

# Relationship Between Smoking and Blood Pressure Among University Students

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## Abstract:

Objective: aimed to assess university students for smoking, blood pressure and to find out the relationship between blood pressure for students' and smoking and demographic data. Methodology: A descriptive study was carried out through the present study in order to achieve the early stated objectives. The study was beginning from November, 2<sup>nd</sup>, 2018 to April, 18<sup>th</sup>, 2019. The study is conducted in Al-Najaf City/ In different faculties of the Kufa University. A non-probability (convenience sample) of (100) smoking students, from Kufa University. They are 86 males and 14 females. The following methods and devices were used to compile the data: The first section is a set of structured interview questions, while the second section consists of objective measures. The research found a strong association between high blood pressure and two modifiable risk factors—cigarette smoking and body mass index. The prevalence of hypertension and prehypertension among college students is increasing, the research found. The findings suggest that more attention should be paid to adolescent health care, particularly for the early detection and prevention of high blood pressure, and that health education for university students and young people should be improved to better reflect hypertension as a disease and its associated risk factors.

**Key words:** Smoking, Blood Pressure, Prevalence.

## Introduction

A systolic and diastolic blood pressure of 140 over 90 mm Hg, or a self-reported diagnosis of hypertension, was considered diagnostic of hypertension. When it comes to health, hypertension is a big issue all over the

world [1]. An international cross-sectional study of 142,042 individuals indicated that hypertension affected 40.8% of the population in 17 countries and 41.9% in China. Hypertension caused 9.4 million deaths in 2010 alone, making it the leading cause of death globally. It's associated with an increase in

cardiovascular disease, kidney failure, and stroke. At the very least, it accounts for 51% of all fatalities caused by stroke and 45% of all deaths caused by heart disease [2,3,4]. Blood arteries narrow as a result of the nicotine in cigarettes and a shortage of oxygen in the body's tissues. Smoking impairs blood circulation, leading to elevated blood pressure. Carbon monoxide, which is produced by cigarette smoking, causes cholesterol deposits to develop on artery walls. Nicotine causes blood clots to form more often. Nicotine causes constriction of the blood vessels, which elevates blood pressures [5].

**Hypertension in teenagers has lately been acted out in this fashion as part of the national high blood pressure education program:**

- BP. in the 90th percentile (both systolic and diastolic) is considered normal.
- Prehypertension: blood pressure at or below 120/80 mmHg (or in the 90<sup>th</sup> % for the systolic and/or diastolic measurements.
- Hypertension - blood pressure (systolic and/or diastolic) that is consistently (on three separate occasions) over the 95th percentile for one's gender, age, and height [6].

Adolescents are not immune to developing secondary or essential hypertension. Kidney or heart failure are the underlying causes of secondary hypertension. This study set out to identify potential causal factors associated with adolescent blood pressure variations[7]. The Middle East is recognized for having a much greater percentage of younger people than the West, with a significantly higher frequency of debilitating cardiovascular illnesses in those younger populations than in western countries. Furthermore, the younger people are healthier, have greater educational performance, and are more productive in their growing civilizations. A recent study found that younger people in underdeveloped nations are under-screened for illnesses, particularly those linked to long-term consequences [8]. Hypertension and associated illnesses affect a large and growing number of adolescents, with cardiovascular disease being one of the main causes of mortality. Several investigations have shown that hypertension and pre-hypertension may develop in young adults and persist throughout adulthood. Multiple risk factors are widely recognized as important causes of the worldwide increase in hypertension. Some of these factors include tobacco use, preexisting hypertension in one's family, and abnormally high blood sugar and cholesterol levels.

The majority of risk factors, such as cigarette use, poor nutrition, lack of physical exercise, overweight, and obesity, may, however, be effectively avoided [9].

**Methodology:**

**Design of the Study:**

In order to reach the stated goals, a descriptive research was conducted for this study. Between November 2nd, 2018, and April 18th, 2019, the research was conducted. examination results was carried out in accordance with the Helsinki Declaration Principles.

**The Sample of the Study:**

A non-probability (convenience sample) of (100) smoking students, from Kufa University. They are 86 males and 14 females.

**Approves the Study**

Formal administrative approvals to perform the study were obtained prior to data collection; the official agreement was obtained from the Department of Community Health Nursing after the presentation of the project, then permission from the University of Babylon/College of Nursing/Research Ethics Committee to conduct the study, the reference number of the ethical approval 17, ethical date February 9, 2022. Informed consent "approval was obtained by the participants before the questionnaire began".

**The Study Instrument and Data Collection:**

These methods were used to gather the data: Part 1: Questionnaire for a Structured Interview Researchers created an English-language, structured interview questionnaire sheet based on an assessment of the relevant literature. (Socio-demographic data such as place of residence, gender, hypertension in the family history, smoking status, hookah use, and the prevalence of anxiety were gathered. Part Two. Some examples of physical measures are: One, a participant's blood pressure (BP) was taken using a mercury sphygmomanometer and an appropriately sized cuff in accordance with the standards set by the American Heart Association. Second, the participants' body mass index (BMI) was calculated and categorized using WHO standards "Whereas a body mass index (BMI) of less than 25 kg/m<sup>2</sup> is considered healthy, 25–29 kg/m<sup>2</sup> is overweight, and 30 kg/m<sup>2</sup> and beyond is classified as obese. The body mass index was determined by dividing the subject's kilogram weight by their square meter height. An automated calibrated weight scale was used to weigh

each pupil. The student's weight was taken with no footwear or outerwear. To the closest 0.1 centimeter, height was measured. All participants had to remove their shoes before having their heights measured "9.

#### Data Analyses:

The data is analyzed using SPSS 19 (Statistical Package for the Social Sciences).

The study's findings are analyzed and evaluated using the following statistical approaches:

## Results

**Table 1:** shows the breakdown of the research sample according to the following socio-demographic factors:

Items	Frequency	Percent	
Residence	rural	26	26.0
	urban	74	74.0
	Total	100	100.0
Gender	male	86	86.0
	female	14	14.0
	Total	100	100.0
Family history of hypertension	yes	68	68.0
	no	32	32.0
	Total	100	100.0
Number of cigars per day	1-20	51	51.0
	21 - 40	41	41.0
	41 - 60	8	8.0
	Total	100	100.0
Duration of smoking /years	1-3	40	40.0
	4 - 6	38	38.0
	7+	22	22.0
	Total	100	100.0
Are you smoke hookah	yes	52	52.0
	no	48	48.0
	Total	100	100.0

Table-1 shows that total of 100 university students were screened for hypertension. The majority, (74.0%), of the students were live in urban residential area. About gender the majority of studied student were male (86.0%). According to the family history of hypertension, the majority of students had family history of hypertension (68.0%). About number of

cigars per day the majority of students smoke from 1-20 cigar per day (51.0%). In related to the duration of smoking, the high percentage of studied student smoke for 1-3 years (40.0%).

Regarding hookah use, over half of the students in this study had never tried it. Everyone was measured for their weight and height to calculate their body mass

index (BMI). 85.0% had a healthy body mass index, whereas 11.0% were overweight. Two percent of the

population was overweight; two percent were underweight.

**Table 2:** Distribution of systolic blood pressure among the studied university students:

State of blood pressure	Level in mmHg	No. of students	%
Normal	<120	6	6.0
Pre-hypertension	120-139	88	88.0
Hypertension stage I	140-159	6	6.0
Hypertension stage II	160+	None	None
Total	----	100	100.0

n=100 %=percentage

Table-2 reveals that just 6.0% of the students who were investigated had a systolic blood pressure that was regarded normal, while 88.0% of the students had an increased blood pressure that placed them in the

pre-hypertension stage. Only 6.0% of the participants had hypertension stage I, which is defined as having high blood pressure.

**Table 3:** Distribution of diastolic blood pressure among the studied university students:

State of blood pressure	Level in mmHg	No. of students	%
Normal	< 80	11	11.0
Pre-hypertension	80-89	59	59.0
Hypertension Stage I	90-99	28	28.0
Hypertension Stage II	100 & above	2	2.0
Total	----	100	100.0

n= 100 %=percentage

Table-3 11.0% of the students who were tested had diastolic blood pressure that was regarded normal, whereas 59.0% of the students had increased blood pressure to the level that they may be classified to be

in the pre-hypertension stage. Only 28.0% of those examined had stage 1 high blood pressure, and only 2.0% had stage II hypertension.

**Table 4:** Correlations between study variable:

		No. of cigar\ day	Duration of smoking\ day	BMI	Systolic BP	Diastolic BP
No. of cigar\ day	Pearson Correlation	1	.401**	-.023-	.464**	.535**
	Sig. (2-tailed)		.000	.821	.000	.000

	N	100	100	100	100	100
Duration of smoking\ day	Pearson Correlation	.401**	1	-.082-	.252*	.413**
	Sig. (2-tailed)	.000		.418	.011	.000
	N	100	100	100	100	100
BMI	Pearson Correlation	-.023-	-.082-	1	.015	.059
	Sig. (2-tailed)	.821	.418		.881	.557
	N	100	100	100	100	100
Systolic BP	Pearson Correlation	.464**	.252*	.015	1	.294**
	Sig. (2-tailed)	.000	.011	.881		.003
	N	100	100	100	100	100
Diastolic BP	Pearson Correlation	.535**	.413**	.059	.294**	1
	Sig. (2-tailed)	.000	.000	.557	.003	
	N	100	100	100	100	100

\*\* . Correlation is high significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Table-4 shows that person correlation test is conducted to determine the correlation between number of cigars per day and systolic BP, duration of smoking and systolic BP, BMI and systolic BP. Also, to determine correlation between No. of cigar per day and diastolic BP, duration of smoking and diastolic BP, BMI and diastolic BP. Table (4) shows that there is a high significant and directed correlation between all variable mentioned above.

### Discussion

Hypertension is common all throughout the world, and current data shows that the incidence of hypertension will continue to rise. Hypertension raises the risk of morbidity and death. Over the last 20 years, hypertension has become more prevalent in younger age groups. (Moussa, *et. al.*, 2016). In comparison to the blood pressure standards set forth by the American Heart Association (AHA), the vast majority of the students who attend our university will have a diagnosis of systolic hypertension (their blood pressure will be between 120 and 130 mmHg), and 59.0% of the students will have a diagnosis of diastolic hypertension. This is an alarming statistic. We predict

that 45.4% of our college students will be diagnosed with diastolic hypertension (blood pressure > 120mmHg), which is similar to the findings of (Alhawari, *et al.*, 2018). Additionally, we predict that 17.8% of our college students will be diagnosed with systolic hypertension (blood pressure > 130mmHg), which is an increase from 6.1% using the previous guidelines (blood pressure > 140mmHg). The number of cigarettes smoked daily, the number of years a person has smoked, their body mass index, and their systolic blood pressure were all shown to be significantly related to one another. The substitute diastol may be used instead. This finding is consistent with previous studies (Sundar *et al.*, 2013 and) that found a direct correlation between daily cigarette smoking and an elevated risk of hypertension. This finding is also consistent with the work of Oladapo *et al.* (2010) and Alhawari *et al.* (2018), who also discovered a link between hypertension and BMI among college students. It was also established by Pang *et al.* (2012) that being overweight or obese is a substantial risk factor for hypertension. According to the research " According to the findings of "The connection between smoking and blood pressure in

men: a cross-sectional research" carried out by Li et al. (2017), current smokers have lower systolic blood pressure (SBP) than former smokers do. Furthermore, among present smokers, the unadjusted SBP and diastolic blood pressure (DBP) increased gradually as the number of packs years increased. Several models also showed that previous smoking was linked to a higher risk of hypertension.

### Conclusions:

According to the findings of this study, university students had a higher prevalence of hypertension and prehypertension. The current study found a strong link between smoking and BMI and blood pressure, both of which are linked to elevated blood pressure and both of which may be changed. The findings also provided preliminary data on the high prevalence of both hypertension and prehypertension in Iraq, as well as their associated risk factors. The results highlight the need of monitoring and treating adolescent health, especially with regards to high blood pressure. Moreover, this study has the potential to act as a springboard for additional investigation.

### Recommendations:

It is important to improve hypertension awareness and prevention education for college students and young adults. Supporting public health initiatives to help smokers quit is important, but so is advocating for measures to reduce excess weight as a means of avoiding hypertension. To raise public awareness regarding the need of measuring and monitoring blood pressure on a regular basis, particularly among young people, a health-oriented media strategy should be used.

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