Original article

Does your personality make you fat!!!- A study on young prehypertensives

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Abstract:

Introduction: The general healthy population is classified broadly into type-A and type-B personalities based on their response to stress. The difference between both the personalities, depend only on the fact as to how they respond to a stressful situation in different ways. Stress predisposes a person to prehypertensive state and then to hypertension in future. Stress, either acute mild stress or prolonged chronic stress, can influence our appetite, there by predisposing type-A people – who are aggressive, hardworking, workaholics, stressed out people, to become obese. Our aim was to evaluate the association of overweight and obesity among type-A and type-B personalities with prehypertension.

Materials and methods: The study was a Hospital based cross sectional study including 115 participants who were prehypertensive and were categorized into type-A and type-B personality using a questionnaire. Height, weight was measured and BMI were calculated using quetelet index, and individuals were categorized into 2 groups - as overweight, obese and normal weight based on their BMI.

Results: The prevalence of type-A in prehypertensive individuals was very high, further the association of overweight and obesity among type-A prehypertensives was statistically significant.($p<0.001$).

Conclusion: Thus, the present study proved that there is a marked increase in type-A personality among prehypertensives and there is a strong association of obesity and overweight with type-A prehypertensives as compared with type-B prehypertensives.

Keywords: Type-A, Type-B personality, Prehypertension, Obesity

Introduction:

Stress is something that all of us have experienced at some point of time in our life. The type-A and type-B personalities are classified based on the way they response to stress.[1] Type –A being always in a rush, to accomplish more and more in a less and less time, try to do more than 2 or 3 activities at a time and feels guilty for relaxing for a few hours. Whereas type-B personalities believe in the virtue of patience, can relax and do nothing for days without feeling guilty and maintain a sense of calmness. Hence type-A persons has hyperactive sympathetic nervous system [2] and are more prone to develop cardiac problems and hypertension. Type A behavior causes high stress levels and should be taught to modify their way of responding to stress which can be moderated through exercise.[3] which in turn reduces coronary heart diseases.[4] Inspite of the fact that personality disorder being a major contributing factor to hypertension, heart diseases and depression [5], limited research is available regarding its association with co morbid conditions like obesity. Stress, either acute mild stress or prolonged chronic stress, can also

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influence our appetite, including our drive to eat and the types of food we are likely to select. [6]

Binge eating is currently included as an eating disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V, 5th ed.; American Psychiatric Association, 2013).which is characterized by frequent ingestion of large amount of food accompanied by feelings of loss of control and marked distress in the absence of compensatory behaviors such as excessive exercise, purging or fasting.[7]Obesity is defined as a state of being overweight with excess body fat resulting in a significant impairment of health of a person. Obese individuals are reported with stressful life events, binge eating episodes, psychiatric conditions, more medical complaints and a poorer quality of life. [8] At the same time, stress is considered as a risk factor for binge eating and obesity. [9-12]. Several studies have proved the relationship of obesity to dyslipidemia, diabetes, elevated systolic blood pressure (SBP) and diastolic blood pressure (DBP) etc. [13-15]

Hypertension is one the leading causes of mortality and morbidity in the developed and developing countries. Prehypertension is also a risk factor for cardio vascular disease with an effect of decreasing the life expectancy of an individual by 5 years, because prehypertension often develops into hypertension (50% of people in 4 years).[16-21] So even low risk prehypertensives should be monitored annually.[22] Prevalence of hypertension in India is 24.6%.[23]Prevalence of prehypertension in India is around 7% [24] with an increase seen in south India. Sedentary lifestyle, central obesity, excessive salt and alcohol intake, decreased consumption of fruit, vegetable and legumes, Ageing population, increase risk for blood pressure elevation.[25] Identification of CVD risk factors which predispose to prehypertension will thereby reduce the burden of hypertension and CVD in the population.[21] Hence Prehypertension is now given importance both in screening and treating because the earlier it is identified and treated the more is the longevity of the individual. The Framingham study demonstrates that if prehypertension is left untreated, these patients go on to develop hypertension. Current recommendations center on nonpharmacologic interventions, which include lifestyle modifications such as weight reduction, increased physical activity, personality modification, ways to cope up stress and reduced dietary salt intake.

Therefore an individual's personality predisposes them to prehypertension and also to become obese. Not much research has been done in demonstrating the association of increased BMI with type-A personality and prehypertension. Hence this study was done to find out the link between high BMI and type-A prehypertensives.

Materials and methods:

Study area and setting:

The present study was undertaken at Sri Manakula Vinayagar Medical College and Hospital (SMVMCH), Pondicherry.

Study design:

The study is a hospital based Cross Sectional Study.

Study duration:

The study was started after approval from the Institutional Ethics Committee and was completed within one year. (2013-2014)

Sample size:

Considering the prevalence of prehypertension in India to be 7%, 95 % confidence interval, 80% power the minimum sample needed for the study was

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calculated to be 101 using Epi-info (version 6.04d) software package. Bearing in mind, factors like refusal to consent / non response sample size was taken as 115.

Sampling:

On an average 10 attenders accompanying patients to medicine opd on Wednesdays, who satisfy the inclusion criteria and willing to participate were included in the study after getting informed consent.

Inclusion criteria:

1) Individuals of both sex and of adult age group (18-35years)

2) Relatively healthy individuals without any known diseases that might affect the Autonomic Nervous System, either directly or indirectly.

3) People not taking any drugs which might affect the Autonomic Nervous System.

Exclusion criteria:

1) People on any medications or having some diseases which might affect the Autonomic Nervous System.

2) Hypertensives on treatment

3) Unable to cooperate to undergo the study.

4) Borderline personalities (Type-AB)

5) Orthopedic deformities.

Methodology and data collection:

1) Attenders accompanying patients to the medicine opd, on Wednesdays, were considered for the study.

2) After obtaining informed consent, relevant history was obtained from the participants.

3) Anthropometric measurements like Height, Weight and Waist circumference were measured; Body mass index was calculated.

a. Height:

Height was measured to the nearest 0.1 cm while the subject was standing in erect position with bare feet on flat floor against a vertical scale and with heels touching the wall and head straight.

b. Body weight:

Body weight was measured while the subject was minimally clothed and without shoes, standing motionless on a weighing scale and it was recorded to the nearest 0.1kg.

c. Body Mass Index: [QUETELET INDEX]

Body Mass Index was calculated using the formula- weight in kilograms divided by square of height in meters (kg/m2).

4) Blood pressure:

Blood pressure was measured by the principal investigator. After giving half an hour rest to the person in the departmental laboratory, blood pressure was measured in supine position by mercury sphygmomanometer, between 10 am to 11 am. The pressure at which Korotkoff's sound first heard (Phase I) was the systolic blood pressure and the pressure at which these sounds disappeared (Phase V) was taken as diastolic blood pressure. Blood pressure was measured three times. The average of second and third readings was taken as correct systolic and diastolic blood pressure. Prehypertensives are diagnosed as per JNC 7 criteria. According to the Joint National Committee 7 (JNC 7), hypertension is defined as physician office systolic BP level of ≥140mmHg and diastolic BP of ≥90mmHg. The JNC 7 defines normal BP as a "systolic BP <120mmHg and diastolic BP <80mmHg". The gray area between systolic BP of 120-139 mmHg and diastolic BP of 80-89 mmHg is defined as "prehypertension."

5) **The personality type-A/B questionnaire** is a modified version of the Jenkins Activity Survey (Jenkins Zyzanski & Rosenman, 1971). The

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relatively healthy attenders were categorized into type-A and type-B personalities using it. Scores <80 were type-B and scores >80-360 were type-A personality. The questionnaire was administered to the selected group and the data was collected by my colleague, as a blinding procedure.

6) Overweight and Obesity were categorized using classification of BMI.

CLASSIFICATION OF BMI:

Underweight : <18.5

Normal weight : 18.5-24.9

Overweight : 25-29.9

Obesity : ≥30

Results:

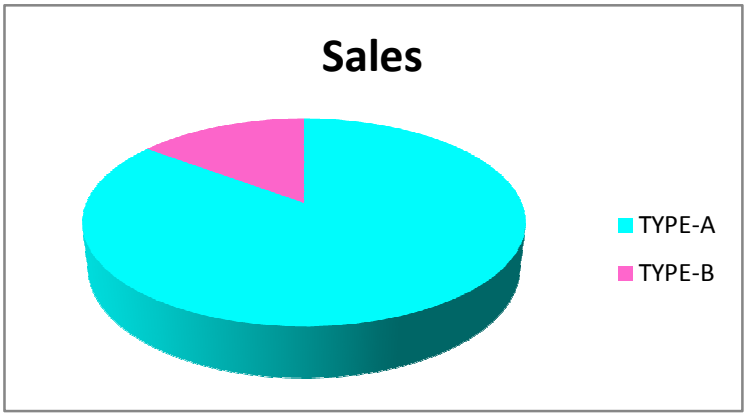
A total of 115 prehypertensives were taken for the study and were categorized as type-A and type-B personalities. Further they were divided into 2 groups based on the BMI.

Group-1: overweight, obese (BMI.25)

Group-2: normal weight (BMI18.5-24.9)

The results were tabulated and analyzed as follows.

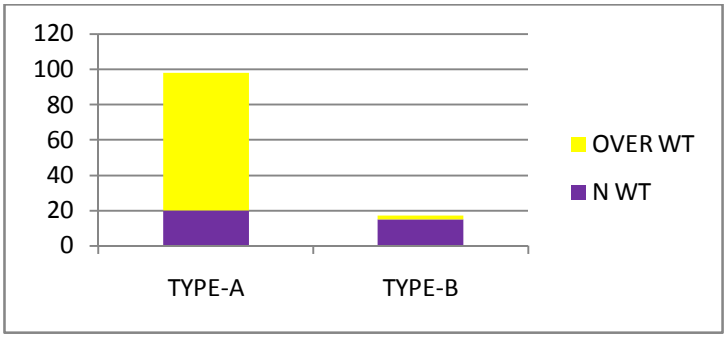
Table 1:



Prehypertensives	TYPE-A	TYPE-B
115	98 (85.2%)	17 (14.8%)

According to table 1- Among the 115 prehypertensives, 98 (85.2%) were TYPE-A and 17 (14.8%) were TYPE-B. Hence there was a clear demarcation suggesting the increased prevalence of type-A personality among prehypertensive individuals.

Table 2:



PERSONALITY	NORMAL WEIGHT	PERCENTAGE OF N WT	OVERWEIGHT AND OBESE	PERCENTAGE% OF OBESITY
TYPE-A	20	20.4%	78	79.6%
TYPE-B	15	88.2%	2	11.8%

Table 2 shows an increased number of overweight and obese individuals among type-A personality (79.6%) as compared with obese in type-B personality (11.8%)

Statistically:

Personality and obesity

Personality			A	B	
			1	2	Total
Obesity	1	Count	78	2	80
		% within A/B	79.6%	11.8%	69.6%
	2	Count	20	15	35
		% within A/B	20.4%	88.2%	30.4%
		Total Count	98	17	115
		% within A/B	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	31.479[a]	1	0.001		
Continuity Correction[b]	28.357	1	.000		
Likelihood Ratio	29.843	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	31.205	1	.000		
N of Valid Cases	115				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.17.

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Risk Estimate

		95% Confidence Interval	
	Value	Lower	Upper
Odds Ratio for obesity(1 / 2)	29.250	6.177	138.507
For cohort A/B = 1	1.706	1.278	2.278
For cohort A/B = 2	.058	.014	.242
N of Valid Cases	115		

Discussion:

Personality and emotional resilience have a greater impact on health aspects leading to hypertension, obesity, heart disease and even depression. The personality of two different individual makes the person to react to a same stressful situation in different way. The way they handle stress is different, predisposing type- A people to become prehypertensive, hypertensive, overweight and obese.

However some studies have found there is no association among obesity and hypertension, Ewart CK[1], Kolodner KB et al, [26] found that there is no link of obesity with personality and prehypertension. Rosenberg L et al, [27] demonstrated that obesity, type-A personality were not significant risk factors for the development of cardiovascular diseases. Jovanovic D et al, [28].proved that type-A personality was considered as an important risk factor for the development of coronary heart disease, independent of other predictors such as obesity and hypertension. U HELMERT et al, [29] proved that high density lipoprotein [HDL] And that as Compared to type B, type A is more prevalent in young medical students with increase in stress levels from 1st year to final year. Female students were more type A personality as compared to males. Suman Dua et al,[31] in a study of how Body Mass Index is related to Blood Pressure among adults, proved that the prevalence of high blood pressure was greater in those with high BMI. Asmathulla S et al, did a study on prehypertension leads to hypertension and cardiovascular disease risk. Their study showed that identification of cardiovascular risk factors in prehypertentives will reduce the burden of hypertension and cardiovascular disease in the population. Prehypertension showed significant positive association with BMI, WC, FBS, TG,TG/HDL.

Thus, in this present study there is a significant association between obesity with type –A prehypertensives. Firstly there is a marked increases in the prevalence of type-A personality among the prehypertensives proving the fact that chronic stress levels and the personality of an individual which determines how he /she handles a situation, predisposes them to develop prehypertension, and on the long run into hypertension. Secondly, overweight and obese individuals are on the increase among type-A prehypertensives as compared to type-B prehypertensives, because type-A personality is linked with high levels of stress and binge eating disorder.

Conclusion:

Thus, the present study proves the fact that type-A personality is more prevalent in prehypertensives as

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compared to type-B personality. Further, there is a strong association of overweight and obesity among type-A prehypertensives. The personality of an individual is determined by the way he/she responds to stress. Hence the personality of a prehypertensive individual predisposes him/her to become obese. Early detection of prehypertension by routine screening, modification of personality by means of handling stress in a better way by adopting relaxation techniques such as yoga, meditation, deep breathing and keeping the BMI on check by life style modifications such as regular physical exercises and maintaining a healthy balanced diet, will help us to lead an active, healthy life. The present study strongly advocates healthy dietary patterns, relaxation techniques and regular assessment of BMI and blood pressure.

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