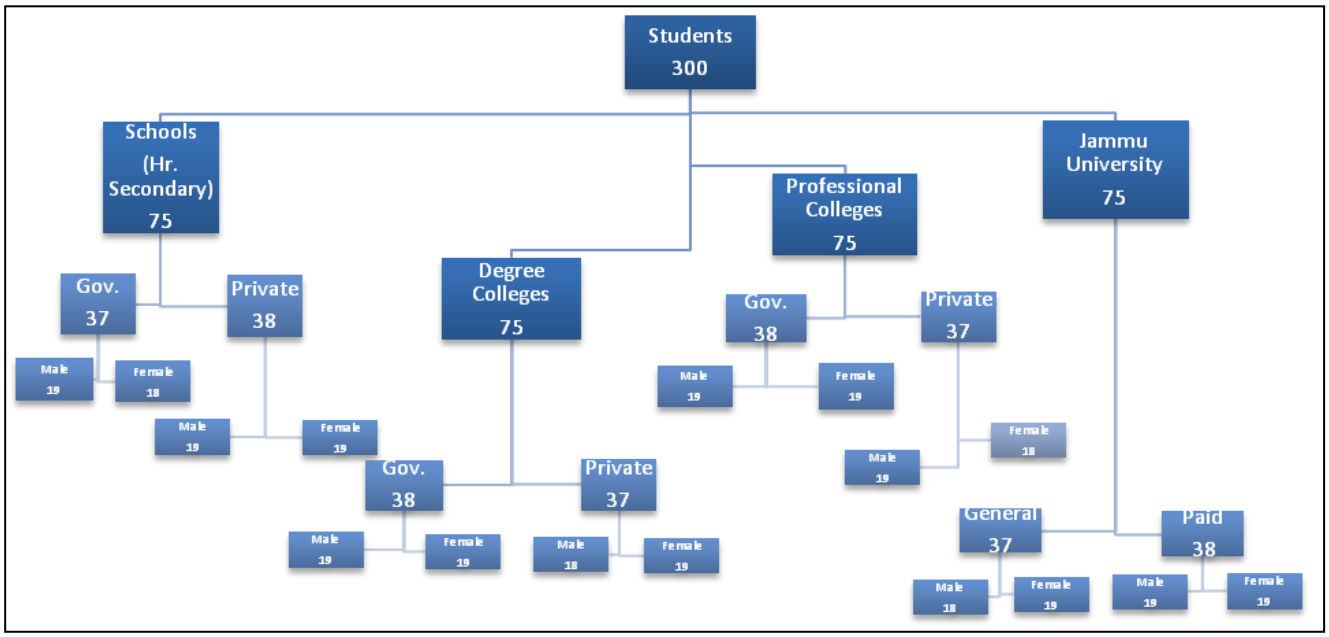

Figure: Flow chart showing sample covered.

The stratification was done to maintain a balance of equal males and females, i.e. 150 each and equal participation of students from government and private setup (again, 150 each). Institutions were selected by draw of lottery method. A map of the area falling under Jammu municipal corporation (JMC) was obtained from JMC office. Permission from the educational institutions were obtained to conduct the research. Streams, classes and courses in the schools, colleges and JU were selected as per the recommendations by their heads.

Students were selected from attendance register by simple random sampling technique involving draw of lots, separate for boys and girls. Each of the students selected was met in person and their consent for participation was taken. All the participants were assured that the information such gathered would be kept confidential. Each student was interviewed in person by the researcher, average time was 20-30 minutes per student.

Information regarding dietary habits was collected using WHO STEPS survey.[15] For analysis, inadequate intake of

fruits and vegetables were defined as intake of <5 servings of fruits and vegetables, respectively. Always and often were grouped together as 'frequently' and sometimes and rarely as 'infrequently'. Inadequate intake of fruits and vegetables, consumption of more than 5 meals outside home/week, frequent consumption of salty snacks, sweet snacks, have been considered as 'unhealthy diet'.

Physical activity was assessed using modified global physical activity questionnaire (Version 2), developed by WHO.[16] Information was obtained in three settings-activity at school (vigorous and moderate), travel to and from school, recreational activities as well as sedentary behavior. Total physical activity was then classified into moderate and vigorous as per WHO recommendations for physical activity.

Consumption of tobacco was assessed using a subset of key questions from global adult tobacco survey (GATS) 2nd Edition.[17] For computing results, tobacco consumption was categorized under smokeless tobacco. Exposure to smoke at home and indoor areas of work have been put under passive smoking.

Alcohol intake was evaluated using questionnaire from the project standardizing measurement of alcohol related troubles (SMART).[18] Questionnaire included information on frequency of consumption of different alcohol beverages. Using information on the quantity of every alcohol type, standard drink, according to Indian setup, was calculated and drinking patters categorised as moderate, heavy and binge as per definitions by national institute on alcohol abuse and alcoholism (NIAAA).[19,20]

Data entry as well and descriptive analysis was done in terms of numbers and percentages using Microsoft excel.

RESULTS

Table 1 shows that nearly half (49.66%) of the students are in the age above ≥20 years, 32% are in the age group 17-19 years and 18.33% of the students belong to the age group of ≤16 years.

Table 2 shows that 36% of the students are taking inadequate servings of fruits. This tendency is seen to be highest in the age group of over ≥20 years (38.92%) and lowest in the age group of ≤16 years (30.90%). The 9.33% of the students take inadequate servings of vegetables and the number is twice among students in private institutions (12%) than govt. institutions (6.66%). The 11.66% students regularly eat outside i.e. >5 meals outside home/week. Highest tendency is seen among students in the age group of ≥20 years (15.43%) and lowest in below 16 years (1.81 %).

Table 3 depicts that 45.33% of students consume salty snack food. Maximum indulgence (61.81%) is seen among students below 16 years of age, and half of the female students (50%) as compared to their male counterparts (40.66%) consume salty snacks. The 65% of the students consume sweet snacks. Consumption is more among males (70.66%) and maximum indulgence (78.18%) is seen in the age group of ≤16 years

Table 4 shows that 9% students are physically inactive. Maximum inactivity is seen 17-19 years (13.54%). Female students (9.33%) are slightly more inactive than their male counterparts (8.66%). The 69.33% students engage in moderate activities. Female students (70%) perform moderate activities slightly higher than their male counterparts (68.66%). 21.66% of students perform vigorous activity. Male students engage more (39.33%) as compared to their female counterparts (22%).

As per Table 5 prevalence of students smoking tobacco is 11.33%. No indulgence in smoking seen among students ≤16 years, and it is nearly twice as high in ≥20 years (16.77%) as compared to 17-19 years group (9.37%). Number of male smokers (20.66%) is ten times higher than female smokers (2%) and is more frequent in govt. (13.33%) institutions. All the female smokers belong to private institutions.

The 76.36% of students in ≤16 year of age, half of the students in 17-19 (50%) and 39.59% students in ≥20 year age group are exposed to smoke. Male students (60%) and students in govt. school (53.33%) are exposed. 2% of the students consume smokeless tobacco and its consumption is highest in ≥20 years' age group (3.35%) and five times more among male students (3.33%).

Table 6 depicts that 24.66% of the students consume alcohol. Maximum indulgence is seen in the age group of ≥20 years (34.22%) and is two times higher among males (34.66%). Percentage of students taking alcohol is higher in govt. (27.33%) institutions. Only male students from govt. institutions, over 20 years of age, indulge in heavy and binge drinking.

Table 1: Age and gender wise distribution of students.

Age group (in years)	Government, n=150 (%)		Private, n=150 (%)		Total, N (%)
	Male	Female	Male	Female	
≤16	1 (1.33)	16 (21.33)	19 (25.33)	19 (25.33)	55 (18.33)
17-19	33 (44)	30 (40)	15 (20)	18 (24)	96 (32)
≥20	41 (54.66)	29 (38.66)	41 (54.66)	38 (50.66)	149 (49.66)
Total	75 (50)	75 (50)	75 (50)	75 (50)	300

Table 2: Distribution of students based on the inadequate intake of fruits, vegetables and the meals outside the home.

Age group (in years)	Category	Government, n=150 (%)		Private, n=150 (%)	
		Male	Female	Male	Female
≤16 (55)	Fruits	0/1	8/16	4/19	5/19
	Vegetables	0/1	1/16	2/19	2/19
	Meals outside home/ week	1/1	0/16	0/19	1/19
17-19 (96)	Fruits	12/33	12/30	5/15	4/18
	Vegetables	6/33	1/30	3/15	4/18
	Meals outside home/week	6/33	1/30	3/15	0/18
≥ 20 (149)	Fruits	16/41	10/29	13/41	19/38
	Vegetables	2/41	0/29	4/41	3/38
	Meals outside home/week	10/41	1/29	10/41	2/38
Total	Fruits	28/75	30/75	22/75	28/75
	Vegetables	8/75	2/75	9/75	9/75
	Meals outside home/week	17/75	2/75	13/75	3/75

*Inadequate intake of fruits-<5 serving in a week, Inadequate intake of vegetables-<5 serving in a week,>5 meals outside home/week.

Table 3: Distribution of students based on pattern of consumption of snacks high in salt and sweet content.

Age group (in years)	Category	Government, n=150		Private, n=150	
		Male	Female	Male	Female
≤16 (55)	Snacks high in salt content	0/1	13/16	13/19	8/19
	Snacks high in sugar content	1/1	15/16	11/19	16/19
17-19 (96)	Snacks high in salt content	10/33	15/30	7/15	4/18
	Snacks high in sugar content	23/33	15/30	10/15	13/18
≥ 20 (149)	Snacks high in salt content	15/41	17/29	16/41	18/38
	Snacks high in sugar content	26/41	12/29	35/41	18/38
Total	Snacks high in salt content	25/75	45/75	36/75	30/75
	Snacks high in sugar content	50/75	42/75	56/75	47/75

Table 4: Distribution of physical activity among students.

Age group (in years)	Category	Government, n=150		Private, n=150	
		Male	Female	Male	Female
≤16 (55)	Physically inactive	1/1	0/16	0/19	0/19
	Moderate activity	0/1	15/16	17/19	16/19
	Vigorous activity	0/1	1/16	2/19	3/19
17-19 (96)	Physically inactive	3/33	5/30	2/15	3/18
	Moderate activity	23/33	17/30	8/15	9/18
	Vigorous activity	7/33	8/30	5/15	6/18
≥20 (149)	Physically inactive	3/41	1/29	4/41	5/38
	Moderate activity	28/41	23/29	27/41	25/38
	Vigorous activity	10/41	5/29	10/41	8/38
Total	Physically inactive	7/75	6/75	6/75	8/75
	Moderate activity	51/75	55/75	52/75	50/75
	Vigorous activity	17/75	14/75	17/75	17/75

Table 5: Pattern of tobacco consumption and passive smoking among students.

Age group (in years)	Category	Government, n=150		Private, n=150	
		Male	Female	Male	Female
≤16 (55)	Smokers	0/1	0/16	0/19	0/19
	Consumption of smokeless tobacco	0/1	0/16	0/19	0/19
	Exposed to passive smoking	1/1	9/16	19/19	13/19
17-19 (96)	Smokers	7/33	0/30	0/15	2/18
	Consumption of smokeless tobacco	0/33	1/30	0/15	0/18
	Exposed to passive smoking	27/33	9/30	6/15	6/18

Continued.

Age group (in years)	Category	Government, n=150		Private, n=150	
		Male	Female	Male	Female
≥ 20 (149)	Smokers	13/41	0/29	11/41	1/38
	Consumption of smokeless tobacco	1/41	0/29	4/41	0/38
	Exposed to passive smoking	20/41	14/29	17/41	12/38
Total	Smokers	33/75	4/75	32/75	6/75
	Consumption of smokeless tobacco	1/75	1/75	4/75	0/75
	Exposed to passive smoking	20/41	14/29	17/41	12/38

Table 6: Pattern of alcohol consumption among students.

Age group (in years)	Category	Government, n=150		Private, n=150	
		Male	Female	Male	Female
≤16 (55)	Current alcohol consumption	0/1	0/16	0/19	6/19
	Binge alcohol consumption	0/1	0 /16	0 /19	0/19
17-19 (96)	Current alcohol consumption	7/33	5/30	4/15	1/18
	Binge alcohol consumption	0 /33	0/30	0/15	0/18
≥20 (149)	Current alcohol consumption	25/41	4/29	16/41	6/38
	Binge alcohol consumption	7/41	0/29	0/41	0/38
Total	Current alcohol consumption	32/75	9/75	20/75	13/75
	Binge alcohol consumption	1/75	1/75	4/75	0/75

DISCUSSION

Despite the enormous lifestyle changes, experienced by our society in recent decades, there are only a few research that have been carried out to study behaviour risks i.e. unhealthy diet, physical inactivity, tobacco and alcohol consumption simultaneously.

This study also marks its importance in a way that it has been conducted on students in the age group of 15-25 years, a vulnerable period of life when health-related behaviours that drive the major chronic degenerative diseases, start or are reinforced.

36% of the students were taking inadequate servings of fruits, findings are slightly below those reported by Upadhyay et al.[21] This tendency was seen to be lowest among students below 16 years of age (30.90%) and highest in the age group of ≥20 years (38.92%), which can be attributed to self-dependence and less parenteral control with advancing age.

Majority of participants were taking adequate intake of vegetables (90.66%) and contrary to reported by Banik a study conducted in Bangladesh.[22] Higher percentage of male students take inadequate intake of vegetables which can be explained that they have more inclination towards outside food due to a greater access to money and fewer regulations posed by parents on them. These findings are contrary to those by Negi in a study conducted in Himachal Pradesh, where males and females had an equal prevalence of taking inadequate vegetables.[23] The 11.66% students in our study were regularly eating outside (i.e. >5 meals outside home/week) which could be attributed to easy access to eating facilities and outside eateries offering a lot of meal choices. Highest tendency was seen among students over 20 years of age and lowest in ≤16 years.

Prevalence of students consuming sweet snacks frequently was 65%. More than two-third (68.66%) of the students in private institutions indulge in sweet snack foods and the percentage of consumption was more in male students (70.66%) as compared to their female counterparts (59.33%). These findings are contrary to those reported by Ganpule et al.[24]

There is more understanding across educational institutions now, that students should be measured holistically including sports, curricular and extra-curricular domains. This perspective is strengthened by a low prevalence of physical inactivity (9%) observed in our study as in most of institutions emphasis on extra-curricular activities is increasingly laid upon. Similarly, lower prevalence of physical inactivity, in a nationwide STEPS survey conducted in Nepal by Aryal et al was observed (2.3%).[25]

Inactivity among female students (9.33%) was slightly higher which is consistent with the study by Thakur.[26] Girls are generally less inclined towards sports or physical activity programs plus lack of safe outdoor playgrounds, might be the reason for lack of physical activity among them.

Prevalence of smoking in our study is 11.33%, which is in line with global adult tobacco survey (GATS 2) India, 2016-17.[27] Rise in prevalence of smoking with advancing age might be attributed to the craze of experimenting/ fashion that usually start beginning in college life and so the negative behaviour continues. Peer pressure with fear of getting isolated in the group leads to inclination towards this habit, economic independence of individuals

in higher age group, lack of fear of parents amongst older generation further facilitates their tendency to smoke.

Its prevalence was ten- times higher among male students (20.66%) as compared to female students (2%). This difference is in line with the study conducted by other studies.[28,29]

Males are introduced to cigarettes and other products much early in age by their families. Tobacco, if used by parents or elder siblings, increases the children's likelihood of smoking. As an example, fathers and grandfathers often ask male children to bring cigarettes from the nearby shops or vendors. In this way, they are introduced to these products at an earlier age and a consciousness is produced among them after seeing their family members smoke that this is something not against social norms. Prevalence of using smokeless tobacco in our study was 2%.

Consumption of smokeless tobacco was seen to be nearly five times higher among males (3.33%) than female students (0.66%), findings are consistent with the study conducted by Krishnan et al and Singh et al.[28,29]

Exposure to second-hand smoke was pervasive in all age groups which not only increases their likelihood to develop ill health but indulgence in smoking also.

Male students (60%) were exposed much higher than their female counterparts (42%) which might be due to comfort levels that exist between the same gender. Also, a higher exposure of students in govt. (53.33%) points towards the lack of awareness about the hazards of passive smoking amongst their family members. This is also backed by the finding that among male students, the ones in govt. institutions were exposed slightly more than those in private institutions.

Prevalence of alcohol consumption in our sample was 24.66%, similar to findings by Busch et al.[30]

Maximum indulgence was seen in the age group of ≥20 years (34.22%). Findings are in line with the study conducted by Manimunda et al.[31]

Consumption of alcohol is two times higher among males (34.66%) similar to other studies.[28,31]

Study results also reveal that, only male students from government institutions, over 20 years of age, indulge in heavy and binge drinking.

Government keeps coming up with alcohol laws from time to time, but their enforcement hardly happens as is evident from relaxing the ban on liquor shops along national and state highways. Advertising alcoholic beverages has been banned in India as per the cable television network (Regulation) amendment bill which came into effect on 8 September 2000. Still, private channels permit alcohol companies to advertise using surrogate means like selling the brand name for soda or water or music.[32]

This is a novel study that collectively examined several lifestyle factors among students, spread across different schools, colleges and university, in Jammu region. Stratified Sampling technique was applied at every step, ruling out the probability of selection bias. Also, equal division of males and females and students in government and private institutions (150 each) gives an equal sense of comparability.

The information stemming from this study should add to the existing knowledge about lifestyle factors in a society experiencing epidemiological transition.

Limitations

However, the study has a few limitations like a small sample size, so the results obtained from the study should be cautiously generalised for the whole population. Being a cross-sectional study design, that gives a snapshot of the problem in only one point in time. It would be interesting to explore changes in behaviour over time in a longitudinal design. Despite, assurance and rapport building, underreporting of smoking and alcohol might have happened as students (esp. females) did not admit to consume tobacco and alcohol due to the fear of disclosure of information, as they are socially unacceptable habits.

CONCLUSION

A high prevalence of unhealthy dietary pattern, physical inactivity, tobacco and alcohol consumption among students in 15-25 years of age is a major public health concern. Among risk factors of physical inactivity, tobacco and alcohol, general trend of increase with advancing age, through the passage of transition periods, is observed.

Our results should be considered a first step into the development of tailored and effective intervention programmes aiming to curb behaviour risk factors among students at an early age so that these are not carried forward and sustained throughout life.

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REFERENCES

1. Ige OK, Owoaje ET, Adebiyi OA. Non communicable disease and risky behaviour in an urban university community Nigeria. Afr Health Sci. 2013;13(1):62-7.

2. Boutayeb A and Boutayeb S. The burden of non-communicable diseases in developing countries. Int J Equity Heal. 2005;4(1):2.
3. International Union against Tuberculosis and Lung Disease. Tobacco Control Programmes and Prevention of NCDs: a way forward. The Union. 2015;1-39.
4. Choudhary N, Sangra S. Pattern of Tobacco consumption among urban slum population in Jammu region: A cross-sectional study. J Family Med Primary Care. 2021;10(3):1193-6.
5. Gujjarlapudi C, Kasyapa VB, Ravinder A. Risk factors for Non Communicable Diseases (NCD) among High School Students in an Urban Setting. Int J Recent Trends Sci Technol. 2013;7(2):82-5.
6. Mishra SR, Neupane D, Bhandari PM, Khanal V, Kallestrup P. Burgeoning burden of non-communicable diseases in Nepal: a scoping view. Global Health. 2015;11:32.
7. World Health Organization. Non communicable diseases, media centre. 2015. Available at: http://www.who.int/mediacentre/factsheets/fs355/en/. Accessed on 10 January 2025.
8. Adhikari K, Adak MR. Behavioural risk factors of non-communicable diseases among adolescents. J Institute Med. 2012;34(3):39-43.
9. World Health Organization. Noncommunicable Diseases Progress Monitor. World Health Organisation; 2017. Available from: https://iris.who.int/bitstream/handle/10665/258940/9789241513029-eng.pdf?sequence=1. Accessed on 01-01-2025.
10. World Health Organization. Global Health Observatory (Data Repository (South-East Asia Region). Total NCD Mortality Data by country. Available at: http://apps.who.int/gho/data/node.main-searo.A860?lang=en. Accessed on 10 January 2025.
11. Thankappan K.R, 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.
12. Domingo KB, Chertow GM, Coxson PG, Lightwood JM, Pletcher MJ, Goldman L, et al. Projected Effect of Dietary Salt Reductions on Future Cardiovascular Disease. N Engl J Med. 2010;362:590-9.
13. Moniruzzaman M, Zaman MM, Islam MS, Ahasan HAMAN, Kabir H, Yasmin R. Physical activity levels in Bangladeshi adults: results from STEPS Survey 2010. Public Health. 2016;137:131-8.
14. Government of India. Ministry of Health and Family Welfare. Operational guidelines on National Programme for prevention and control of Non-Communicable Diseases, 2023-2030.
15. Renai Sante Institute of Integrative Medicine. Sugar Consumption Questionnaire Non Communicable diseases risk factors: STEPS Survey Nepal. Nepal Health Research Council (NHRC). 2013.
16. World Health Organization. Global Physical Activity Questionnaire Analysis Guide. Available at: http://www.who.int/chp/steps. Accessed on 10 January 2025.
17. World Health Organization. Global Tobacco Surveillance System (GTSS). Tobacco questions for Surveys. A subset of key questions from Global Adult Tobacco Survey (GATS) 2nd edition. Available at: http://www.who.int/tobacco/surveillance/en_tfi_tqs.pdf. Accessed on 10 January 2025.
18. Executive Agency for Health and Consumers. Standardizing Measurement of Alcohol Related Troubles (SMART). Available at: http://www.drugsandalcohol.ie/15683/1/SMART_questionnaire.pdf. Accessed on 10 January 2025.
19. All India Institute of Medical Sciences (AIIMS), New Delhi, India. National Drug Dependence Treatment Center (NDDTC). Available at: https://www.alcoholwebindia.in/. Accessed on 10 January 2025.
20. National Institute on Alcohol Abuse and Alcoholism (NIAAA). Drinking levels defined. Available at: https://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/moderate-binge-drinking. Accessed on 10 January 2025.
21. Upadhyay D, Ahmed R, Baruah R, Boruah M. Dietary risk factors of non-communicable diseases among Industrial workers: A cross-sectional study. Int J Community Med Public Health. 2019;6(8):3428-32.
22. Banik PC, Mostafa ZM, Ahmed J, Choudhury SR. Prevalence of Behavioral Risk Factors of Noncommunicable Diseases in a Rural Population of Bangladesh. Austin J Public Health Epidemiol. 2017;4(1):1054.
23. Negi PC, Chauhan R, Rana V, Vidyasagar, Lal K. Epidemiological study of non-communicable diseases (NCD) risk factors in tribal district of Kinnaur, HP: A cross-sectional study. Indian Heart J. 2016;68:655-62.
24. Ganpule A, Dubey M, Pandey H, Venkateshmurthy NS, Green R, Brown KA, et al. Snacking Behavior and Association with Metabolic Risk Factors in Adults from North and South India. Nutrit. 2023;153(2):523-31.
25. Aryal KK, Mehata S, Neupane S, Vaidya A, Dhimal M, Dhakal P, et al. The Burden and Determinants of Non Communicable Diseases Risk Factors in Nepal: Findings from a Nationwide STEPS Survey. PLOS One. 2015;10(8):1-18.
26. Thakur JS, Jeet G, Pal A, Singh S, Singh A, Deepti SS, et al. Profile of Risk Factors for Non-Communicable Diseases in Punjab, Northern India: Results of a State- Wide STEPS Survey. PLoS One. 2016;11(7): e0157705.
27. India 2016-17. Report. Global Adult Tobacco Survey. Second round. Available at: https://ntcp.mohfw.gov.in/assets/document/surveys-reports-publications/Global-Adult-Tobacco-Survey-Second-Round-India-2016-2017.pdf. Accessed on 10 January 2025.

28. Krishnan A, Shah B, Lal V, Shukla DK, Paul E, Kapoor SK. Prevalence of Risk Factors for Non-Communicable Disease in a Rural Area of Faridabad District of Haryana. Indian J Publ Heal. 2008;52(3):117-24.
29. Singh A, Ladusingh L. Prevalence and Determinants of Tobacco Use in India: Evidence from Recent Global Adult Tobacco Survey Data. PLoS One. 2014;9(12):1-18.
30. Busch V, Manders LA, de Leeuw JRJ. Screen time associated with health behaviors and outcomes in adolescents. Am J Health Behav. 2013;37(6):819-30.
31. Manimunda SP. Alcohol consumption, hazardous drinking, and alcohol dependency among the population of Andaman and Nicobar Islands, India. Indian J Public Health. 2017;61(2):105-11.
32. Ganesan D. Shahjahan US, Kiruthika R. Effectiveness of Surrogate Advertisements among Viewers. Int J Innovat Technol Exploring Engineering. 2019;9(2):2278-3075.

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