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**PSYCHOSOCIAL RISK FACTORS OF HYPERTENSION: A
CROSS SECTIONAL STUDY ON THE PATIENTS OF
PUNJAB EMPLOYEES SOCIAL SECURITY INSTITUTION
(PESSI)**

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Abstract:

The purpose of conducting this study was to determine the psychosocial risk factors of hypertension peculiar to the patients of PESSI (mostly factory workers of low socio-economic status), in order to acquire information that would help raise awareness against hypertension, its risk factors and its long term consequences among the same population.

Hypertension, commonly referred to as “high blood pressure” is a medical condition in which the blood pressure in the arteries is elevated ($>140/90 \text{ mmHg}$). Persistently high blood pressure, is a major risk factor for CVS diseases like coronary artery disease, stroke, heart failure, and many other health outcomes like vision loss, and chronic kidney disease. The prevalence of hypertension in Pakistan is 18% which calls for extensive surveillance and research on this issue.

For this purpose, members of our team reached out to patients of hypertension in PESSI hospital, and after informed consent presented each patient with a questionnaire. The team members then prompted the patients to answer the questions written in the questionnaires. It was ensured that the data was collected in accordance with standard procedures of surveillance. The data was analyzed using SPSS. It turned out that 64% patients were factory workers having low socioeconomic status (with about 59% people having a monthly income of $<\text{PKR } 20,000$). On calculating the BMI of patient, it was found that 32% patients were obese. 85% patients reported having high fat intake.

Keywords: Psychosocial Risk Factors, Hypertension, Cross Sectional Study, Patients, Punjab Employees Social Security Institution.

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INTRODUCTION:

Hypertension, commonly referred to as “high blood pressure” is a medical condition in which the blood pressure in the arteries is elevated ($>140/90$ mmHg). Physiological rise and fall in blood pressure within a certain range in response to various external and internal factors is not only normal, but is also vital for survival.¹ Long term high blood pressure, however, is a major risk factor for CVS diseases like coronary artery disease, stroke, heart failure, and peripheral vascular disease. Persistently elevated blood pressure can also lead to other problems like vision loss, and chronic kidney disease.⁴

Persistent hypertension can be attributed to various risk factors. Modifiable risk factors like diet, exercise, stress; and non-modifiable risk factors like genetics, age, race, are considered some of the major determinants of cardiovascular health. Hypertension can also be a direct consequence of many systemic diseases like hyperthyroidism and diabetes. However, one of the major risk factors of hypertension which is often neglected, is the psychosocial factors that influence the patient's lifestyle and health beliefs. Psychosocial factors, in fact, play a huge role in the progression and prognosis of hypertension. These factors differ among different cultures, nationalities and communities.^{2,3}

Therefore, there is a strong need to conduct a study among the local patients of PESSI in order to determine the psychosocial risk factors of hypertension peculiar to them. In the longer run, this will provide us with the information required to raise awareness against hypertension, its risk factors and its long-term consequences among the same population.

Objectives:

The objectives of this study were:

- 1) To encourage people to adopt a healthy lifestyle and participate in physical activities which are known to be major risk factors of hypertension.

Questionnaire:

The questionnaire was developed keeping in view the following:

- 1) **Basic health status of the patient:** BMI, history of smoking, drug abuse, family history of HTN, sleep pattern, diet, etc)
- 2) **Variables:** The comorbid states which might be directly or indirectly responsible for the HTN, e.g., diabetes, hyperthyroidism, pheochromocytoma etc.
- 3) **Psychosocial risk factors which are medically established causes of hypertension:** Financial stress, occupational stress, low self-esteem, dysfunctional social life, etc.
- 4) **Health beliefs and cultural practices** as factors which influence awareness, control and treatment adherence of patients with chronic hypertension

The questionnaire contained a mix of open ended and closed ended questions

- 2) To raise awareness about the consequences of hypertension.

OPERATIONAL DEFINITIONS:

1) Hypertension is a medical condition in which the blood pressure in the arteries is elevated ($>140/90$ mmHg). Persistently high blood pressure, is a major risk factor for cardiovascular accidents like stroke and heart failure, as well as many other health outcomes like vision loss, and chronic kidney disease.

2) Psychosocial risk factors are environmental, psychological and social factors that influence the development, prognosis and outcome of any medical condition

MATERIALS AND METHOD:

Design: Cross sectional study

Setting: PESSI hospital, Lahore

Sample size: 100 as calculated from epidemiological information

Sampling technique: Convenient sampling
This was a questionnaire based cross-sectional study. This study was carried out on patients of hypertension in PESSI hospital Lahore. After informed consent, the patients were handed out questionnaires to be filled. Team members were present on spot to help and guide the patients in the process. The forms were then rechecked for any discrepancy.

Later the data was entered into and analyzed using statistical software SPSS 23 (64bit) version. Once the data had been analyzed, an initial report was created, using the same software, and results were deduced.

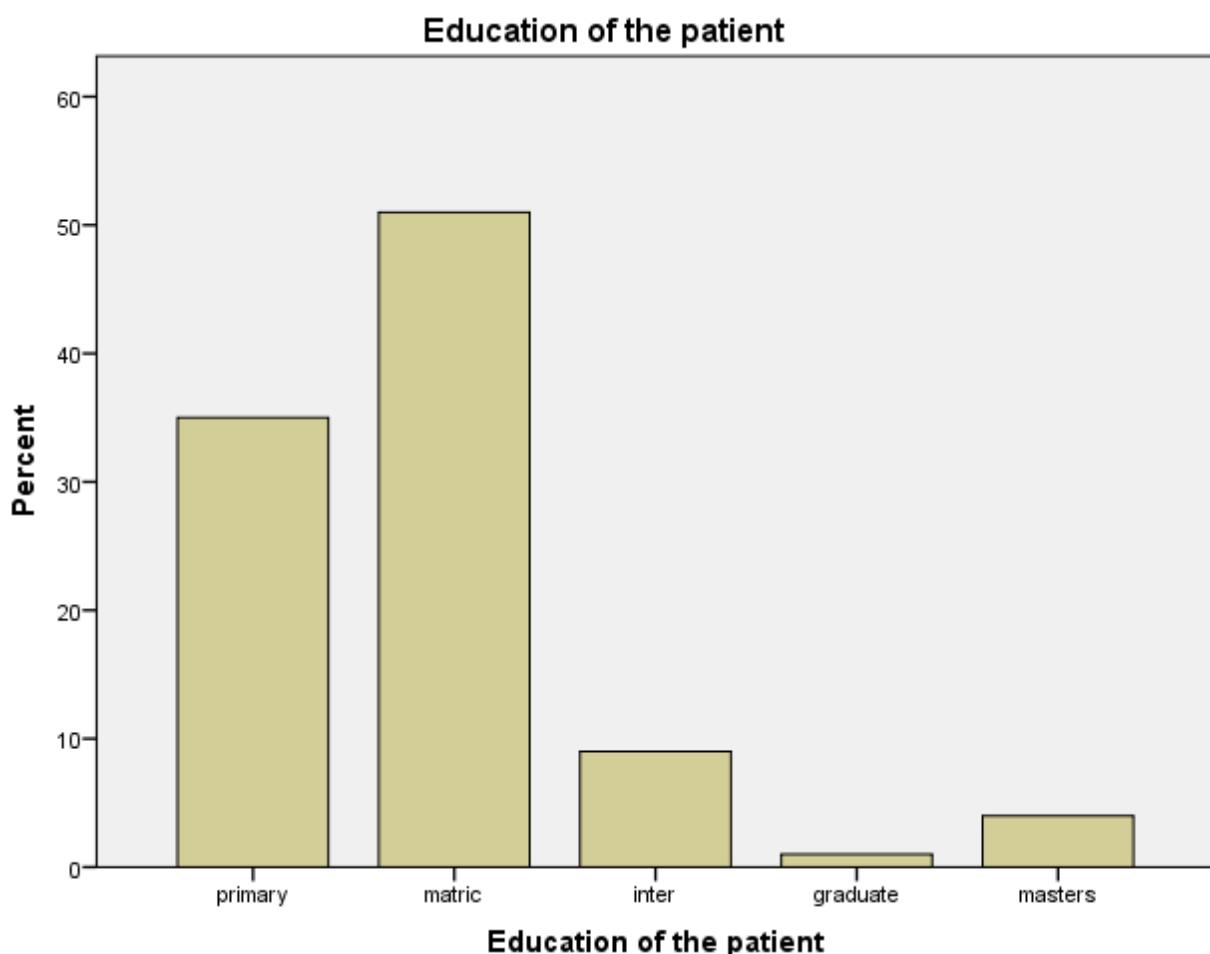
Inclusion criteria: Patients with chronic hypertension.

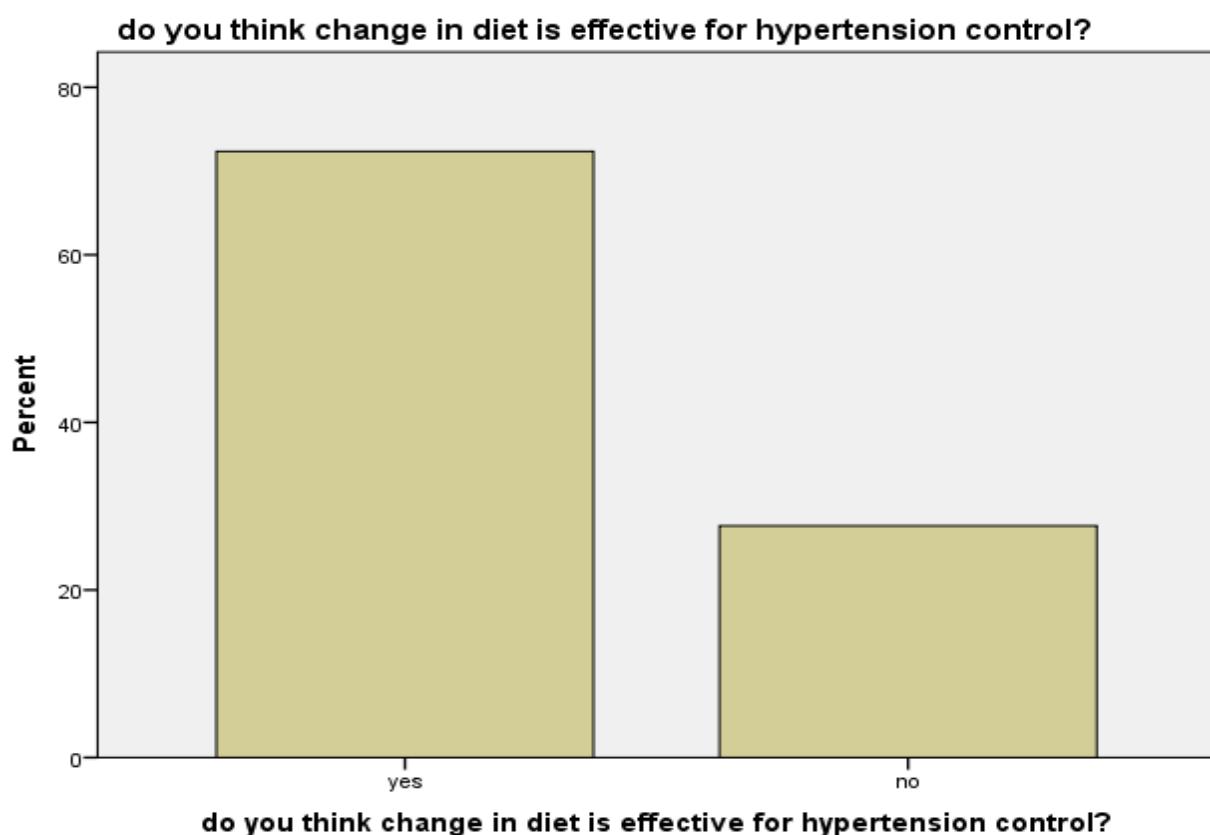
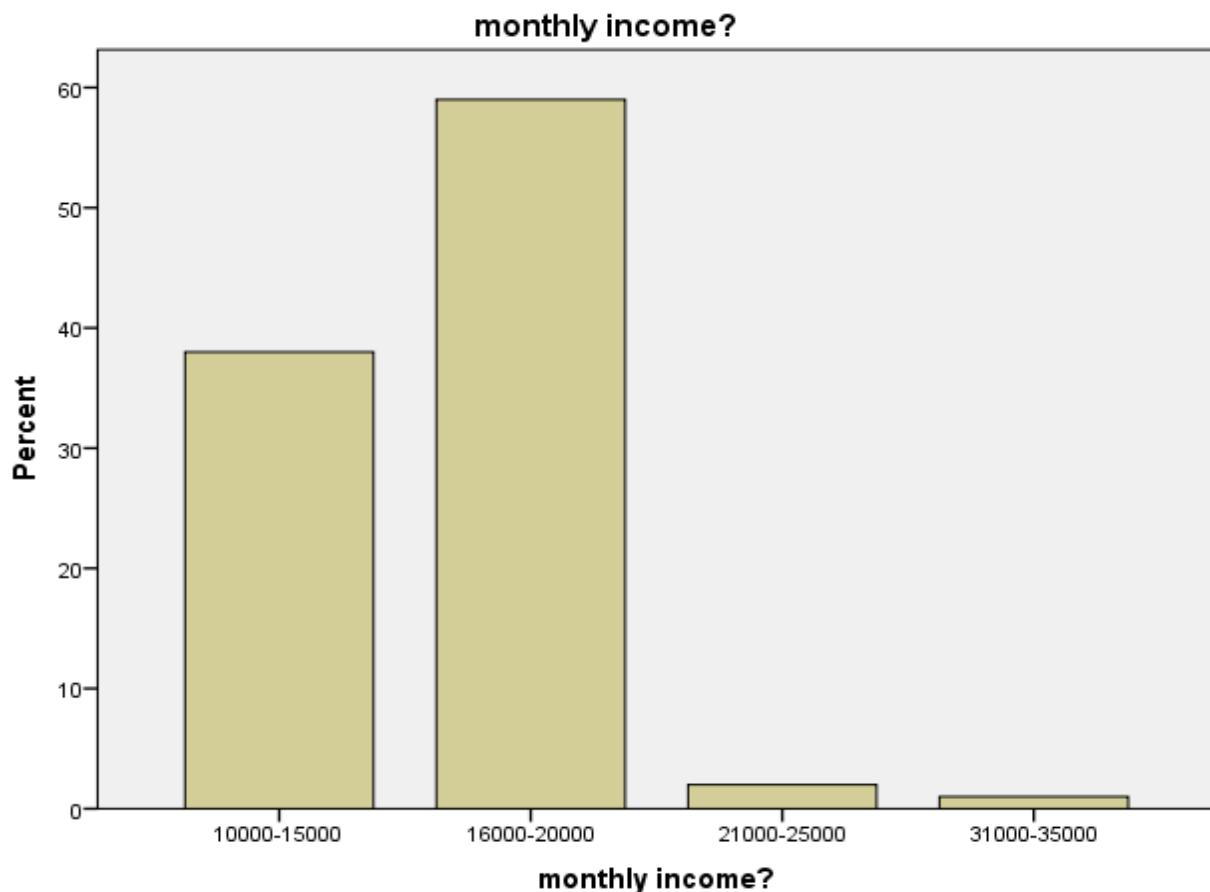
Exclusion criteria: Patients who don't have chronic hypertension, patients with gestational HTN, and patients with congenital CVS anomalies like shunts.

RESULTS:

- When we analyzed the gender of our participants, about 49% were males & 51% were females, so hypertension appears to be more prevalent in females.
- When we asked about occupation, 64% patients were factory workers had low socioeconomic status.
- About 59% people had a monthly income of <PKR 20,000
- 66% people had 4-5 persons financially dependent on them.
- 51% had nuclear family system, 49% joint family system. 41 % live in a family of 6-10 people, 40% live in a family of 1-5 & 19% live with 11-15 people in the same house.
- When we asked about the educational status, around 52% of the patients had studied up till matriculation.

- When we asked about smoking, 24% people smoked more than 20 packs of cigarette per year.
- When we asked about dietary habits, 85% patients had high oil intake.
- When we asked about sleep pattern only 23% had continuous 8 hours a day sleep pattern.
- When we asked about job stability, 63% patients had a fear of losing their job, while 37% did not fear losing their job.
- On asking, 90% patients were aware of the fact that they had hypertension.
- On being asked about diet, 68% patients agreed that diet does play an important role in controlling hypertension, while 32% said that diet is not an important factor.

Figures:



Frequency table:

gender of the patient

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	44	44.0	44.0
	Female	49	49.0	93.0
	3	7	7.0	100.0
	Total	100	100.0	

no of persons financially dependent on patient

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5	62	62.0	66.0
	6-10	32	32.0	100.0
	Total	94	94.0	
Missing	System	6	6.0	
	Total	100	100.0	

Education of the patient

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary	35	35.0	35.0
	Matric	51	51.0	86.0
	Inter	9	9.0	95.0
	Graduate	1	1.0	96.0
	Masters	4	4.0	100.0
	Total	100	100.0	

DISCUSSION:

When we compared our study with other researches from different countries, we found many similarities in results.

1) A study was conducted in two urban general practices in England in 2002 in which 38 people participated. The objective was to study the psychosocial risk factors that influence patient's adherence to treatment of hypertension. Patients had reservations about drugs generally and reservations about anti-hypertensive specifically. Non-adherence was driven by patient psychosocial risk factors like beliefs about their treatment, disease, and prognosis, as well as their objective experiences with medications. This led to higher chances of failure of treatment.

2) A review of the global studies on hypertension was done and published in the Journal of Hypertension in September 2016. It suggests that unless major actions are taken, global Hypertension prevalence will continue increasing leading to around 5 billion patients by the end of 2100.

3) A cross-sectional study of wealth-related inequalities in the awareness, treatment and control of hypertension in high-, middle- and low-income countries was conducted in 2016. Questionnaire based data was collected from 661 urban and rural communities of 21 selected countries. A total of

151,619 people participated. In all countries, hypertension awareness, control and treatment quality was significantly higher among high socio-economic classes, but in some countries like Sweden, hypertension control, awareness and treatment was actually better among the low socio-economic classes.

4) According country wide study in China (2007–2008 China National Diabetes and Metabolic Disorders Study), in which data were obtained from sphygmomanometer measurements and a questionnaire from 46239 adults above age 20, the prevalence of hypertension in China is increasing. The trend of an increase in prevalence is striking in young people and rural populations. Hypertension awareness, treatment, and control were found to be poor.

5) A study to assess the prevalence and risk factors was conducted in urban areas of Bangladesh in 2012. The prevalence of hypertension and pre-hypertension was high among study participants. Population-based intervention programs and policies for increased awareness about the risk factors, and life-style modification were found to be essential for prevention of hypertension.

6) A nationwide, cross-sectional study of 7429 citizens of Myanmar aged 15–64 years was conducted in 2009 of both sexes. Associations were

found between hypertension and low physical activity at work, or living in urban areas or the delta region. Being underweight and use of sesame oil in cooking was associated with lower odds for hypertension.

7) A study was conducted in 2015 in rural areas of Bangladesh in which 6094 people above age of 25 participated. The results showed that increasing age and higher BMI were positively associated with pre-hypertension.

8) A study consisting of 237 participants between ages 30 – 60 was conducted on outdoor patients of local hospitals around the University of Punjab, Pakistan. The research was conducted to explore the relationship of anger and its components with hypertension, where expression of anger, as well as anger suppression were found to be major psychosocial risk factors for hypertension and pre hypertension.

9) According to a review conducted by physicians in National Institute of Cardiovascular Diseases, Karachi, the prevalence of essential hypertension is increasing alarmingly in Pakistan, in spite of lower BMI and even malnutrition prevalent in the area. One of the factors responsible for the increase in prevalence were found to be cultural practices encouraging sedentary lifestyles, particularly among women.

10) A cross-sectional study based on data collected during multiple health screening camps held at multiple locations in rural central Punjab, Pakistan in the period between 2008 and 2015. 13,722 patients older than 18 years were included in the study. The study found a higher prevalence of hypertension among women as compared to men, when it came to the elderly age groups. Nearly one-third of patients in health screening camps of rural central Punjab had hypertension. Blood pressure control rate was poor among these patients.

CONCLUSION:

After doing research on this topic we concluded that hypertension is one of the major problems in Pakistan. The disease seems to be more prevalent in females, persons having low socioeconomic status, and persons that reported having a stressful lifestyle. Hypertension is also highly associated with high oil intake, high salt intake, advanced age, obesity, sleep disturbance & mental stress. Most of the patients have low literacy rates but are aware of their hypertension. Majority of patients believe that

hypertension can be controlled with diet modification & proper medication.

Suggestions:

- 1) Health education can play an important role in prevention & control of hypertension.
- 2) High intake of oil & carbohydrates should be discouraged.
- 3) Life style modifications e.g. smoking cessation, obesity, high salt intake should be discouraged.
- 4) There should be psychotherapy & counselling to relieve stress & related hypertension.
- 5) Proper medication should be taken to control hypertension & to minimize the risk of associated complications.

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Appendix

Questionnaire

Psychosocial Risk Factors of HTN**(Part-1)****Bio Data**

- 1) Name _____
- 2) Age _____
- 3) Gender _____
- 4) Address _____
- 5) Education _____
- 6) Occupation _____
- 7) Marital status _____
- 8) Religion _____

BASIC HEALTH STATUS:**1) BMI**

- a) Height _____
 b) Weight _____

2) Smoker (Yes No)

- If yes, then pack per year _____
- Tobacco chewer (Yes No)
- Water pipe smoker (Yes No)

3) Diet:**a) Type of fat used in cooking**

(Ghee Oil Extra butter on top of food)

b) Carbohydrate intake

- Table sugar intake in tea-spoon per day in beverages, etc. _____
- Type of staple flour/bread consumed
 (Refined/sifted Unrefined/whole wheat Mixed)

4) Hours of sleep/day: _____

(Continuous Intermittent)

PART-2**Identification of psychosocial risk factors:****A****Financial risk factors**

a) Monthly income in PKR

(NIL 10-15000 16-20000 25-26000 26-30000 31-35000)

b) Alternative/ self-generated source of income?

(Yes No)

c) No. of people financially dependent on you _____

B**Risk Factors related to standard of living:**

a) Housing:

(Own Rented)

b) People per square meter in house _____

No. of people _____

Floor area _____

C**Risk Factors Related To Social Life:**

a) Family style

(Joint Nuclear)

b) Do you get sufficient time and space alone for meditation/relaxation?

(Yes No)

D) Occupational Risk Factors

a) Job security

(Present Absent)

b) Are you happy with your work environment?

(Friendly) 1 2 3 4 5 (Hostile)

c) Form of transport used to travel daily

(Bicycle Motorbike Public transport)

i) Work hours: _____

ii) Night Shifts per week _____

E**Risk Factors related to health beliefs and cultural practices:**

- a) Do you know you are hypertensive? (Yes No)
- b) If you are aware of being hypertensive:
- Do you check your blood pressure regularly? (Yes No)
 - Do you take medical treatment for it? (Yes No)
 - If yes, then are you adherent with your treatment?
(Not adherent at all) **1 2 3 4 5** (Very adherent)
 - Do you believe prescription drugs are a good way to control hypertension? (Yes No)
 - Do you practice lifestyle changes (diet control and exercise) to keep your hypertension in control? (Yes No)
- If yes,
- To what extent do you regulate your diet and physical activity in order to control your hypertension?
(To a negligible extent) **1 2 3 4 5** (very ardently)
- Do you believe that diet control and exercise are effective way to control hypertension? (Yes No)