Cardiovascular Diseases' Risk Factors among Final Year Students in Medical Group Colleges: Comparative Study

Sadiq Salam H. Al-Salih*

Lect. PhD. in Adult Nursing, College of Nursing, University of Al-Qadisiyah, AL-Dewaynia, Iraq

***Corresponding Author.**

DOI: https://doi.org/10.51584/IJRIAS.2025.100800124

Received: 10 August 2025; Revised: 20 August 2025; Accepted: 23 August 2025; Published: 22 September 2025

ABSTRACT

Background: In recent years, the prevalence of cardiovascular disease (CVD) has become a significant concern worldwide, with substantial implications for public health. While CVD traditionally affects older populations, emerging evidence suggests a rising incidence among younger demographics, including college students.

Objectives: The purpose of the study is to identify risk factors for cardiovascular disease among adult students in medical colleges. Finding the comparison between students of the faculty of nursing fourth stage and students of the faculty of dentistry fifth stage.

Methodology: A comparative study design was carried out to identifying risk factors for cardiovascular disease among adult students in medical colleges, Convenience (non-probability) sampling technique of (200) of the student (the fourth stage of the nursing college and the fifth stage of the dentistry college at Al-Mustaqbal university in Hilla, Iraq during the period from 31th Dec 2023 to 28th Feb 2024.

Results: The result of the study shows that 7.2% had Hypertension, 2.2% Diabetes mellitus, 0.6% heart disease, and 11.7% Obesity. Regarding to smoking history 32.2% were smokers. There were 72.2% of the respondents who had a balanced diet, 50.6% had active physical exercise, 51.7% always use stairs instead of elevator, and 55% walk more than 1 h per day .

Conclusion: the study found that there was a significant relationship between risk factors for CVDs and age of the study sample in relation to (Hypertension, Diabetes mellitus, and Random blood glucose),

Keywords: Cardiovascular, Diseases, Risk Factors, Students

INTRODUCTION

For many young individuals, starting college marks a significant turning point in their lives. As students start to develop new adult behaviors and become more independent, the college years are usually exciting. A person's lifestyle may alter over these early adult years in a number of ways, such as how they exercise, what they eat, how they sleep, how much alcohol they drink, how they use tobacco products, and how they use drugs. When taken as a whole, the effects of these activities provide the conditions for the emergence of certain risk factors linked to CVD. (1)

Cardiovascular disease (CVD) continues to be the leading cause of death in the United States and poses a major challenge to public health. Although there has been a recent decline in CVD-related deaths, it still accounts for a significant portion of mortality and is a primary contributor to disability. Each year, it is linked to roughly 800,000 deaths—representing about one out of every three fatalities nationwide. (2,13)

Despite their knowledge of health and disease prevention, medical students may struggle to prioritize their own well-being amidst the pressures of their training. Therefore, investigating the frequency of CVD risk factors and

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume X Issue VIII August 2025

their causes among medical undergraduates is critical for implementing targeted interventions and promoting cardiovascular health within this population. This research aims to explore the prevalence of various risk factors for CVD in medical undergraduates, including but not limited to physical inactivity, poor dietary habits, smoking, excessive alcohol consumption, and psychological stress. By identifying the factors associated with increased CVD risk, this study seeks to inform the development of tailored interventions and educational initiatives aimed at improving the cardiovascular health and overall well-being of medical students. (3)

Early adults' risk factor profiles are a reliable indicator of long-term cardiovascular disease. (4). According to the National Heart, Lung, and Blood Institute (NHLBI), one risk factor doubles the risk for CVD, two risk factors increases the risk for CVD fourfold, and three or more risk factors raises the chance of CVD by more than 10 times. Consequently, there is an exponential correlation between the quantity of cardiovascular-related risk factors and the likelihood that individuals who are young or old would acquire CVD. (5)

Despite the growing recognition of CVD risk factors among various populations, there is still a need for more targeted research focusing specifically on medical college students. Closing this gap in knowledge will provide valuable insights into the unique challenges and opportunities for intervention within this demographic. In summary, studying risk factors for CVD among medical college students is important not only for the health and well-being of future healthcare providers but also for the broader goals of preventive medicine, academic success, and public health promotion. (6)

MATERIAL AND METHOD

The Study Design A comparative study design was carried out to identifying risk factors for CVD among adult students in medical group colleges, finding the relationship between risk factors for CVD and the demographic characteristics of the study sample and make the comparison between the students of the college of nursing, the fourth stage, and the students of the college of dentistry, the fifth stage in Al-Hilla city, Iraq during the period from 31th Dec 2023 to28 th Feb 2024.

Setting of the Study:

The study was carried out in two college (nursing and dentistry college) at Al-Mustaqbal university in Hilla, Iraq,

Sample of the Study:

Convenience (non-probability) sampling technique of (200) samples that represent the student who of previous college and the selection of sample was limited to the final stages (the fourth stage of the nursing college and the fifth stage of the dentistry college. The sample size determines depending on the Steven A Thompson that choose the number of target population (200) student from general population (900) student.

The Study Instruments:

The data collection instrument was constructed by researcher and adapted depending on reviewing the previous research in the same domain. (7,8)

The questionnaires were formulated in English and translated into the language that is spoken by the target sample by the research students. The instrument was contained two parts the second part contain two domains:

Part one: contain the demographic characteristics of the study sample

Part two: contain cardiovascular disease risk factors among students

The first domain: contain the health history and life style related risk factors

The second domain: contain Stress Scale of Study Sample

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume X Issue VIII August 2025

Validity and reliability of the Study Instruments:

After selecting the questions and developing the instrument depending many of references the questionnaire was presented to (5) of experts for the purpose of evaluation and correction and to assess the face validity of this instrument to be valid in using to data collection from study participant of present study. After conducting a pilot study with 10% of the target population that was dropped from the research, the instrument's reliability was assessed; the R value was 0.81.

Methods of Data Collection:

The data gathering process began with the use of a questionnaire, the gathering of the date divided to two parts: the first part collect by the researcher and the second part which was answered by student (samples) as a self-report (questionnaire) after explaining the main items to them, the period of data collection was taken one month.

Statistical Analysis:

The "Statistical Package of Social Sciences (SPSS)" version 24 was utilized to employ a variety of statistical indicators, as well as Microsoft Excel (2010). The researcher employed the statistical data examination techniques to assess the study's findings.

Descriptive data Analysis:

This strategy was established by determining the following: Frequency and the Percentages

Inferential Data Analysis:

independent t-test and Chi-Square tests were utilized to indicate the comparison and the association of study variables.

Ethical considerations:

The participants identities were not disclosed in order to maintain research ethics, and the data were collected after achieving the ethical approval and permission from the al- mustaqbal university.

RESULTS:

Table 3-1: Distribution of demographic characteristics of the study Sample

		Frequency	Percent
Age	20-25	147	81.7
	26-30	32	17.8
	More than 30	1	.6
	Total	180	100.0
Gender	Female	67	37.2
	Male	113	62.8
	Total	180	100.0
Educational level	Fourth year in Nursing	88	48.9
	Fifth year in Dentistry	92	51.1
	Total	180	100.0
Weight (kg)	Mean ± SD (Min-Max)	70.47 ± 11.3 (45 - 95)	

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume X Issue VIII August 2025

Height (cm)	Mean ± SD (Min-Max)	169.85 ± 9.3 (149 - 190)

Table 3.2: Distribution of health history and life style related risk factors.

			Frequency	Percent
Have you diagnosed with any of the following diseases?	Hypertension	No	167	92.8
		Yes	13	7.2
		Total	180	100.0
	Diabetes mellitus	No	176	97.8
		Yes	4	2.2
		Total	180	100.0
	Heart disease	No	179	99.4
		Yes	1	.6
		Total	180	100.0
	Atherosclerosis	No	180	100.0
	Obesity	No	159	88.3
		Yes	21	11.7
		Total	180	100.0
Do you smoke?		No	122	67.8
		Yes	58	32.2
		Total	180	100.0
What is your daily cigarette consumption?		1-10	8	4.4
		11-20	31	17.2
		21-30	9	5.0
		31-40	4	2.2
		41-50	1	.6
		51-60	2	1.1
		Total	55	30.6
Missing		System	125	69.4
Total			180	100.0
For how long do you smoke?		1-5	39	21.7
		6-10	15	8.3
		11-15	4	2.2
		Total	58	32.2
Missing		System	122	67.8
Total			180	100.0
How would you evaluate your diet?		Unhealthy	21	11.7
		Balanced	130	72.2

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume X Issue VIII August 2025

	Healthy	29	16.1
	Total	180	100.0
What would you declare about your level of physical activity?	Inactive	9	5.0
	Moderate	80	44.4
	Active	91	50.6
	Total	180	100.0
Do you use the stairs rather than the elevator?	Always	93	51.7
	Sometime	82	45.6
	Never	5	2.8
	Total	180	100.0
How many times a day do you go for walks?	< 30 min	46	25.6
	30 min to 1 h	35	19.4
	> 1 h	99	55.0
	Total	180	100.0
Body mass index (BMI)	Under weight	9	5.0
	Normal weight	82	45.6
	Over weight	48	26.7
	Obesity	41	22.8
	Total	180	100.0
Blood pressure (BP)\systolic	Mean ± SD (Min-Max)	118.9 ± 10.81 (80 - 160)	
Blood pressure (BP)\diastolic	Mean ± SD (Min-Max)	76.0833± 7.44 (50 - 90)	
Random blood glucose (RBG)	Mean ± SD (Min-Max)	121.71 ± 30.4 (70 - 220)	
Waist circumference	Mean ± SD (Min-Max)	74.22 ± 31.54 (10.20-138.50)	

Table 3-3: Relationship between risk factors for cardiovascular disease and the demographic characteristics of the study sample.

	Chi-Square Tests		
Risk factors	**Age**	**Gender**	**Level of education**
Hypertension	.001 Sig	.400 N.S	.547 N.S
Diabetes mellitus	.001 Sig	.152 N.S	.673 N.S
Heart disease	.098 N.S	.628 N.S	.489 N.S

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume X Issue VIII August 2025

Obesity	.530 N.S	.446 N.S	.099 N.S
Do you smoke?	.175 N.S	.001 Sig	.247 N.S
How would you evaluate your diet?	.20 N.S	.709 N.S	.540 N.S
What would you declare about your level of physical activity?	.724 N.S	.236 N.S	.019 Sig
Do you use the stairs rather than the elevator?	.241 N.S	.893 N.S	.449 N.S
How often do you walk per day?	.930 N.S	.729 N.S	.386 N.S
Body mass index (BMI)	.551 N.S	.119 N.S	.514 N.S
Random blood glucose	.001 Sig	.580 N.S	.504 N.S

N.S = no significant, Sig= significant, p-value=0.05.

Table 3-4: Comparison between the students of the College of Nursing, the fourth stage, and the students of the College of Dentistry.

Educational level	**N**	**Mean**	**Std. Deviation**	**p-value**
Fourth year in Nursing	88	2.1409	.27528	.083
Fifth year in Density	92	2.2098	.25422	N.S

*independent t-test

DISCUSSION

The present study shows that the age of (81.7%) participants was 20-25 years. In relation to gender, about two third of the samples (62.8%) were male, (51.1%) were Fifth year in Density, and finally mean ± SD (Min-Max) was 70.47 ± 11.3 (45 - 95) and 169.85 ± 9.3 (149 - 190) for weight and height respectively .

This study is in line with previous research and involved a sample of 214 medical students aged between 20 and 28 years, with an average age of 20.09 ± 1.0 years. Table 1 presents the students' personal and socio-demographic details. Female participants made up approximately 75.2% of the sample. In terms of academic year, 35.5% of the students were in their fourth year, 39.3% in their fifth year, and 25.2% in their sixth year. (7,9)

The study shows that 7.2% having Hypertension, 2.2% Diabetes mellitus, 0.6% heart disease, and 11.7% Obesity. Regarding to smoking history, 32.2% were smoker, 17.25 where smoke 11-20 cigarettes do you smoke per day, and 21.7% were smoke 1-5 year. There are 72.2% have a balanced diet, 50.6% have active physical exercise, 51.7% always use stairs instead of elevator, and 55% walk more than 1 h per day.

The findings of this study are consistent with those of previous research. Regarding the medical history of

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume X Issue VIII August 2025

participants, 8.9% of the students reported having hypercholesterolemia, 8.4% reported hypertension, and 0.5% reported diabetes. As for lifestyle-related risk factors, 57.9% of the medical students indicated that they do not engage in regular physical activity. (9)

The current study shows that there was a significant relationship between risk factors for CVD and age of the study sample at p-value < 0.05 in relation to (Hypertension, Diabetes mellitus, and Random blood glucose), except with (Heart disease, Atherosclerosis, Obesity, smoking?, How would you evaluate your diet?, What would you declare about your level of physical activity? Do you use the stairs rather than the elevator?, How often do you walk per day?, Body mass index (BMI)) that there are a non- significant relationship.

Regarding to gender, there was a significant relationship with smoking, except with (Hypertension, Diabetes mellitus, and Random blood glucose, Heart disease, Atherosclerosis, Obesity, How would you evaluate your diet? What would you declare about your level of physical activity? Do you use the stairs rather than the elevator?, How often do you walk per day?, BMI that there are a non- significant relationship. In relation to level of education, there was a significant relationship with (What would you declare about your level of physical activity) at p-value < 0.05, except with (Hypertension, Diabetes mellitus, and Random blood glucose Heart disease, Atherosclerosis, Obesity, Are you a smoker? , In what way would you rate your diet? , Do you use the stairs rather than the elevator?, How often do you walk per day?, Body mass index (BMI)) that there are a non-significant relationship.

Hypercholesterolemia (17.2%) and hypertension (9.3%) were among the most common risk factors observed. The prevalence of smoking was relatively low at 2.8%. Male students had significantly higher average scores for most coronary heart disease (CHD) risk factors compared to females ($p < 0.05$). Additionally, the average systolic blood pressure was notably higher in males (119.47 ± 11.17 mmHg) than in females (112.26 ± 9.06 mmHg), with a highly significant difference (Student's t-test = 4.74, $p < 0.001$).. Other studies supported these findings. For instance, analysis showed that 9.6% of male students reported a history of smoking, while none of the female students did. These results align with a cross-sectional study conducted in Saudi Arabia, which reported a smoking prevalence of 49.2%, with only 1.5% of smokers being female. This disparity may be influenced by social norms, stress, and academic pressures that lead some individuals—particularly males—to smoke as a coping mechanism. In some countries, smoking rates between males and females are more balanced, but in recent years, the female-to-male smoking ratio has been increasing. (7,10,11)

The present study shows that there was a non-significant differences between the students of the College of Nursing, the fourth stage, and the students of the College of Dentistry, the fifth stage at p-value < 0.05 in relation to level of stress.

The finding was incompatible with study that revealed a statistically significant variation in the prevalence of cardiovascular illnesses between men and women in terms of age, education, diabetes, and hypertension.(12)

CONCLUSIONS

The study shows that there was a significant relationship between risk factors for CVDs and age of the study sample in relation to (Hypertension, Diabetes mellitus, and Random blood glucose). In another hand shows that there was a non-significant difference between the students of the College of Nursing, the fourth stage, and the students of the College of Dentistry, the fifth stage.

ACKNOWLEDGEMENT:

Grateful thanks and gratitude are extended initially to all participants

REFERENCES

1. Kurian, A. K., & Cardarelli, K. M. (2007). Racial and ethnic differences in cardiovascular disease risk factors. Ethnicity & disease, 17(1), 143-152.
2. Das, B. M., & Evans, E. M. (2014). Understanding weight management perceptions in first-year

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume X Issue VIII August 2025

college students using the health belief model. Journal of American College Health, 62(7), 488-497.
3. O'Donnell, C. J., & Elosua, R. (2008). Cardiovascular risk factors. Insights from framingham heart study. Revista Espanola de Cardiologia (English Edition), 61(3), 299-310.
4. Arts, J., Fernandez, M. L., & Lofgren, I. E. (2014). Coronary heart disease risk factors in college students. Advances in Nutrition: An International Review Journal, 5(2), 177-187.
5. Gibbons, G. H., Shurin, S. B., Mensah, G. A., & Lauer, M. S. (2013). Refocusing the Agenda on Cardiovascular Guidelines An Announcement From the National Heart, Lung, and Blood Institute. Circulation, 128(15), 1713-1715.
6. Al-Asadi, J. N., Habib, O. S., & Al-Naama, L. M. (2006). Cardiovascular risk factors among college students. Bahrain Med Bull, 28(3), 126-130.
7. Al-Nohair, S., Babiker, N., Al-Ahmari, D., Al-Mutairi, D., Al-Matroudi, K., Al-Mutairi, Z., ... & Alharbi, T. (2020). Cross-sectional study of cardiovascular risk factors among male and female medical students in Qassim University-college of medicine Saudi Arabia. Open Access Macedon J Med Sci. 2020; 25 (8): 439-45.
8. AL-Salih, S. H., & Jaber Muhbes, F. (2022). Study of nurses' knowledge about COVID-19 in Al-Hilla teaching hospitals. Iranian Rehabilitation Journal, 20(2), 245-252.
9. Ibrahim, N. K., Mahnashi, M., Al-Dhaheri, A., Al-Zahrani, B., Al-Wadie, E., Aljabri, M., ... & Bashawri, J. (2014). Risk factors of coronary heart disease among medical students in King Abdulaziz University, Jeddah, Saudi Arabia. BMC public health, 14, 1-9.
10. Abdelwahab, S. I., El-Setohy, M., Alsharqi, A., Elsanosy, R., & Mohammed, U. Y. (2016). Patterns of use, cessation behavior and socio-demographic factors associated with smoking in Saudi Arabia: a cross-sectional multi-step study. Asian Pacific Journal of Cancer Prevention, 17(2), 655-660.
11. Bilal, U., Beltrán, P., Fernández, E., Navas-Acien, A., Bolumar, F., & Franco, M. (2016). Gender equality and smoking: a theory-driven approach to smoking gender differences in Spain. Tobacco control, 25(3), 295-300.
12. Rezaianzadeh, A., Moftakhar, L., Seif, M., Johari, M. G., Hosseini, S. V., & Dehghani, S. S. (2023). Incidence and risk factors of cardiovascular disease among population aged 40–70 years: a population-based cohort study in the South of Iran. Tropical Medicine and Health, 51(1), 35.
13. Yach, D. (2014). The origins, development, effects, and future of the WHO Framework Convention on Tobacco Control: a personal perspective. The Lancet, 383(9930), 1771-1779.