

Effects of Stress on Blood Pressure - A Survey

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ABSTRACT:

The aim of this study is to determine the understanding regarding the effects of stress on blood pressure and to create awareness and to determine the understanding of the effect of stress on blood pressure.

Materials and methods : A convenient sample size of 100 consecutive adults and teenagers from various parts of Chennai participated in this study. A cross sectional observational online based study was conducted. Questionnaire was constructed on a survey monkey website with dichotomous responses and multiple choice questions.

Results: This study showed that 79% of people believed that working long hours is the major factor to increase stress and blood pressure simultaneously while 11% and 10% of people think that loss of job and chronic illness or injury increases stress and blood pressure respectively and it also shows that 62% of people have answered male will have an increase in blood pressure during stressful conditions than female but 38% of people have also answered in vice versa and nearly 96 % of people don't think that an increase in blood pressure is a good sign for teenagers while remaining 4% think that it is a good sign. Results of the present study indicated that the overall response from the participants were almost significant with respect to stress.

Conclusion:This survey was done to access the knowledge and awareness on the effect of stress on blood pressure in various aspects.

Keywords: Stress, blood pressure, hypertension, stroke, reactivity.

INTRODUCTION:

Stress is a feeling of pressure and strain. Our body produces a surge of hormones when we are in a stressful situation. These hormones temporarily increase the blood pressure by causing the heart to beat faster and making the blood vessels to narrow. High stress level leads to various harm to the body and it can also increase the risks of heart related problems, strokes and it also affect the mental health of an normal individual. Stress is very much correlated to the blood pressure. High blood pressure reactivity to stress is associated with hypertension which is the main risk factor for stroke to occur.(1)Among chronic degenerative conditions arterial hypertension will be the most important cause and it is a public health concern due to its risk, difficulty in management, high medical costs and severe renal and cardiovascular complications. It has been reported that chronic exposure to psychological stress can lead to increased blood pressure and lead to hypertension development.(2,3)

Chronic stress due to financial strain has been reported sure response to stressful situations.(4) Animal studies have shown that different forms of stroke can produce a permanent hypertension due to the structural changes in the resistance vessels.(5)There are various recognized stress risk factors that includes hypertension, atherosclerosis and atrial fibrillation and these are related to non hemorrhagic stroke and these involves the autonomic nervous system. These states that the stress induced cardiovascular reactivity play a major role in increased risk of stroke.(6,7)

In one of the studies that predicts the high blood pressure (8). In case of myocardial infarction risk the effect of the psychosocial stress was as important in magnitude as traditional cardiovascular disease risk factors such as smoking, obesity, diabetes and hypertension (2).

Cardiovascular activity reflects the underlying sympathetic nervous system activation and has been shown to vary according to various individual characteristics and this is a manifestation of high blood pressure. The blood pressure (BP) is the pressure that the blood flow exerts against the walls of blood vessels. It completely varies in the different parts of the human body depending on the phases of contraction of heart and various conditions of stress, health, exercise, etc. If BP is used without further specification, it refers to antonomasia to the arterial pressure which is related to the systemic circulation(9). Mechanism of stress which is involved in blood pressure increase could be also indirect. Stress would be associated with the majority of risk factors such as obesity, smoking, alcohol abuse and physical inactivity and they would cause blood pressure increase.(3)

The aim of this study is to determine the understanding regarding the effects of stress on blood pressure.

MATERIALS AND METHODS :

A convenient sample size of 100 consecutive adults and teenagers from various parts of Chennai participated in this study. A cross sectional observational online based study was conducted. Questionnaires were constructed on a survey monkey website with dichotomous responses and multiple choice questions. The questionnaire consists of 10 questions. At the end of the survey, all the data were collected and analysed for statistical references.

RESULTS AND DISCUSSION:

This research was carried out among various teenagers and adults. The people suffering from stress are more prone to increased blood pressure. From the research in figure 1 ,nearly 87% of people of age 15-25 years answered this survey of questions while the rest who answered were above 25 years of age and then figure 2 ,nearly 91% of people think that stress and anxiety together increases blood pressure while the rest 9% think that it doesn't increase blood pressure and in figure 3 ,nearly 41% of people think that meditation will be the best technique to reduce blood pressure during stressful conditions while 38% answered that a pleasant sleep would reduce blood pressure while the remaining 21% believes that a pleasant walk would reduce blood pressure and in figure 4, 79% of people believed that working long hours is the major factor to increase stress and blood pressure simultaneously while 11% and 10% of people think that loss of job and chronic illness or injury increases stress and blood pressure respectively and in figure 5,62% of people have answered male will have an increase in blood pressure during stressful conditions than female but 38% of people have also answered in vice versa .In figure 6 almost 96 % of people doesn't think that increase in blood pressure is a good sign for teenagers while remaining 4% think that it is a good sign. In figure 7 nearly 60% people think that aged people can reduce blood pressure and stress simultaneously while the remaining 40% answered that old aged people cannot reduce it . In figure 8 51% of people think that their locality is a danger sign for increase in blood pressure while 49% don't think so.

In our study nearly 87% of people of age 15-25 years answered this survey of questions while the rest who answered were above 25 years of age while in various Indian studies and researches

an estimated prevalence rate of hypertension among rural population ranges from 1.99% to 21.2%(10–12). Similar studies have been done on prevalence of hypertension which showed about two thirds of the study population experienced a moderate (31%) or high (36%) level of discrimination. 20.0% of the participants had mild depressive symptoms, whilst 9% had moderate depressive symptoms. The prevalence of financial stress was 34.8%.(13)

In our study nearly 60% people think that aged people can reduce blood pressure and stress simultaneously while the remaining 40% answered that old aged people cannot reduce it. Some other study suggested that blood pressure rises with age probably due to effects of genetically programmed senescence in body system as well as accumulation of environmental influences (14,15).In our study 5,62% of people have answered male will have an increase in blood pressure during stressful conditions than female but 38% of people have also answered in vice versa. Similarly in other studies males showed higher prevalence of hypertension as the level of stress increases from 4.17% (No stress) to 9.65% (More stress), but women had insignificant effect of stress on prevalence of hypertension from 2.01% (No stress) to 4.10% (More stress)(16) and also in other longitudinal study it was predicted that females showed high hypertension rate than males(17)

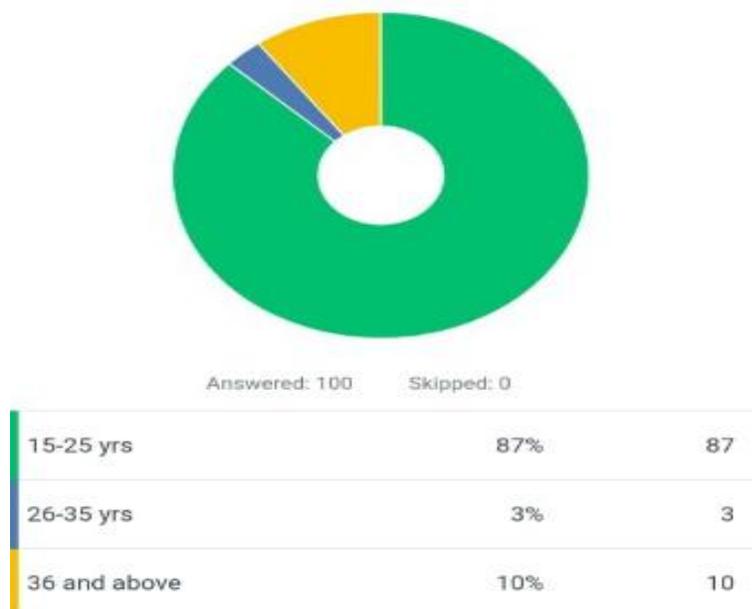


FIGURE 1 - Pie chart showing percentage distribution of Age group. Majority of the age group participated was 15-25yrs (87%), remaining 26-35 yrs (3 %), and 36 and above was about 10 %.

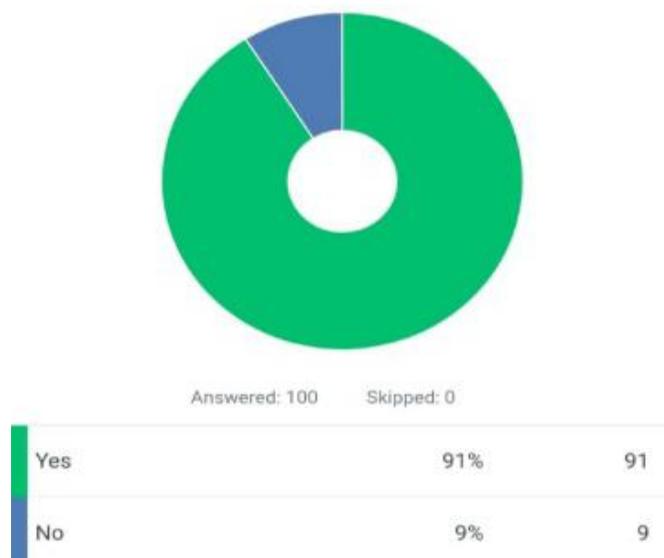


FIGURE 2 - Pie chart showing percentage distribution on awareness of stress and anxiety increasing blood pressure. Majority of responders were aware (91%), remaining were unaware (9%).



FIGURE 3- Pie chart showing percentage distribution on awareness on techniques used in stressful situations. Majority of the participants answered that meditation is the best technique to reduce bp (41%) while few answered sleep (38%) and the remaining answered a pleasant walk (21%).

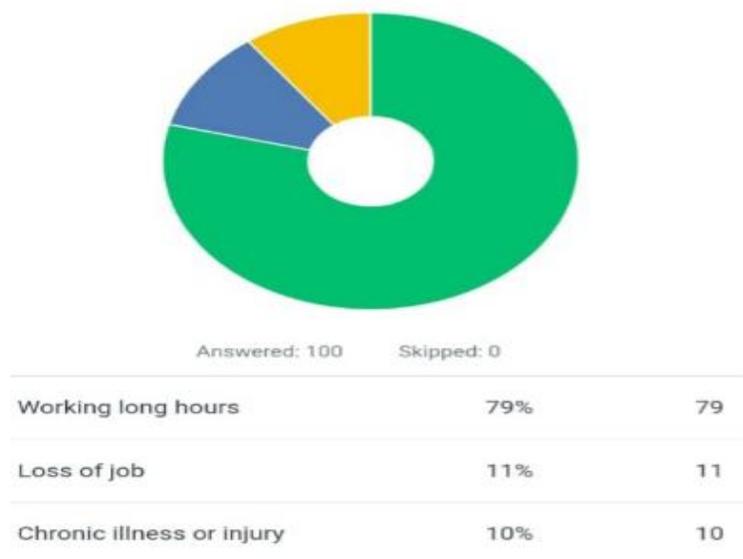


FIGURE 4 - Pie chart showing percentage distribution on awareness of the major factor that increases bp and stress simultaneously. Majority of the participants answered that working long hours would increase bp and stress(79%) while few answered that loss of their job would increase it (11%) and the remaining answered that chronic illness would increase it (10%).

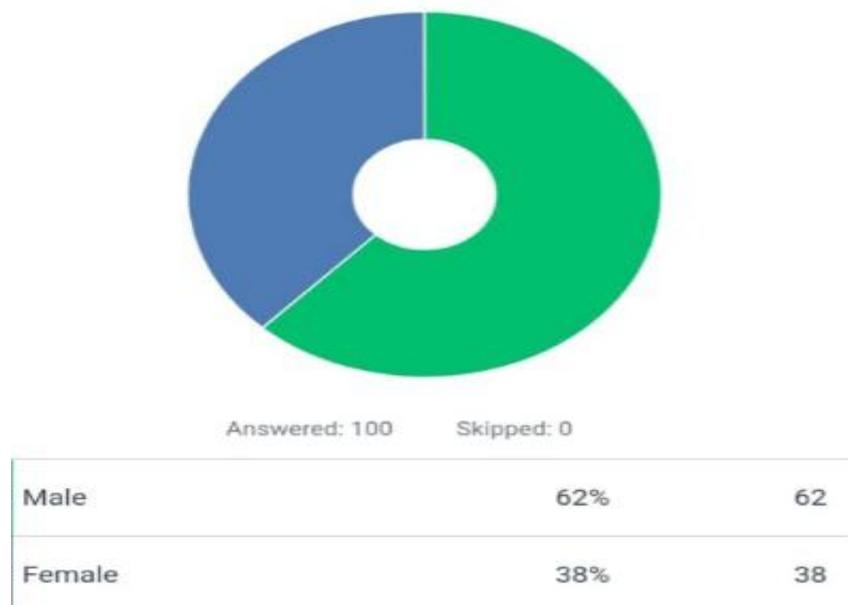


FIGURE 5 - Pie chart showing percentage distribution of awareness on which gender would have more bp during stressful situations. Majority of participants answered that male would have more bp (62%) , remaining answered that females would (38%).

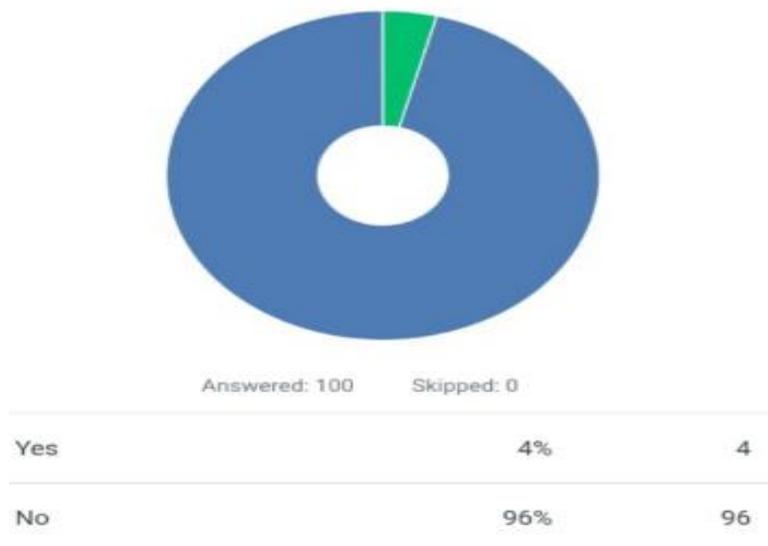


FIGURE 6 - Pie chart showing percentage distribution on awareness of blood pressure as a good or bad sign in teenagers. Majority of the participants answered that it is not a good sign (96%) while the remaining answered that it is a good sign (4%).

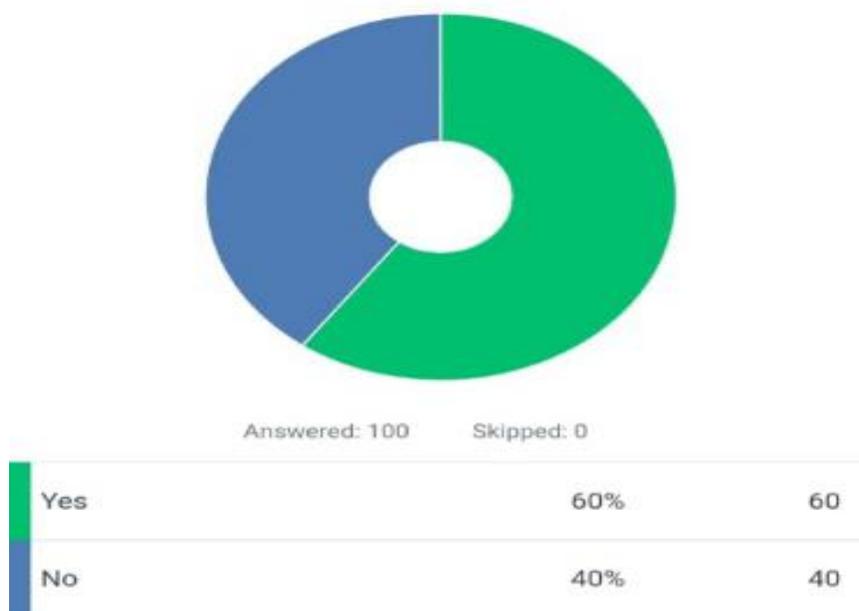


FIGURE 7 - Pie chart showing percentage distribution on awareness of old aged people in reducing stress and blood pressure simultaneously. Majority of participants answered that aged people can reduce it simultaneously (60%) while the remain participants answered that they cannot reduce it (40%)

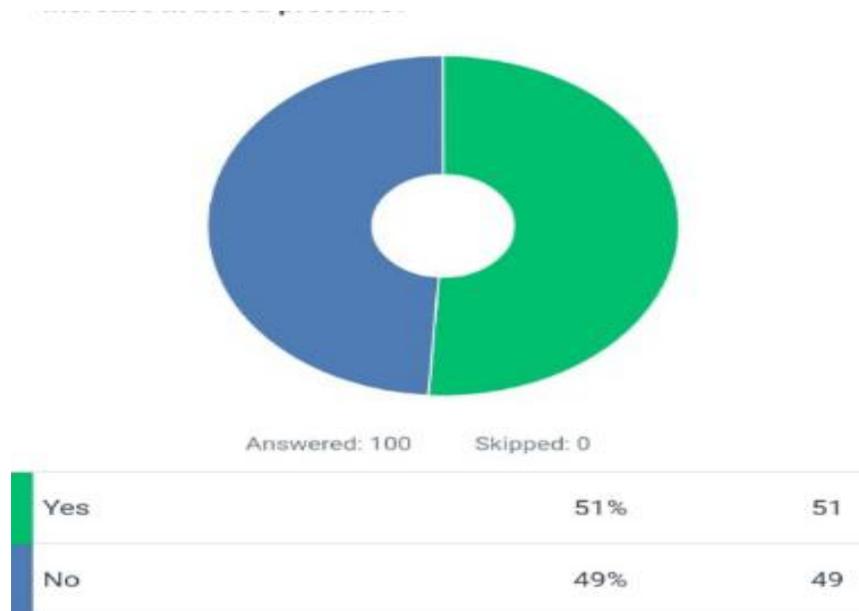


FIGURE 8 - Pie chart showing percentage distribution on awareness of their locality as a danger sign for increase in blood pressure. Majority of participants answered that their locality is a danger sign for increase in bp (51%) while the remaining answered that their locality is not a danger sign for increase in bp (49%).

CONCLUSION

This survey was done to assess the knowledge and awareness on the effect of stress on blood pressure in various aspects.

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