



Neuroticism Versus Emotional Stability Scores of Hypertensive and Normotensive Males and Females

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ABSTRACT

Psychologists have identified personality variables as one of the most important factors related to physical illness. The period since 1950s till date, research has continued to show positive results relating illness to psychological factors and personality. Research in this area suggests that stress seems to affect some people more than it does to others, and researchers have looked for personality variables that might account for differential effects of stress. This study attempts to compare the neuroticism versus emotional stability scores of hypertensive and normotensive as well as male and female participants. The study adopted a 2 (hypertensives and normotensives) x 2 (males and females) factorial design. Two hundred and forty participants (120 chronic hypertensives and 120 normotensives) are selected from Gurgaon, Delhi. Out of 120 hypertensives, there were 60 males and 60 females. Similarly 60 healthy males and 60 healthy females not suffering from hypertension or any other disease were selected. The participants of all the four groups compared with respect to their scores on neuroticism versus emotional stability. The results indicate that hypertensives showed more score in all the dimensions of neuroticism compared to normotensives. It is also found that females have more depression and anxiety than males. They are more self-conscious and more vulnerable to stress compared to males. Males score high on anger, hostility and impulsive dimensions of the personality.

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Introduction

Interest in the role of personality in physical health and illness has generated a large volume of empirical research. The period since the 1950's has seen the growth of a large empirical literature on the relationship between personality as observed by a wide range of standardized tests and physical illness. This idea has been represented in western medicine throughout its history (Mc Mohan, 1976) and within psychology, the notion of disease prone personality has origins in early psychoanalytic thought (Alexander, 1950, Dunbar, 1943) Research has continued to show positive results relating illness to psychological factors and personality till date.

Hypertension, elevated blood pressure, is a noteworthy public health concern worldwide due to its significant contribution to the global health burden and its role as a prominent risk factor for the development of a number of disease processes. In the year 2001, high blood pressure accounted for 54% of stroke, 47% of ischemic heart disease, 75% of hypertensive disease, and 25% of other cardiovascular disease worldwide (Lawes, Hoorn, & Rodgers, 2008). The negative impact of hypertension on health status is clear, especially taking into account the disability, decreased quality of life, and mortality associated with stroke and cardiovascular disease. In 2001, 7.6 million deaths (13.5% of all deaths) and 92 million disability (6% of total) were attributable to systolic blood pressure greater than 160 mmHg (Lawes et al., 2008).

In response to a recognized need and new evidence-based suggestions, the World Health Organization (WHO, 2003) realized a revision of its statement on the management of hypertension. The WHO estimated that the condition accounted for 4.5% of the global disease burden and attributed the increase in hypertension to the contributing factors and coexisting

cardiovascular risk factors such as obesity, poor diet, lack of physical activity, and smoking. Given the large scale and modifiable nature of the problem, it certainly warrants the attention of the health care community.

Personality is the combination of emotional, attitudinal, and behavioral response pattern of an individual. It is the most commonly used term to describe and account for individual differences and behavioral characteristics in human beings. According to Allport (1962), personality is the dynamic organization within the individual of those psychophysical systems that determines his unique adjustment to the environment. According to Eysenck (1964), personality is more or less stable and enduring organization of a person's character, temperament, intellect and physique that determines his unique adjustment to the environment. Personality is shaped as a result of family influences, socio cultural factors, birth order, gender, education, early life experiences, environmental exposure and several other factors. While some of these factors give each individual his/her uniqueness and individuality, other factors are common and shared with other people. Specific personality make up determines individual's feelings, thinking, behavior, way of dealing with people and handling situations.

Psychologists have identified literally thousands of personality traits and dimensions that differentiate one person from another. But in recent years researchers have identified five fundamental traits that are especially relevant and are commonly known as the "big five" personality traits. Personality is described in terms of five broad traits, often labelled as neuroticism, extroversion, openness to experience, agreeableness and conscientiousness.(Costa & McCrae, 1992). Each of these personality traits are represented by six facets

which covers wide range of relevant thoughts, feelings and action of people.

Neuroticism, along with other five factor model traits, appear in a number of theoretical and empirical accounts of major personality dimension during the course of twentieth century, though often under different labels, such as emotionality, emotional instability, low ego strength and low adjustment (John, 1990). As early as 1967 Eysenck viewed neuroticism as a biologically based dimension of temperament associated with structures of limbic system and activity of the autonomic nervous system. The neurobiological basis of neuroticism continues to be a subject of investigation (Clark & Watson, 1999). Murberg, Bru and Aarland (2001) reported that trait neuroticism is associated with enhanced mortality over a 2 year period in a sample of congestive heart failure patients.

Neuroticism or negative affectivity reflects one's general approach to life and summarizes the tendencies of individuals (Denollet, 1993). The personality dimension of neuroticism reflects the tendency to experience emotional distress and the inability to cope effectively with stress. Highly neurotic people are extremely tense, anxious, insecure, suspecting, jealous, emotionally unstable, hostile and vulnerable (Maddi, 1990). The polar opposite of neuroticism is emotional stability. Neuroticism is a dimension of personality which ranges from emotionally unstable to more stable. So it ranges from being nervous, anxious, high-strung, hypochondriac at one end and being poised, calm, composed and not hypochondriac at the other end. People with emotional stability are relatively calm and resilient and secure whereas people with neuroticism are more excitable, insecure, reactive and subject to extreme mood swings. Neuroticism includes six factors like anger hostility, anxiety, depression, self-consciousness, impulsiveness and vulnerability. Anger hostility refers to a broad personality attributes involving negative attitudes, easily aroused anger and aggressive behaviour. Depression includes sadness, loneliness tendency to experience feeling of guilt, despondency, negative cognition, anhedonia and vegetative somatic complaints. Anxiety refers to a relatively stable tendency to experience tension, apprehension and worry. Self-consciousness includes shyness or social anxiety. Impulsiveness refers to the tendency to act on cravings and urges rather than reining them in and delaying gratification. Vulnerability refers to general susceptibility to stress. There is plenty of empirical findings relating neuroticism and each of the dimension of neuroticism with hypertension (Kidson, 1975). In many other studies, no significant difference in neuroticism was found between hypertensives and normotensives groups (Kohen et al., 1998). Regarding the association between neuroticism and hypertension results have been conflicting.

Although personality factors are insufficient for the development of hypertension, research continues to show that depression, anxiety and pathological anger increase the risk of hypertension. Generalized anger, pervasive fear, stress reactions are common among people with hypertension. There is abundant evidence that anger hostility may play a role in hypertension (Dimsdale et al., 1986; Sommers-Flanagan & Greenberg, 1989). Evidence relating anger to hypertension is now quite substantial. Most studies on Cardio Vascular Reaction have been studied in laboratories in which participants are presented with various situations intended to arouse anger and their physiological responses like blood pressure and heart rate are monitored. In one study using such a procedure (Suarez, Soab, Llabre, Kuhn, & Zimmermann, 2004), African American men showed a strong blood pressure response than did European American men and women from other ethnic group. This result suggests that the higher prevalence of hypertension

among African American men may relate to this tendency to higher reactivity. The research suggests that provoked anger increases CVR in ways that may relate to hypertension in African American men. It is also possible that an increased activation of the nervous system in angry and stressed people causes greater catecholamine levels, such as adrenaline, to build up and drive up blood pressure. Originally suppressed hostility was thought to be associated with high blood pressure levels and hypertension, although evidence for this hypothesis has been mixed. More recently, researchers have suggested that expressed anger and the potential for hostility are associated with exaggerated blood pressure responses, especially under condition of stress or harassment. Ruminating on the source of one's anger, whether one suppresses or expresses it, is associated with elevated blood pressure (Everson, Goldberg, Kalpen, Julkunen & Salonen, 1998; Hogan & Linden, 2004; Schun, Jorgensen, Verhaeghen, Sauro & Thibodeau, 2003). Hypertensives who are high in hostility can often drive away those who might be supportive. Recent research suggests that hostility may be associated with hypertension via its effect on interpersonal interaction, namely by increasing the number of conflict ridden or unpleasant interaction in daily life (Brondolo et al., 2003).

Depression has long been implicated as a factor contributing to physical disease. There has been a sharp increase in attention to the possibility that depression plays an important role in the development and progression of hypertension and cardiovascular disorders (Barefoot & Schroll, 1996; Frasure-Smith, Lesperance, Talajic, 1995). Along with anger and depressions, anxiety has appeared in description of disease prone personality patterns written in both the prescientific and scientific eras. (Bahnsen, 1980). Life evidence suggests that negative emotions including depression and anxiety, is a prospective risk factor for hypertension (Jonas & Lando, 2000; Rutledge & Hogan, 2002; Scherrer et al., 2003).

The connection between personality and illness is not a one way street. Illness can affect one's personality too (Cohen & Rodriguez, 1995). Individuals who suffer from serious illness and disability often experience high levels of anxiety, depression, anger and hopelessness. The objective of the present study is to examine neuroticism versus emotional stability scores of hypertensive and normotensive males and females.

Method

Participants

In the present study, two hundred and forty participants (120 with chronic hypertension and 120 without hypertension) were selected from Gurgaon, Delhi. Out of 120 hypertensives, 60 were males and 60 were females. Similarly in case of 120 normotensives, 60 males and 60 females were selected. This participants were absolutely healthy and not suffering from any other diseases. Hypertensives were suffering from hypertension for at least 5 years or more. All the participants were educated and their minimum qualification was fixed at graduation. The age range of the participants varied from 30 to 45 years. All the participants had middle socio-economic status. All the participants were compared with respect to their scores on neuroticism versus emotional stability.

Instrument

Neo-personality inventory Developed by McCrae and Costa (1991), this instrument measures 5 domains of personality namely, neuroticism, extroversion, openness to experience, agreeableness and conscientiousness. This is known as "Big Five" personality traits. The five domain scale contains thirty facets. Here we have used only the dimension of neuroticism.

Neuroticism examines anxiety, anger hostility, depression, self consciousness, impulsiveness and vulnerability .

Participants are to evaluate each item by assigning them marks between 1 to 5. Here “Mark- 1” is to be assigned if the statement is definitely false or if the participant strongly disagrees. “Mark-2” is to be assigned if the statement is mostly false or the participants disagree. “Mark-3” is assigned if the statement is about equally true or false or if it is difficult to decide or the participant is neutral on the statement. “Mark-4” is to be assigned if the statement is mostly true and the participant agrees to it. “Mark-5” is to assigned if the statement is definitely true and the participant strongly agrees with it.

Procedure

The study involved a 2 (hypertensives versus normotensives) x 2 (males versus female) factorial design. The participants of all the four groups were compared with respect to their scores on neuroticism versus emotional stability dimension of the Neo-Personality Inventory.

Result

The summery of the analysis of variances of hypertensives versus normotensives and males and females on the scores on neuroticism versus emotional stability are presented in Table -1

Table 1. Summary of the Analysis of Variances Performed on the Various Dimensions of Neuroticism Scores of Participants

Dimensions of Neuroticism	Sources	df	F
Anxiety	Status	1	1514.37**
	Gender	1	589.19**
	Status x Gender	1	.09
	Error	236	
Anger hostility	Status	1	2120.08**
	Gender	1	527.62**
	Status x Gender	1	.09
	Error	236	
Depression	Status	1	2461.50**
	Gender	1	641.50**
	Status x Gender	1	1.81
	Error	236	
Self-consciousness	Status	1	2201.45**
	Gender	1	891.49**
	Status x Gender	1	2.02
	Error	236	
Impulsiveness	Status	1	1908.67**
	Gender	1	785.33**
	Status x Gender	1	2.81
	Error	236	
Vulnerability	Status	1	1751.82**
	Gender	1	714.28**
	Status x Gender	1	.38
	Error	236	
Overall	Status	1	6023.97**
	Gender	1	524.07**
	Status x Gender	1	1.24
	Error	236	

Note: ** P< .01

The Analysis are Variances (ANOVA) performed on the various dimensions of neuroticism scores of participants measured by Neo Personality Inventory indicate significant main effect for status in case of anxiety, anger hostility, depression , self-consciousness , impulsiveness and vulnerability , $F(1,236) = 1514.37$, $P < .01$, $F(1,236) = 2120.08$, $P < .01$, $F(1,236) = 2461.50$, $P < .01$, $F(1,236) = 2201.45$, $P < .01$, $F(1,236) = 1908.67$, $P < .01$, $F(1,236) = 1751.82$, $P < 0.01$, respectively (see Table 1).

Table 2. Summary of the Mean Ratings on The Various Dimensions of Neuroticism Scores of the Participants

Dimension of Neuroticism	Groups	Males		Females		Combined
		M	SD	M	SD	M
Anxiety	Hypertensive	25.42	.34	33.83	.34	29.63
	Normotensive	12.18	.34	20.40	.34	16.29
	Combined	18.8		27.12		
Anger hostility	Hypertensive	29.55	2.3	22.12	2.7	25.84
	Normotensive	14.75	8	7.52	4	11.14
	Combined	22.15	2.8	14.82	1.8	
			2		3	
Depression	Hypertensive	23.13	.32	31.57	.32	27.35
	Normotensive	7.87	.32	15.45	.32	11.66
	Combined	15.5		23.51		
Self-Consciousness	Hypertensive	20.67	.31	30.38	.31	25.53
	Normotensive	6.53	.31	15.37	.31	10.95
	Combined	13.6		22.87		
Impulsiveness	Hypertensive	34.03	.35	24.87	.35	29.45
	Normotensive	19.42	.35	9.08	.35	14.25
	Combined	26.73		16.97		
Vulnerability	Hypertensive	24.98	.37	34.98	.37	29.98
	Normotensive	9.90	.37	19.45	.37	14.98
	Combined	17.44		27.22		
Overall	Hypertensive	161.7	.83	181.7	.83	171.77
	Normotensive	8	.83	5	.83	107.21
	Combined	98.15		116.2		
		129.9		7		
		6		149.0		
				1		

As shown by Table 2 , hypertensives show more anxiety, anger hostility, depression, self-consciousness, impulsiveness and vulnerability than normotensives $M = 29.63$ and 16.29 , $M = 25.84$ and 11.14 , $M = 27.35$ and 11.66 , $M = 25.53$ and 10.95 , $M = 29.45$ and 14.25 , $M = 29.98$ and 14.68 respectively. Analysis of variance performed on various dimensions of neuroticism like anxiety, anger hostility, depression, self-consciousness, impulsiveness and vulnerability indicates significant effect for gender $F(1,236) = 589.19$, $P < .01$, $F(1,236) = 527.62$, $P < .01$, $F(1,236) = 641.50$, $P < .01$, $F(1,236) = 891.49$, $P < .01$, $F(1,236) = 785.33$, $P < .01$, $F(1,236) = 714.28$, $P < .01$, respectively. It indicates that females show more anxiety, depression, self-consciousness and vulnerability than males, where as males exhibit more anger and impulsiveness than females. $M = 27.12$ and 18.8 , $M = 23.51$ and 15.5 , $M = 22.87$ and 13.6 , $M = 27.22$ and 17.44 , $M = 22.15$ and 14.82 , $M = 26.73$ and 16.97 respectively. On overall scores of neuroticism, Analysis of Variance shows a significant effect for status, $F(1,236) = 6023.97$, $P < .01$. The mean scores of overall neuroticism scores indicate that hypertensives are more neurotic than normotensives ($M = 171.77$ and 107.21 respectively). Analysis of Variance on overall scores of neuroticism also shows a significant effect for gender $F(1,236) = 524.07$, $P < .01$. The mean scores of overall neuroticism scores indicates that females are more neurotic than males ($M = 149.01$ and 129.96 respectively)

Discussion

Neuroticism includes six dimensions of personality. They are anxiety, anger hostility, depression, self-consciousness, impulsiveness and vulnerability. The results of the study show that hypertensives show more neurotic tendencies in all the dimensions of neuroticism than normotensives. Neurotic people show typical symptoms such as persistently depressed mood, social withdrawal from friends and family, sleep and appetite changes, decreased energy, excessive guilt, worthless etc. They are emotionally unstable, more excitable and insecure. There is abundant evidence that neurotic tendency increases the risk of hypertension (Cuelho et al., 1989).

In this study, hypertensives show more score on anger hostility than normotensives. The scientific investigation of hostility in relation to illness like hypertension and coronary heart disease received impetus from research implicating it as the chief health damaging component of the broad type A behavior pattern (Contrada et al., 1990). A meta-analysis conducted by Miller et al., (1996) indicates that hostility is associated with increased risk of hypertension and coronary heart disease. Research examining explanations for these associations has emphasized psychophysiological processes whereby hostility provokes heightened neuroendocrine, autonomic and cardiovascular responses to psychosocial stressors and challenges. However there is also plenty of evidence to suggest that trait hostility may increase risk for hypertension and coronary disease and other physical disorders (Contrada, Leventhal & O'Leary, 1990; Contrada & Guyll, 2001).

In this study, hypertensives show more depression and anxiety than normotensives. High levels of anxiety are associated with an increased risk of sudden death. Empirical research examining health consequences of trait anxiety and anxiety disorders includes studies of cardiovascular conditions such as essential hypertension (Jonas, Franks & Ingran, 1997). It has been found after reviewing epidemiological studies among hypertensive patients, prevalence of major depression is three fold higher, in case of hypertensives compared to normal people. A numerous empirical studies also support the gradient between magnitude of depression and future hypertension. Meng, Chen, Yand, Zheng, Hui, (2012) conducted a study to assess whether depression increases the incidence hypertension. According to them, depression is probably an independent risk factor of hypertension and it is important to take depression into consideration during the process of prevention and treatment of hypertension.

Hypertensives are found to be more vulnerable to stress than normotensives. It may be a fact that factors that usually help people cope successfully with stressful events may not be so with hypertensives. For example, people who feel that they have control over stressful events usually show less sympathetic nervous system activity. This decrease does not appear to be true for people diagnosed with hypertension. Chronically hypertensive individuals appear to be more stress sensitive (Fredriksson, Robson & Ljungdell, 1991)

It is found that females have more depression, anxiety than males. They are also more self conscious and vulnerable to stress than males. Males score higher on anger hostility and impulsive dimensions of neuroticism than females. There is a large and pervasive gender difference in depression, such as women suffer from more depression than men. Epidemiological studies have found the rate of depressive symptoms to be twice as high among women than men. (Culbertson, 1997; Nolen-Hoeksema, 1987). The gender difference in major depressive disorder is even higher, in order of four to one (Culbertson,

1997). Females are more vulnerable than males to depression related disorder and seasonal affective disorder (Lee & Chan, 1998). This is a consistent gender difference found all over the world. There is a great deal of cross-cultural support for gender difference in depression (McGrath et al., 1990). This gender difference in depression emerges during adolescence and is fairly consistent across the life span. There are numerous theories on gender differences in depression capping biological, psychological and social factors. Hormonal changes have been associated with mood changes but it is difficult to say which hormone is protective or harmful at what time. Some evidence indicates genes are responsible for gender difference. Psychological theories of depression suggest that women are socialized in ways that lead them to perceive less control than men over their environment. Some empirical work suggests that higher prevalence of depression among females results from the limitation placed upon women (Silberstein & Perlick, 1995). Some theories focused on the maladaptive form of coping adopted by a women. Women are more likely than men to respond to stressful events by ruminating about them and rumination is linked to depression.

Self-consciousness or awareness of the self is typically considered a personality trait. Self-consciousness reflects attending to one's inner thought and feeling. Several studies have suggested that women focus more on their inner feelings than men do (All good-Merten et al., 1990). There is no evidence for a gender difference in overall stress exposure. But there is evidence that there is a gender difference in the kinds of stressors experienced. Women report stressful events to be more stressful than men. Turner and Avison (1989) stated the distinction nicely "women may care about more people or care more about the people they know or both". Studies have compared the differential exposure and differential vulnerability hypothesis, and they come in on the side of vulnerability hypothesis. They concluded that women are more vulnerable to stress. Studies show women are twice as prone to anxiety compared to men. In a review of nine studies, women reported more anxiety and depression following a heart attack compare to men (Brezinka & Kittel, 1995). In a study of patients, who had stents implanted, women reported greater anxiety and sleep disturbances than men (Ladwig et al., 2000).

In this study, it has been found that males score higher on anger hostility than females. In 1986, Eagly and Steffen conducted meta-analysis of studies that evaluated six differences in aggression among adults. They found average men displayed greater aggression than women. Ten years later, their findings were replicated by larger meta-analysis. Across 107 tests of gender differences, the meta-analysis revealed that men were more aggressive than women (Bettencourt & Miller, 1996). Studies on aggressiveness and anger show that men are more aggressive than women (Bettencourt & Miller, 1996, Knight et al., 2002). Experimental studies, field researches and crime statistics all lead to the conclusion that men are more aggressive than women. Biological theories of aggression focuses on the role of genetics, testosterone, and evolutionary principles as the cause of aggression. Biological factors may predispose men to show aggression, they are likely to interact with social factors as society socializes men to be more aggressive.

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