

Prevalence of Level of Stress and Quality of Life in Pre-Hypertensive Individuals

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ABSTRACT

Introduction: Hypertension is persistent elevation of arterial blood pressure of both systolic (over 140 mmHg) and diastolic (over 90 mmHg), believed to be an independent risk factor, and its prevalence is rapidly increasing in developing countries. Quality of life is stated as the ability of person to function normally in society, perceived by the person. Individuals who were aware of being hypertensive had poor quality of life concerning general health, physical functioning, vitality, and mental health than those who were not aware.

Aim And Objective: To determine prevalence of level of stress in pre-Hypertensive individuals. To determine prevalence of the quality of life in pre-Hypertensive individuals.

Method: 118 participants diagnosed with pre-hypertension were taken and written consent form was obtained after explanation. Individual had to fill two scales GHQ 12 (General Health Questionnaire) to assess Quality of life & Perceived Stress Scale to check the level of stress. Prevalence was found out according to the data collected.

Result: Data was analysed using SPSS v.20 with level of significance 5%. The mean age of participants was (38.92±5.01) with involvement of 53.3% females and 46.7% males. According to the data prevalence of stress is 63% which means moderate stress among prehypertensive individuals. On the basis of GHQ-12, 33% individuals were having no more than usual affection over their quality of life.

Conclusion: There is high prevalence of stress among prehypertensive individuals.

Keywords: Pre-Hypertension, Perceived Stress Scale, General health Questionnaire (GHQ 12)

INTRODUCTION

Hypertension is persistent elevation of arterial blood pressure of both systolic (over 140 mm Hg) and diastolic (over 90 mm Hg), believed to be an independent risk factor and its prevalence is rapidly increasing in developing countries.⁽¹⁾

Recently the prevention, detection, evaluation, and treatment of High Blood Pressure introduced the term “prehypertension” for systolic blood pressure levels of 120 to 139 mm Hg and diastolic BP levels of 80 to 89 mm Hg by 8th Joint National Committee.⁽²⁾

Classification	Systolic blood pressure(mmHg)		Diastolic blood pressure(mmHg)
Normal	<120	AND	<80
preHypertension	120-139	OR	80-89
Stage 1 HTN	140-159	OR	90-99
Stage 2 HTN	>160	OR	>100

The renin-angiotensin-aldosterone system (RAAS) and the sympathetic nervous system have historically been thought of as the two systems that are involved in the regulation of salt-water balance and cardiovascular function (SNS). Improper blood pressure measurement, volume overload, pseudo tolerance, excess sodium intake, Non-adherence, inadequate doses of drugs, inappropriate combinations, amphetamines, sympathomimetic, oral contraceptives and Tobacco, Obesity and excess alcohol intake are associated causes of Hypertension.^(2,3)

Physical activity can reduce the risk of hypertension by up to 19–29% Cardio-respiratory fitness (CRF), an objective indicator assessed by exercise tolerance testing, highly reflects an individual's exercise performance and is considered the gold standard for measuring aerobic fitness, High CRF has a beneficial effect on hypertension prevention. Physical activity can prevent the development of hypertension through reduction in body fat mass and weight, improved vascular endothelial function and beneficial modulation of lipid profile, inflammatory markers, and autonomic nervous system balance.^(4, 5)

Exaggerated blood pressure response to exercise is a valid risk marker for future hypertension and it is increased progressively with higher percentiles of systolic and diastolic blood pressure response. Hypertension is recognized as a key risk factor for cardiovascular diseases mortality and morbidity. In India, hypertension alone contributes to 57% of all stroke death and 24% of all coronary heart diseases related deaths (Gupta 2004). Blood pressure response to physical exercise is an important diagnostic parameter assessed during submaximal physical exercise test.^(6, 7, 8)

Stress has long been listed as a potential and important cause of hypertension along with other risk factors such as obesity, low physical activity and addictions. Such as by forcing the sympathetic nervous system to

release a lot of hormones that constrict blood vessels. White coat hypertension, the type of the profession, race, environmental circumstances and emotional status are among the element that affects blood pressure through stress.⁽⁴⁾ Modern life is full of hassles, deadlines, frustrations and demands, such mental or psychosocial stress can be one of the major risk factors for hypertension. Acute stress can induce transient elevation of blood pressure. It is unclear whether stress results in sustained elevation of blood pressure and hypertension.⁽⁵⁾

The HRQOL of hypertensive patients is much worse than healthy individuals. The quality of life of hypertensive patients is dependent on blood pressure, organ damage, co-morbidities and its treatment, Hypertension impairs vitality, social functioning, mental health, mood and psychological functioning.⁽⁶⁾

It has also been found that many hypertensive patients suffer from headache, dizziness, depression, anxiety and tiredness and many studies have revealed an association between hypertension and these symptoms.⁽⁷⁾ The prehypertension classification was introduced to facilitate prevention efforts among patients at increased risk for hypertension.

MATERIALS & METHODS

We conducted an observational study in the hospitals of Ahmadabad and Gandhinagar city. Within the duration of 3 to 6 months after the acceptance from institutional ethical committee. For selection of participants, we used Convenience sampling and a set of 118 participants were selected according to the inclusion and exclusion criteria. Participants falling between age group of 31 to 49 years diagnosed with prehypertension (Systolic 120-139 mmHg Diastolic 80-89 mmHg) including both males and females were selected. Participants were excluded falling in stage 1&2 of hypertension, obese individuals, recent surgeries (within 6 months), participants taking antihypertensive

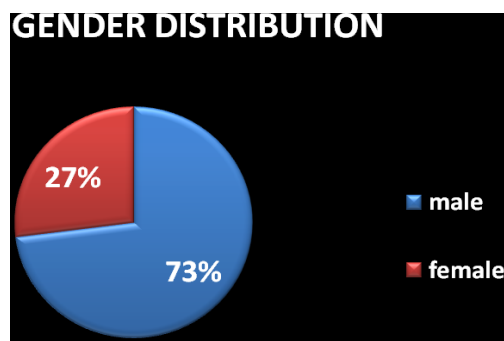
medications, having any addiction as well as systemic, Neurological or Degenerative conditions.

After screening of participants a google survey form was generated assessing two components with the help of two scales namely Perceived Stress Scale and GHQ 12 (General Health Questionnaire) these forms were then circulated to the participants. After which analysis was done.

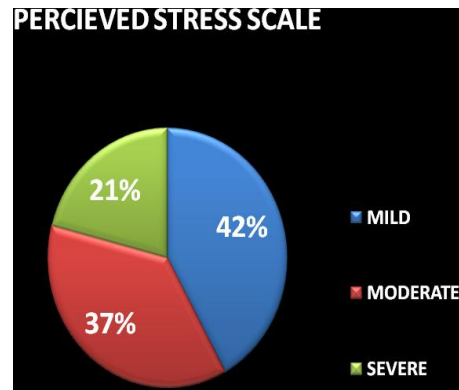
RESULT

Data was analyzed using SPSS version 20 with level of significance 5%. The mean age of participants was (38.92 ±5.014274) with involvement of 53.3% females and 46.7% males. According to the data, prevalence of stress is 63% which means moderate stress among prehypertensive individuals. On the basis of GHQ-12, 33% individuals were having no more than usual affection over their quality of life.

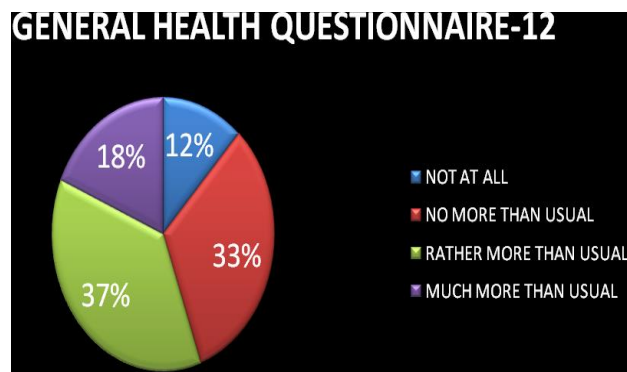
Graph 1. GENDER DISTRIBUTION



Graph 2. PERCIEVED STRESS SCALE



Graph 3. GENERAL HEALTH QUESTIONNAIRE- 12



DISCUSSION

This study was conducted to observe prevalence of stress and quality of life in prehypertensive individuals. While other research has been unable to find a connection, a number of investigations have shown that psychological stress is related to rises in BP and the onset of hypertension. According to our findings, middle-aged people who experience psychological stress at work or at home have a higher risk of developing hypertension. We selected 118 participants with mean age of 38.92 ± 5.01 ; which showed greater involvement in females (53.3%) and comparatively lesser (46.7%) in males. We observed PSS & GHQ-12 in prehypertensive individuals. This showed rising stress level 63% and decreasing quality of life in prehypertensive individuals.

Present study used perceived stress scale for assessment of stress. Which was originally developed in 1983. It helps to understand how different situations affect feelings and individuals perceived stress. The questions in this scale ask about feelings and thoughts during the last month. Various studies on stress and hypertension have used different scales for assessing stress like Gurmeet Singh *et al* Presumptive Stressful Life Events Scale(PSLES), visual analog scale, Survey of Recent Life Experiences.

Stress is defined as a complicated phenomenon that increases over time, adds to mental health issues and chronic illnesses, lowers quality of life, lowers productivity at work, and dramatically raises medical costs in which environment demands strain an organism's adaptive capacity resulting in both psychological demands as well as biological changes that could place a risk for illness.⁽⁹⁾

Study by Zimmerman RS *et al* shows that there has been substantial research on the connections between stress and hypertension. Stress has been demonstrated to raise blood pressure quickly by speeding up the heartbeat and cardiac output without changing overall peripheral resistance. Catecholamines, cortisol, vasopressin,

endorphins, and aldosterone levels have been observed to rise in response to acute stress, which may help to explain why blood pressure has risen.⁽¹⁰⁾

Among hypertension patients, psychological stress was associated with all aspects of quality of life. This result supports research by Ames *et al.* among hypertension patients that quality of life is related to psychological stress, even when age and the number of chronic conditions is taken into consideration. Since stress is a part of life, research by McDonald *et al* has revealed a link between high levels of self-reported stress and uncontrolled hypertension. These findings are significant in light of prospective stress reduction therapies for hypertensive CVD patients.⁽¹²⁾

Stress and arterial hypertension can both lower quality of life (QoL). Those who have hypertension appear to have a lower quality of life (QoL) than those who do not. The QoL of low-income patients with hypertension was also shown to be significantly impacted by major or minor stressor events, according to the research. Meira *et al.* (2020) discovered a negative association between PS and all QoL domains, including physical, psychological, social, and environmental, in a different sample made up of 348 dental faculty members from master's and doctoral programmes in Brazil. In addition to this, they can deal differently with stressful situations. Factors that may help explain the difference between our findings.⁽¹³⁾

In Ontario (Canada), Irvine *et al.* found that a sample of 82 hypertension patients who were uninformed of their condition shared many personality traits with a group of normotensives who were matched by age, sex, ethnicity, and occupation. These findings indicate that of the three explanations for the decline in HRQOL related with hypertension (increased BP levels, therapeutic, and labelling effect), the two latter explanations are the most significant.⁽¹⁴⁾

CONCLUSION

Findings suggest that 63% affected with moderate stress, 31% affected with high stress and 6% affected with low stress. 37% individuals having rather more than usual affection, 33% having no more than usual affection, 18% having much more than usual affection and 12% having not at all affection.

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Ethical Approval: Approved

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