

## Original Article

# Comparative Study of the Impact of Lifestyle Factors on the Health Among Students from Different Professional Backgrounds

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Healthy lifestyle is a choice. Those who wish to have a better life chose a lifestyle with a healthy diet, adequate physical activity, good mental health and abstain from addictions. Different professions have an impact on one lifestyle. Bad lifestyle choices lead to risk factors for non-communicable diseases. Early detection of these risk factors through blood tests helps in prevention of morbidity and mortality due to non-communicable diseases. A cross sectional analytical study was done among management, commerce and medical students using WHO STEPS questionnaire to assess physical activity and screening of risk factors done with blood investigations. Study revealed that physical activity was relatively high (81.33%) among the study population but addictions like smoking and alcohol intake was prevalent among a significant proportion of students. Risk factors like deranged HDL, LDL and BMI was observed among the study population. This urges individuals to inculcate change in their habits and daily routine for an improved life expectancy and productivity.

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**Key words :** Physical Activity, Lifestyle Diseases, Non-communicable Disease, Blood Parameters, Risk Factors.

Life is a gift, it gives you the Opportunity, Privilege and Responsibility to give something back. The joy of living a 'complete life' isn't a privilege given to all, rather a conscious choice.

A healthy lifestyle is one which helps to keep and improve people's health and well-being. Many Governments and Non-governmental organizations work at promoting healthy lifestyles. They measure the benefits with critical health numbers, including Weight, Blood Sugar, Blood Pressure and Blood Cholesterol<sup>1</sup>. A healthy lifestyle is mostly associated with adequate diet, appropriate physical activity, good sleep etc. Maintaining good Personal hygiene, absence of addictions, health education, safe environment, social support and healthy relationships are also required for good health<sup>2</sup>.

Life expectancy can be considered as a surrogate measure or tool to estimate health. The WHO estimates that life expectancy at birth reflects the overall mortality level of a population. It summarizes the mortality pattern that prevails across all age groups

### Editor's Comment :

■ This study underscores the value of multidisciplinary approaches in student health promotion, encouraging both students and institutions to recognize and address the unique lifestyle challenges associated with different professional training environments.

in a given year – children, adolescent, adults and the elderly<sup>3</sup>.

■ Two places come to mind when you hear the word Life expectancy; Sardinia, Italy and Okinawa, Japan. The life expectancy in these countries is 82.6 and 84.4 years respectively, the highest in the World<sup>4,5</sup>.

■ The 'Okinawa Diet' is the main factor responsible for producing more than 400 centenarians because it is nutritionally dense yet low in calories<sup>5</sup>. Sardinia on the other hand credit its rich culture and homegrown produce for more longevity.

■ Latest studies have shown that by inculcating 5 habits your life expectancy can be increased. A study found that the following 5 habits maintained during adulthood can add more than 10 years to your life expectancy:

- (1) Eating a healthy diet.
- (2) Exercising regularly.
- (3) Keeping a healthy body weight.
- (4) Not drinking too much alcohol.
- (5) Not smoking<sup>6</sup>.

This study aims at comparative analysis of students of a fixed age group (19-21 years) from

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different professional backgrounds to understand their lifestyle patterns and associated lifestyle disorders based on a questionnaire highlighting the above stated habits and by physically measuring the blood pressure, lipid profile, random blood sugar. Based on study outcome, we aim to provide recommendations in order to bring about the changes in their lifestyle factors which enable them to live a long and prosperous life.

The inspiration which led to this study is the fact that when students enter college, this is the period when habits are formed based on choices due to their different careers, demographic, relationships and apart from their already existing rigorous academic routine, the students face challenges such as changes in diet, decreased physical activity, susceptibility to smoking and alcohol consumption<sup>7</sup>. At the end of the study a definite pattern will be observed among the subjects and this will be helpful in raising awareness about the day-to-day changes that can be implemented among our youth since they are the future and the backbone of our economy and the well-being of their health is the priority of every nation in order to gain more economic productivity<sup>8</sup>.

#### MATERIALS AND METHODS

An Analytical-cross sectional study was conducted from 2019 to 2020 for a period of one year in three places namely a Medical College Hospital and Research Centre, Pune, College of Commerce and Science, Pune, Institute of Management Studies, Pune. Considering the proportion of adults in India with physical inactivity from the study "Physical activity and inactivity patterns in India - results from the ICMR-INDIAB study (Phase-1) [ICMR-INDIAB-5]"<sup>10</sup> by Anjana RM, *et al*, as 54.4%, with a confidence interval of 95% CI and an acceptable difference of 8%, sample size calculated was 149. Software used is winPepi version 11.65. Due to COVID-19 pandemic the sample size was reduced from 150 to 75.

By purposive sampling 35 students from the medical background, 25 from the management background and 15 from the commerce background who were of 19-21 years of age and who had given consent after being informed about the type of study and mode of data collection were included in the study based on their regularity to the college (including the ONLINE mode of teaching, Attendance >75%). Students who were suffering from any chronic conditions (eg: Type 1 diabetes, Hypertension etc.) or any type of genetic or metabolic disorders were excluded from the study.

**Methodology** — Data was collected based on an extensive questionnaire following the WHO STEPS criteria for the relevant factors that help understand the type of lifestyle maintained by the study population. The questionnaire was of 25 questions which highlight not just the health factors but also the socio demographic pattern, behavioral, environment and social life<sup>9</sup>.

The questionnaire consisted of three parts the first one being the socio demographic factors which include age, sex, professional background, any history of non-communicable diseases in self or family etc, followed by the 5 relevant lifestyle factors which determine the lifestyle pattern and in turn the life expectancy rate namely (1) Type of diet, personal hygiene, sleep pattern. (2) Frequency of exercise and type of exercise. (3) Consumption of Alcohol & Tobacco. (4) History of smoking and third one being the effects of the lifestyle patterns maintained on health which were assessed by measuring parameters like Height, weight, Blood pressure, Pulse, Waist-hip ratio, Waist circumference, Body mass index using standard techniques and by doing blood investigation such as lipid profile and random blood sugar analysis after obtaining the informed written consent from the study population. The instruments utilized for this comparative study included digital weighing scale, stadiometer, measuring tape, sphygmomanometer, vacutainers & calculator etc. Data was entered in MS-excel and then analysis was done using Epi-info 7 Appropriate test of significance was applied wherever required. Categorical variable was expressed in terms of frequency and percentage. Association between two categorical variables was analyzed using Chi square test with  $p < 0.05$  as statistically significant value at 95% confidence interval.

#### RESULTS

The type of study is a comparative study among students of the same age group but different professional backgrounds. The study was aimed at comparing not only the different professional backgrounds but also the lifestyle factors in an extensive manner, hence all modes of representing data is a comparison of different professional backgrounds and their respective lifestyle parameter.

Out of all the study participants from 3 different professional backgrounds, 15 (20%) were from commerce background, 25 (33.33%) from management background and 35 (46.67%) were from medical background and around 55 (73.33%) were >20 years of age (Figs 1 & 2).

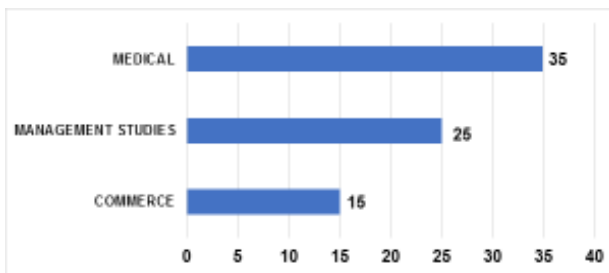


Fig 1 — Distribution of the Study Population according to Professional Category

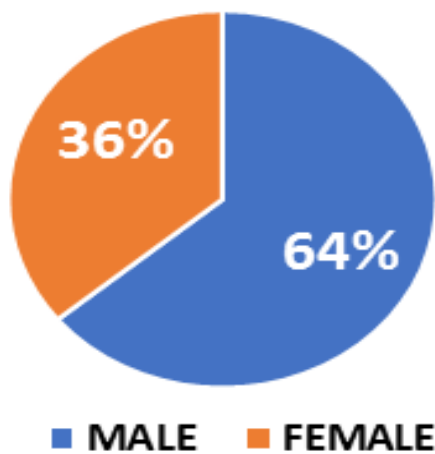


Fig 2 — Gender wise Distribution of the Study Population

Around 48 (64%) of the total study population were males and 27 (36%) were females.

The age category among the study population showed that commerce students, management students and medical college students with age less than 20 years were 9 (45%), 9 (45%) and 2(10%) respectively. Similarly, the composition of commerce students, management students and medical college students with age more than 20 were 6(10.91%), 16(29.09%) and 33(60%) respectively (Table 1).

In our study male participants were the majority ie, 17(68%), 9 (60%) and 22(62.86%) from management, commerce and medical college respectively (Table 2).

We observed that 8.57% students from medical students have high blood pressure followed by students of management (6.67%) and commerce college (4%). But there is no statistically significant association between blood pressure level and different professional education (p=0.849)(Table 3).

The study shows a single deranged value among the management professional background based on conducting random blood sugar test (Normal value for random blood sugar level was considered less than 140 mg/dl). Similar to blood pressure level, blood sugar

Table 1 — Age and Professional wise distribution of the Study Population

Age Category	Professional Category (N=75)			Total
	Commerce College (n=15)	Management College (n=25)	Medical College (n=35)	
<20 years	9(45%)	9(45%)	2(10 %)	20(100%)
>20 years	6(10.91%)	16(29.09%)	33(60%)	55(100%)

Table 2 — Gender and Professional wise distribution of the Study Population

Gender	Professional Category (N=75)		
	Commerce College (n=15)	Management College (n=25)	Medical College (n=35)
Female	6(40%)	8(32%)	13(37.14%)
Male	9(60%)	17(68%)	22(62.86%)
Total	15	25	35

level among different professional education groups do not show any association (p=0.533)(Table 3).

In our study, a deranged Total Cholesterol level was observed among 6(24%) medical students, 6(24%) management students and 4(26.67%) commerce students, based on a lipid profile test conducted (The normal range for Total Cholesterol varies according to the age category: The normal range for <20 years is <170mg/dl and the normal range for >20 category is 125-200mg/dl and any values below or above is considered as deranged). The study excluded any individuals having any metabolic disorders. There was no association between Total Cholesterol and professional background (p=1)(Table 3).

Proportion of deranged triglyceride levels were found high among students from commerce background followed by medical students (normal range for triglyceride values is <150mg/dl). Any value > or < 150mg/dl was classified as deranged. There was no association between the triglycerides level among different professional backgrounds. (p=0.0612)(Table 3).

It was noticed that the most number of deranged values were found in medical students (68.57%) followed by commerce college (66.67%) and then the management students (48%). The table also represents that almost 50% of the study population had elevated LDL levels (normal range for LDL values is <100mg/dl, any value >100mg/dl is considered as deranged). There was no significant association between serum LDL level and different professional backgrounds (p=0.2433)(Table 3).

The greatest number of deranged values of HDL were found in commerce students (46.67%) followed by the management students (44%) and then the

Variable		Professional Category			Total (N=75)	Test of Significance
		Commerce College (n=15)	Management College (n=25)	Medical College (n=35)		
Blood Pressure	Normal	14(93.33%)	24(96%)	32(91.43%)	70(93.33%)	Fisher's exact test=0.4898, p=0.849
	Hypertensive	1(6.67%)	1(4%)	3(8.57%)	5(6.67%)	
Random Blood sugar levels	Normal	15(100%)	24(96%)	35(100%)	74(98.67%)	Fisher's exact test=2.027, p= 0.533
	Deranged	0(0%)	1(4%)	0(0%)	1(1.33%)	
Total Cholesterol	Normal	11(73.33%)	19(76%)	27(77.14%)	57(76%)	$\chi^2=0.083$ , p=0.959
	Deranged	4(26.67%)	6(24%)	8(22.86%)	18(24%)	
Triglycerides	Normal	9(60%)	23(92%)	28(80%)	60(80%)	Fisher's exact test=6p=0.0612
	Deranged	6(40%)	2(8%)	7(20%)	15(20%)	
Low Density Lipoprotein (LDL)	<100	5(33.33%)	13(52%)	11(31.43%)	29(38.67%)	$\chi^2=2.8272$ , p=0.2433
	>100	10(66.67%)	12(48%)	24(68.57%)	46(61.33%)	
High Density Lipoprotein (HDL)	Normal	8(53.33%)	14(56%)	20(57.14%)	42(56%)	$\chi^2=0.0618$ , p=0.9696
	Deranged	7(46.67%)	11(44%)	15(42.86%)	33(44%)	
Body Mass Index (BMI)	Normal	5(33.33%)	9(36%)	18(5.43%)	32(42.67%)	Fisher's exact test=7.3903 p=0.5472
	Obese	2(13.33%)	3(12%)	2(5.71%)	7(9.33%)	
	Overweight	2(13.33%)	7(28%)	5(14.29%)	14(18.67%)	
	Pre-obese	3(20%)	5(20%)	8(22.86%)	16(21.33%)	
	Under weight	3(20%)	1(4%)	2(5.71%)	6(8%)	

medical college (42.86%). The table also represents that almost 50% of the study population had deranged HDL levels (The normal range for 0-19 years is >45mg/dl and any value <45mg/dl is classified as deranged. Similarly, the normal range for >20 category is further different for both males and females. For males a value >40mg/dl is considered normal and <40mg/dl is considered deranged. For females a value of >50mg/dl is considered normal and <50mg/dl deranged). We couldn't find out any association between serum HDL level and professional background (p=0.9696)(Table 3).

Based on BMI calculated, most medical students are in the pre-obese category followed by the normal category. Most management students are in the normal category followed by the overweight category. Commerce college also consists of a normal majority followed by the pre-obese category. The data for BMI was calculated by measuring the height and weight followed by utilizing the formula for BMI ie, BMI=

Weight (in Kg)/ (Height (in Mt))<sup>2</sup>. There was no statistically significant association between BMI distribution and different professions (p=0.5472) (Table 3).

It was found that physical activity was more among the students from commerce background, 14 students (93.33%) compared to other two groups. But there was no statistically significant association between physical activity and professional categories (P=0.4642)(Table 4).

In our study we observed that sleep of 33 (94.29%) medical students was affected because of workload followed by 13(86.67%) students from commerce background and 20 (80%) student from management background. There was no association between effect of workload on sleep and professional backgrounds (P=0.2163)(Table 4).

About 24% of study population were having history of smoking and smoking was predominant in medical students (40%), least was among

Variable		Professional Category			Total (N=75)	Test of Significance
		Commerce College (n=15)	Management College (n=25)	Medical College (n=35)		
Physical Activity	Present	14(93.33%)	20(80%)	27(77.14%)	61(81.33%)	Fisher's exact test=1.8568, p=0.4642
	Absent	1(6.67%)	5(20%)	8(22.86%)	14(18.67%)	
Effect of Workload on Sleep	Affected	13(86.67%)	20(80%)	33(94.29%)	66(88%)	Fisher's exact test=2.8499, p=0.2163
	Not affected	2(13.33%)	5(20%)	2(5.71%)	9(12%)	
Smoking	Present	2(13.33%)	2(8%)	14(40%)	18(24%)	Fisher's exact test=9.3567, p=0.0101
	Absent	13(86.67%)	23(92%)	21(60%)	57(76%)	
Alcohol Consumption	Consumed	2(13.33%)	9(36%)	22(62.86%)	33(44%)	$\chi^2=11.4255$ , p=0.0033
	Not consumed	13(86.67%)	16(64%)	13(37.14%)	42(56%)	

management students (8%). There was a statistically significant association between the history of smoking and different educational background. ( $P=0.0101$ )(Table 4).

It was noticed that alcohol consumption was predominant among the medical background (62.86%) followed by the management background (36%) and then commerce background (13.33%). (Any amount of alcohol consumption ie, low/moderate were considered as alcohol consumption and absolute zero consumption of alcohol is considered as not consumed in the study) There was a statistically significant association between alcohol consumption and professional backgrounds ( $P=0.0033$ )(Table 4).

### DISCUSSION

Lifestyle factors are the backbone of prolonging our life expectancy rate. The different study population selected gives an understanding of the health impacts of different professional backgrounds. This is a comparative study with the study population of college students from 19-21 years of age. Study describes the various lifestyle changes that have been brought about upon entering college which helps in becoming more innovative to form new ways which will help prolong our life expectancy rate as these young adults are the backbone of our nation.

Study carried out by Hee Jung Jang, *et al*<sup>11</sup> on the topic health promoting lifestyle and its subjective happiness among nursing and non-nursing students concluded that health promoting lifestyle like good interpersonal relations, health responsibility, stress management, and spiritual growth showed a significant difference between the groups but had no impact on the subjective happiness. Our study aimed at identifying the different types of lifestyle factors and inculcating only the lifestyle factors which have an impact on prolonging our life expectancy rate. Hence from the study referenced it is clear that based on our study the health promoting lifestyle factors for example, daily physical activity which was identified among different backgrounds can be selected as a health promoting parameter especially in this study where students from certain professional backgrounds need more emphasis on physical activity than others.

Study carried out by Seipone BM Mphole, *et al*<sup>12</sup> regarding stress and alcohol among students found evidence that most students engage in social drinking upon entering college itself ie, from 18 years onwards. Our study consisted of a study population of 19-21 years amongst which 33(44%) students were having

drinking habits and it has been observed that with different professional backgrounds the extent of drinking is more based on the workload and stress.

Study carried out by Ivane Chkhaideze, *et al*<sup>13</sup> regarding the prevalence of factors affecting smoking among medical and non-medical students presented with a greater number of smokers amongst medical students. A similar pattern is seen here to the extent that smoking among medical students is much greatly prevalent than non-medical students due to the social engagement upon entering college and due to excessive amounts of stress and workload.

In a study carried out by Kirti Deshpande, *et al*<sup>14</sup> regarding the lifestyle and obesity among college students, the categorization of BMI was based on lack of physical activity, disturbed sleep pattern due to workload, onset of habits such as smoking and alcohol and an overall habit of binge eating especially fast food. All these parameters have been compared in our study as well which notes a lack of physical activity amongst some backgrounds due to their busy schedules, disturbed sleep especially during exam time, indulgence in habits such as smoking and alcohol excessively and an overall lack of time which leads to an increase in the consumption of fast foods.

Study conducted by Pranita Ashok, *et al*<sup>15</sup> concluded that students among the obese and pre-obese category of obesity are at more risk of developing Type-2 Diabetes along with a sedentary lifestyle. Our study did not show any significant outcome in the random blood sugar test but the BMI measured categorized a large group of students into the pre-obese and obese category. Based on the professional backgrounds these students are at risk of developing Type-2 diabetes especially those professions which have a sedentary lifestyle for example the commerce and management background in our study.

Study conducted by Purushottam Pramanik<sup>16</sup> found a correlation between obesity and increased blood pressure. Our study focused on the students from different professional backgrounds and its impact on blood pressure whether they range from normal to hypertensive. It was observed that a very small group of students were categorized as hypertensive and that the medical students had an increased prevalence of hypertensive cases. Based on past studies which correlate BMI classification of obesity and hypertension many students are at risk of developing hypertension in the future which can also lead to the development of cardiovascular disease.

Study by Jalal SM, *et al*<sup>17</sup> compared the BMI of college going students during the COVID-19 pandemic and found an increase in the BMI values among college students due to a sedentary lifestyle and lack of physical activities. A similar range of students were seen in the pre-obese and obese category in our study and a correlation was seen amongst students as most of the academic period during COVID-19 pandemic, was conducted in the online mode i.e., a sedentary lifestyle.

In a recent study done by Chusak, *et al* in Bangkok to assess the lifestyle behavior and quality of life during COVID-19 pandemic among undergraduate students, it was found that only 47.2% of students had BMI in normal range, remaining are either underweight or overweight. Majority of students (53.7%) were not doing any exercise. Prevalence of smoking among the study population was 1.1%. There was an increased consumption of unhealthy food by participants<sup>18</sup>.

In another study done by Ali, *et al* among Palestinian male university student to look for the risk of tobacco smoking and energy drink consumption on obesity revealed that prevalence of obesity was high (42%) among participants, which was less in our study. In the same study they found out that prevalence of smoking and waterpipe smoking was 39.6% and 43.2% respectively. They concluded that waterpipe smoking is a risk factor for central obesity and smoking is a risk factor for underweight<sup>19</sup>.

Another important cross-sectional study done in China by Li, *et al* in 2022 detected that prevalence of hypertension among undergraduate students is 10.59% which was high compared to our study outcomes. Among the subjects, 13.33% were overweight and 3.33% were obese which was comparatively less than present study. They concluded that hypertension is correlated with increased neck circumference and BMI and a weak correlation between blood sugar level and hypertension<sup>20</sup>.

Another study done in Indian settings by Rao, *et al*, using similar methodology detected that prevalence of DM was 2.36% compared to 1.33% deranged random blood sugar level in current study. Prevalence of inadequate physical activity were 8.57% compared to 8.67% in our study. Proportion of participant with High Total cholesterol, high triglyceride, high LDL, abnormal HDL were 4.43%, 17.24%, 5.71%, 43.57% respectively in this study compared to 24%, 20%, 61.33%, 44% respectively in our study which must be considered as an alarming fact<sup>21</sup>. Reason may be more

outside eating and less knowledge of cooking oil may be associated with such levels.

### CONCLUSION

Lifestyle factors are one of the important modifiable risk factors for non-communicable diseases like Type 2 diabetes mellitus, Hypertension, Cardiovascular Diseases. Different professions have a different impact on one's lifestyle. College students, our study population, are at the risk of adapting to wrong lifestyle, which if detected earlier can be reversed back by implementation of lifestyle modifications like simple physical activity, diet control and restriction of use of alcohol and tobacco products. Deranged blood sugar levels, lipid profile with sedentary lifestyle depending on profession increases the risk of developing non-communicable diseases. This urges individuals to inculcate change in their habits and daily routine for an improved life expectancy and productivity. Further researches must be done among various spectrum of professional backgrounds for a better understanding and the impact of COVID-19 appropriate behavior on physical activity and other risk factors.

### Recommendations :

This study revealed that the lifestyle patterns are having a major impact on our life expectancy rate and the problems start between the age group of 19-21 years.

To overcome this, we start off by raising awareness about the day-to-day changes that can be implemented among our youth since they are the future and the backbone of our economy and the well-being of their health is the priority of every nation. Simple yet highly effective changes are required to be implemented like:

- (1) Introducing 1 hour of exercise in the form of Yoga/ any form of physical activity which helps physical as well as mental fitness.
- (2) Participation in an outdoor activity for at least 1 hour is also rejuvenating to the mind and body.
- (3) Conducting sessions regarding the health hazards of alcohol and smoking over a period of time.
- (4) Educating about diet patterns and management of stress levels in college lifestyle through simple techniques which are highly effective.
- (5) Need to understand the socio-demographic factors impacting our lifestyle and implementing changes which include careful expenditure on food, alcohol, cigarettes etc. and also bringing about a more disciplined and healthier lifestyle to increase our life expectancy rate.

- (6) Explore the effect of increased life expectancy rate on the economy of our country.

#### REFERENCES

- 1 The Bangkok Charter for Health Promotion in a globalized world [Internet]. World Health Organization; [cited 2023 Jun 13]. Available from: <https://www.afro.who.int/publications/bangkok-charter-health-promotion-globalized-world>
- 2 Kickbusch I — The contribution of the World Health Organization to a new public health and Health Promotion. *American Journal of Public Health* 2003; **93(3)**: 383-8. doi:10.2105/ajph.93.3.383
- 3 Global Health Estimates: Life Expectancy and leading causes of death and disability [Internet]. World Health Organization; [cited 2023 Jun 13]. Available from: <https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates>
- 4 Japan life expectancy, 1960-2022 [Internet]. [cited 2023 Jun 13]. Available from: <https://knoema.com/atlas/Japan/Life-expectancy>
- 5 [https://www.huffpost.com/entry/okinawa-japan-longevity-diet-eat\\_n\\_5c6b107fe4b01cea6b883962?ncid=tweetlnkushpmg00000067&utm\\_source=headtopics&utm\\_medium=news&utm\\_campaign=2019-02-24](https://www.huffpost.com/entry/okinawa-japan-longevity-diet-eat_n_5c6b107fe4b01cea6b883962?ncid=tweetlnkushpmg00000067&utm_source=headtopics&utm_medium=news&utm_campaign=2019-02-24)
- 6 Li Y, Pan A, Wang DD — Impact of Healthy Lifestyle Factors on Life Expectancies in the US Population [published correction appears in *Circulation*. 2018 Jul 24;138(4):e75]. *Circulation* 2018; **138(4)**: 345-55. doi:10.1161/CIRCULATIONAHA.117.032047
- 7 Al-Amari HG — The perception of college students about a healthy lifestyle and its effect on their health: Semantic scholar [Internet]. 1970 [cited 2023 Jun 13]. Available from: <https://www.semanticscholar.org/paper/The-Perception-of-College-Students-about-a-Healthy-Al-Amari/c64f365d5b9d126d48707ff922eb04d90a000865>
- 8 Carniel AM, Fedozzi M, dos Santos RH, Zotarelli Filho IJ, Belintani P, Melo PS — Alcoholic drinks consumption among college students. *Journal of Addiction Research & Therapy* 2019; **10(1)**. doi:10.4172/2155-6105.1000374
- 9 Stepwise approach to NCD Risk Factor Surveillance (steps) [Internet]. World Health Organization; [cited 2023 Jun 13]. Available from: <https://www.who.int/teams/noncommunicable-diseases/surveillance/systems-tools/steps>
- 10 Anjana RM, Pradeepa R, Das AK, Deepa M, Bhansali A, Joshi SR, *et al* — Physical activity and inactivity patterns in India - results from the ICMR-INDIAB study (phase-1) [ICMR-INDIAB-5] [Internet]. U.S. National Library of Medicine; [cited 2023 Jun 13]. Available from: <https://pubmed.ncbi.nlm.nih.gov/24571915/>
- 11 [Internet]. [cited 2023 Jun 13]. Available from: [https://www.researchgate.net/publication/303995189\\_Comparative\\_study\\_of\\_health\\_promoting\\_lifestyle\\_and\\_subjective\\_happiness\\_on\\_nursing\\_students\\_and\\_non-nursing\\_students](https://www.researchgate.net/publication/303995189_Comparative_study_of_health_promoting_lifestyle_and_subjective_happiness_on_nursing_students_and_non-nursing_students)
- 12 B M Mphole S — Stress and alcohol use among college students: A case of Molepolole College students. *IOSR Journal of Humanities and Social Science* 2013; **8(3)**: 1-6. doi:10.9790/0837-0830106
- 13 Chkhaidze I, Maglakelidze N, Maglakelidze T, Khaltaev N — Prevalence of and factors influencing smoking among medical and non-medical students in Tbilisi, Georgia. *Jornal Brasileiro de Pneumologia* 2013; **39(5)**: 579-84. doi:10.1590/s1806-37132013000500008
- 14 Deshpande K, Patel S, Bhujade R, P D, Patel S — lifestyle and obesity among college students in Ujjain, India: Semantic scholar [Internet]. 1970 [cited 2023 Jun 13]. Available from: <https://www.semanticscholar.org/paper/LIFESTYLE-AND-OBESITY-AMONG-COLLEGE-STUDENTS-IN-Deshpande-Patel/71e1e0ea67cde617cddf5eb4836d99ea34c16b9e>
- 15 Ashok P, Joshi A, Kharche J — Evaluation of risk for type 2 diabetes mellitus in medical students using indian diabetes risk score. *Indian Journal of Medical Sciences* 2011; **65(1)**: 1. doi:10.4103/0019-5359.103159
- 16 [Internet]. [cited 2023 Jun 13]. Available from: [https://www.ijmhs.net/articles/1436582196Prevalence\\_of\\_Hypertension\\_and\\_Associated\\_Factors\\_among\\_College\\_Students\\_in\\_West\\_Bengal\\_India\\_A\\_Cross\\_Sectional\\_Study.pdf](https://www.ijmhs.net/articles/1436582196Prevalence_of_Hypertension_and_Associated_Factors_among_College_Students_in_West_Bengal_India_A_Cross_Sectional_Study.pdf)
- 17 Jalal SM, Beth MR, Al-Hassan HJ, Alshealah NM — Body mass index, practice of physical activity and lifestyle of students during COVID-19 lockdown. *Journal of Multidisciplinary Healthcare* 2021; **14**: 1901-10. doi:10.2147/jmdh.s325269
- 18 Chusak C, Tangmongkhonsuk M, Sudjapokanon J, Adisakwattana S — The association between online learning and food consumption and lifestyle behaviors and quality of life in terms of mental health of undergraduate students during COVID-19 restrictions. *Nutrients* 2022; **14(4)**: 890. doi:10.3390/nu14040890
- 19 [Internet]. [cited 2023 Jun 13]. Available from: [https://assets.cureus.com/uploads/original\\_article/pdf/85114/20220202-32570-1jzcsca.pdf](https://assets.cureus.com/uploads/original_article/pdf/85114/20220202-32570-1jzcsca.pdf)
- 20 Li M, Cui X, Meng Y, Cheng M, He J, Yuan W, *et al* — Prevalence of hypertension and its association with cardiovascular risk factors in college students in Hunan, China. *International Journal of General Medicine* 2023; **16**: 411-23. doi:10.2147/ijgm.s379957
- 21 Rao T — Prevalence and risk factors of diabetes among young students of a Medical College in Central India [Internet]. *International Journal of Biomedical and Advance Research* 2017. [cited 2023 Jun 13]. Available from: <https://journals.indexcopernicus.com/api/file/viewByFileId/375228.pdf>.

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