

# Psychosocial Determinants of Hypertension

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*Submitted for Publication*  
30-05-2016  
*Accepted for Publication*  
13-06-2016

## ABSTRACT

Hypertension or high blood pressure is a condition in which blood pressure in the arteries is persistently elevated. It is a serious problem in the community leading to social stagnation.

**Objectives:** To determine the association between various psycho-social factors and hypertension. **Design:** Population based Case-Control study. **Place & Duration:** Urban Lahore. From May 2012-September 2012. **Subjects & Methods:** A population based case-control study with 1:1 case to control ratio was conducted. A total of 100 persons (50 cases and 50 controls) were recruited in the study. The selection was made on laid down criteria from adult population living in Urban Lahore in the vicinity of Mayo Hospital Lahore after taking due consent. Data was collected through a pretested questionnaire by a 5 membered team of MBBS students of King Edward Medical University, Lahore under direct supervision of Department of Community Medicine, KEMU. Data was collected, compiled and analyzed through SPSS version 20. **Results:** Overall 47% were males and 53% were females. Hypertension was found more in females, in the age group 51-65 years, who were married and in graduates. In bivariate analysis, hypertension was found significantly associated with anxiety (OR: 3.167, 95%CI: 1.398-7.174), restlessness (OR: 5.060, 95%CI: 2.150-11.910), anger (OR: 3.083, 95%CI: 1.330-2.963), and income (OR: 3.019, 95%CI: 1.315-6.929). Whereas diet (OR:0.667, 95%CI: 0.302-1.472), sedentary lifestyle (OR: 1.000, CI: 0.454-2.203), smoking (OR: 1.976, CI: 0.612-6.380), alcohol intake (OR: 2.042, CI: 0.719-23.266), intake of tea/coffee (OR:2.125, 95%CI:0.943-4.789) and unemployment (OR:0.583,95%CI:0.177-1.925) were not found to have any association with hypertension.

**Conclusion:** Hypertension was found significantly associated with anxiety, restlessness, anger, and income.

**Keywords:** Psychosocial, Determinants, Hypertension, Anxiety, Income.

**Article Citation:** Sohail A, Mahmood Z, Asad A, Basirat A, Bilal A, Bukhari MH. Psychosocial Determinants of Hypertension. APMC 2016;10(2):101-104.

## INTRODUCTION

Hypertension is defined as sustained rise of blood pressure in arteries (systolic blood pressure persistently at or above 140 mm of Hg or diastolic at or above 90 mm of Hg). The primary purpose for this applied research is discovering, interpreting, and the developing methods and systems for the control of hypertension in the society.

This study was designed to uncover the basic causes of hypertension in our community and how the ordinary man can be educated and prevented from developing it. It was found in previous studies that anger<sup>1</sup>, anxiety<sup>2</sup>, and low socioeconomic status<sup>3</sup> causes hypertension. Furthermore, impact of job strain<sup>4</sup>, decreased hospital visits<sup>5</sup>, smoking<sup>6</sup>, alcohol<sup>7</sup>, increased salt intake<sup>8</sup>, restlessness<sup>9</sup>, imbalanced diet<sup>10</sup>, sedentary lifestyle<sup>11</sup>, smoking<sup>12</sup>, unemployment<sup>13</sup> and intake of tea/coffee<sup>14</sup> can also lead to hypertension.

Hypertension is emerging as a major health issue in urban communities. A very little work has been done in finding the association of various psycho-social factors with hypertension in our community. So there was dire need to conduct this study to identify various psycho-social factors associated with hypertension. The study was also done to compare the results with the already conducted studies and, to render the students capable in making the community aware of the various psycho-social factors associated with hypertension in order to improve the overall health status of the community.

## METHODOLOGY

A case-control study was conducted to identify various psycho-social factors associated with hypertension in urban Lahore from May 2012 to September 2012. Study population was divided into

two groups. The inclusion criteria was adult patients of hypertension (age>15 years) having systolic and diastolic blood pressure greater or equal to 140 and 90 respectively on three different occasions and who were not suffering from any major medical or surgical illness. The control group comprised of healthy adults who did not suffer from hypertension. The study population was placed in two groups. Group 1 comprised of patients suffering from hypertension. Total number of patients were 50(n=50).Group 2 also comprised of 50 individuals (n=50) who were healthy controls while a systematic random sampling approach was used to recruit study controls from all eligible controls. Written consent was obtained from all selected study subjects. Data was collected by interviews, conducted by the members of group 8 of 4th year MBBS students of King Edward Medical University Lahore; using pretested and close ended questionnaire, while keeping all ethical and social considerations in mind. Data collection was supervised by the staff of Department of Community Medicine King Edward Medical University, Lahore. Data entry and analysis was done by statistical software SPSS version 20 at computer lab of KEMU. After describing the demographic characteristics using frequency tables, simple and multivariate logistic regression was used to calculate odds ratio and their 95% confidence intervals.

## RESULTS

Among psychosocial determinants of hypertension; cases mostly were females, between the age of 51-65 years and bankers. In the control group majority belonged to males, between the age of 20-30years and graduates. See Fig.1,2,3

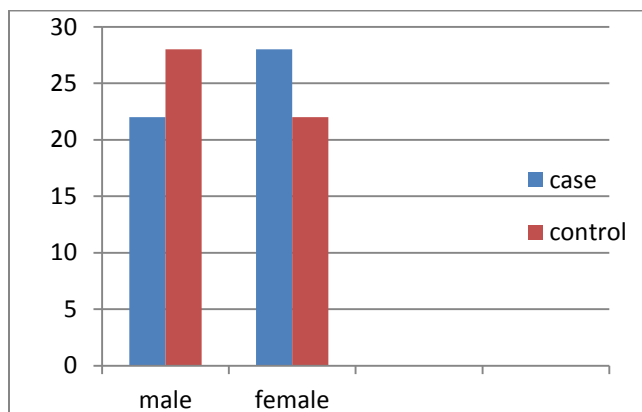


Figure 1: Gender distribution

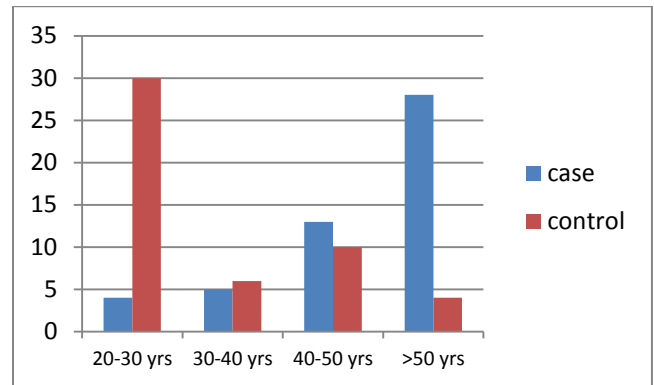


Figure 2: Age Distribution

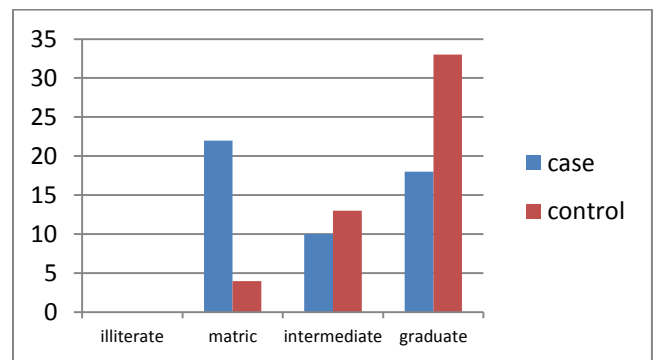


Figure 3: Education Distribution

In bivariate analysis the psychosocial factors which were found to be significantly associated with the development of hypertension were anxiety (OR: 3.167 95% CI=1.398-7.174), restlessness (OR: 5.060 95% CI=2.150-11.910), anger (OR: 3.083 95% CI=1.330-2.963) and income (OR: 3.019, 95% CI: 1.315-6.929).

Whereas the factors which were not significantly associated were diet, sedentary lifestyle, smoking, alcohol, intake of coffee/tea and unemployment. See table 1.

Multivariate logistic regression model was used to control for possible confounding effect. It was observed that there were some changes between the crude odds ratios and the adjusted odds ratios. It was observed that after controlling for all the factors studied the strongest statistically significant association was exhibited by anxiety (OR: 2.536 95% CI= 1.836-7.450), restlessness (OR: 3.600 95% CI= 1.269- 10.210) and income (OR: 3.893 95%CI=1.461-10.736). Other factors not significantly associated included diet, sedentary lifestyle, unemployment and smoking.

**Table 1: Association of psycho-social factors with the development of hypertension, Neela Gumbad (Anarkali) Lahore**

Sr. No.	Psychosocial Factors	Hypertension		Bivariate Analysis			Chi-square values
		Case (n = 50)	Control (n = 50)	Crude odds ratio	95% C.I.		
					Lower	Upper	
1	Anxiety	31	17	3.167	1.398	7.174	7.853
2	Restlessness	32	13	5.060	2.150	11.910	14.586
3	Anger	26	13	3.083	1.330	2.963	7.104
4	Job Strain	24	15	2.154	0.948	4.894	3.405
5	Income	27	14	3.019	1.315	6.929	6.986
6	Diet	20	25	0.667	0.302	1.472	1.010
7	Sedentary Lifestyle	22	22	1.000	0.454	2.203	0.000
8	Smoking	9	5	1.976	0.612	6.380	1.329
9	Alcohol	2	1	2.042	0.719	23.266	0.344
10	Tea/Coffee	34	25	2.125	0.943	4.789	3.348
11	Unemployment	5	8	0.583	0.177	1.925	0.796

**Table 2: Association of psycho-social factors with the development of hypertension, Neela Gumbad (Anarkali) Lahore- Multivariate Analysis**

Serial No.	Psychosocial Factors	Hypertension		Multivariate Analysis		
		Case (n = 50)	Control (n = 50)	Adjusted odds ratio	95% C.I.	
					Lower	Upper
1	Anxiety	31	17	2.536	1.863	7.450
2	Restlessness	32	13	3.600	1.269	10.210
3	Income	27	14	3.893	1.461	10.736
4	Diet	20	25	0.342	0.128	0.916

## DISCUSSION

The psychosocial determinants of hypertension are complex and can differ from country to country, even from one community to another. There are many factors associated with the development of hypertension for example anxiety<sup>1</sup>, Sleep disturbances<sup>2</sup>, restlessness<sup>3</sup>, decreased hospital visits<sup>4</sup>, depression<sup>5</sup>, type A personality<sup>6</sup>, anger<sup>7</sup>, job strain<sup>8</sup>, unemployment<sup>9</sup>, low socioeconomic status<sup>10</sup>, diet rich in cholesterol<sup>11</sup>, high salt intake<sup>12</sup>, lack of exercise<sup>13</sup>, alcohol<sup>14</sup>, smoking<sup>15</sup>, tea/coffee intake, income.

Our study showed that anxiety<sup>1</sup>, restlessness<sup>3</sup>, anger<sup>7</sup>, and income are significantly associated with the development of hypertension. As indicated by previously available data, sedentary lifestyle, unemployment, low socioeconomic status, depression, decreased hospital visits also increase the risk of development of hypertension. In our study, contrary to previous researches sedentary lifestyle, diet, alcohol intake, smoking, intake of

coffee/tea, low socio economic status, unemployment, depression and decreased hospital visits were not found to be associated with the development of hypertension.

## CONCLUSION

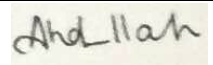

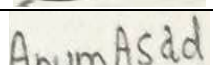
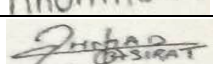
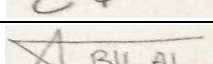
The psychosocial determinants of hypertension identified through our study are Anxiety, Restlessness, Anger and Job strain whereas Income, Alcohol, and Excessive tea/coffee intake, diet, unemployment, sedentary life style and depression are not found to be significantly associated.

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### **AUTHORSHIP AND CONTRIBUTION DECLARATION**

Name of Author	Contribution to the paper	Author's Signatures
Dr. Abdullah Sohail	Study design, data collection and processing, data interpretation and result, final paper writing	
Dr. Zunaira Mahmood	Study design, data collection and processing, data interpretation and result, final paper writing	
Dr. Anum Asad	Data collection and interpretation, final paper writing	
Dr. Ahmed Basirat	Data collection and interpretation	
Dr. Ahmad Bilal	Data collection and interpretation	
Prof. Dr. Mulazim Hassan Bukhari	Supervise the study	