

## PERSONALITY PATTERN OF FEMALE CARDIOVASCULAR PATIENTS AND CANCER PATIENTS: AN ANALYTICAL STUDY

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### ABSTRACT

The study was taken up to probe the personality pattern of female cardiovascular and cancer patients. The sample for the present study done on 225 women from Kerala, a state of India which consisted of 75 cardiovascular (cvd) patients, 75 cancer patients selected using purposive sampling technique from the various hospitals across the state and a comparative group of 75 normals selected from the general population. Cvd patients, cancer patients and normals showed significant differences in the five factors of personality.

The personality pattern of the cvd patients was found to be significantly different from that of the cancer patients. Cvd patients possessed significantly more of the characteristics of extraversion and openness compared to cancer patients and normals. The cancer patients were seen to possess significantly more of the personality characteristics of agreeableness, conscientiousness and neuroticism compared to cvd patients and normals. Both the patient groups differ significantly from the normal group with regard to the five personality factors. It is hoped that the outcome of this study will lead to identify the personality factors prone to cvd and cancer in females.

**KEYWORDS:** Personality, Cardiovascular Disease, Cancer

### INTRODUCTION

Gender is a health determinant, but gender itself is influenced, in part, by biological and psychological variables. Gender is a multifaceted construct. It is composed of social roles, behaviours, values, attitudes, and social environmental factors, as well as biological, physical, and hormonal attributes, yet the terms gender and sex are often used interchangeably, as though psychosocial and biological attributes inevitably covary.

In the developed world, women today have a longer life expectancy and lower mortality rates than do men at all ages, but epidemiological studies show that women report more chronic disease and disability (Khoury et al., 2002). More than 80% of women who are 55 or older experience at least one chronic health problem (Meyerowitz et al., 1998). In Western society, women tend to report more physical illness, more psychological distress, and more psychiatric symptoms than do men, yet women live longer than men. Many assume that these sex differences exist across time and culture and consistently and solely have biological causes. However, the sex difference in mortality is greater, lesser, or even reversed, depending on what culture is examined (Kessler et al., 1994).

Cardiovascular diseases and cancer are increasing in women. The disease pattern, types of cardiac disorders and cancer and the physical, psychological, and environmental factors leading to these diseases of both men and women differs. (Wing, Matthews, Kuller, Meilahn and Plantinga, 1991). Women are not included as research subjects in studies of many major disease because cyclical variations in hormones are thought to obscure results or because pharmaceutical

companies fear lawsuits if experimental drugs have adverse effects on women of childbearing age, harming features or putting future children at risk (Taylor et al., 2000). Heart disease research has been based largely on men, and women are often ignored in studies of cancers, except for reproductive cancers. It is essential to include women in medical studies for many reasons (Mathews, Shumaker et al., 1997).

First, women may have different risk factor for major diseases, or existing risk factors may be more or less virulent. Men and women differ in their biochemistry, and they differ in their physiological reactions to stress (Baum and Grunberg, 1991). Consequently, their symptoms may be different, their age of onset for the same diseases may differ and their reactions to treatment and needed dosage levels of medications may be different. For example, women's risk for coronary heart disease increases greatly following menopause. Until recently, however, research unearthing these important relationships is not even conducted. Without a systematic investigation of women's health and their particular risk factors, as well as changes in both over the life span, women will simply be treated more poorly than men for the same diseases.

## **GENDER RELATED DIFFERENCES IN CARDIOVASCULAR DISEASES**

The incidence of heart disease is more prevalent in men compared to women. However, it can be stated that heart disease is not just a man's disease. Heart attack, stroke and other cardiovascular diseases are devastating to women too. Hypertension (HTN) is a premier risk factor for cardiovascular disease, which is easily recognized if sought, and can be treated effectively. It is recognized that there are gender differences regarding the disease presentation, occurrence of more severe disease in women in certain age groups, differences regarding prevalence related to age, which will affect co-morbidity and there are also findings suggesting that the underlying mechanisms of disease might be gender-specific. Thus, gender-related differences in the lipid profile, hormonal status and influence of menopause, body composition, etc. might make the clinical presentation, the interpretation of the diagnostic findings and prognosis of similar clinical conditions to differ between sexes (Kesteloot et al., 2006). The following are some of the factors of gender differences in cardiovascular risk and treatment:

### **Metabolic Syndrome**

This is a group of health risks- large waist size, elevated blood pressure, glucose intolerance, low HDL cholesterol, and high triglycerides - that increases your chance of developing heart disease, stroke, and diabetes. Harvard Medical School research suggests that, for women, metabolic syndrome is the most important risk factor for having heart attacks at an unusually early age. In a study of patients undergoing bypass surgery, metabolic syndrome produced a greater risk for women than it did for men of dying within eight years.

### **Diabetes**

Diabetes increases the risk of heart disease in women more than it does in men, perhaps because women with diabetes more often have added risk factors, such as obesity, hypertension, and high cholesterol. Although women usually develop heart disease about 10 years later than men, diabetes erases that advantage. In women who've already had a heart attack, diabetes doubles the risk for a second heart attack and increases the risk for heart failure.

### **Birth Control Pills (Oral Contraceptives)**

In a small proportion of women, oral contraceptives increase the risk of high blood pressure and blood clots.

The risk is greater if they use tobacco products, already have high blood pressure (especially if over the age of 35), have other risk factors for heart disease or stroke, or already have a blood clotting problem.

### Pregnancy

Over the nine months of gestation, women may develop certain conditions that put them at higher risk of heart disease.

- **Pre-Eclampsia:** Is a condition that typically starts after the 20th week of pregnancy. It is related to increased blood pressure and protein in the mother's urine (the protein indicates that there is a problem with the kidneys). They may be prone to the condition if they have high blood pressure or are obese prior to becoming pregnant. Other risk factors include being younger than 20 or older than 40, are pregnant with more than one baby, or have diabetes, kidney disease, rheumatoid arthritis, lupus or scleroderma.
- **Gestational Diabetes:** While pregnant, a woman's body must produce extra insulin because increasing levels of pregnancy hormones interfere with the body's ability to use insulin efficiently. If the woman's body can't produce the additional insulin sufficiently, her blood sugar levels may rise, causing gestational diabetes. Although gestational diabetes usually disappears after the baby is delivered, it can increase the risk of the mother and baby developing diabetes later in life. Diabetes is a risk factor for heart disease and stroke.

### Menopause

If they have reached menopause, overall risk of heart disease may increase due to the reduction in the hormones estrogen and progesterone produced by your body. Before and after menopause, they may experience:

- An increase in total blood cholesterol, low density lipoprotein cholesterol (LDL or 'bad' cholesterol) and triglyceride levels.
- A decrease in high density lipoprotein cholesterol (HDL or 'good' cholesterol).
- A tendency toward higher blood pressure.
- An increase in central body fat, which can be harmful to body because they may be more prone to blood clots and blood sugar symptoms such as severe sweating or sleep disturbances.

### Blood Lipids

Before menopause, a woman's own estrogen helps protect her from heart disease by increasing HDL (good) cholesterol and decreasing LDL (bad) cholesterol. After menopause, women have higher concentrations of total cholesterol than men do. But this alone doesn't explain the sudden rise in heart disease risk after menopause. Elevated triglycerides are an especially powerful contributor to cardiovascular risk in women. Low HDL and high triglycerides appear to be the only factors that increase the risk of death from heart disease in women over age 65.

### Triglycerides

Triglycerides are the most common type of fat in the body. A high triglyceride level often goes with higher levels of total cholesterol and LDL, lower levels of HDL and an increased risk of diabetes. High triglycerides may increase the risk of heart disease and stroke for women.

## **Cholesterol**

After menopause, as natural estrogen levels drop, more and more women tend to develop high cholesterol.

## **Smoking**

Women who smoke are twice as likely to have a heart attack as male smokers. Women are also less likely to succeed in quitting, and women who do quit are more likely to start again. Moreover, women may not find nicotine replacement as effective, and because the menstrual cycle affects tobacco withdrawal symptoms, they may get inconsistent results with anti-smoking medications.

## **Symptoms**

Many women don't experience the crushing chest pain that is a classic symptom of a heart attack in men. Some feel extremely tired or short of breath. Other atypical symptoms include nausea and abdominal, neck, and shoulder pain. In one study, women reported deep fatigue and disturbed sleep as much as a month or two before a heart attack. During a heart attack, only about one in eight women reported chest pain; even then, they described it as pressure, aching, or tightness rather than pain.

## **Diagnosis and Treatment**

Women have smaller and lighter coronary arteries than men do. This makes angiography, angioplasty, and coronary bypass surgery more difficult to do, thereby reducing a woman's chance of receiving a proper diagnosis and having a good outcome. Women tend to have more complications following surgery. And they're twice as likely to continue having symptoms several years after coronary angioplasty (They're usually older than men and have more chronic conditions at the time of their first coronary event). Women's responses to standard exercise stress tests are also different from men's, so it's difficult to interpret the results (Harvard health publications, 2011).

## **GENDER RELATED DIFFERENCES IN CANCER**

The sex difference in cancer incidence is influenced by cultural and socioeconomic factors as reflected in rates of female versus male disadvantage for cancer incidence and life expectancy within different countries. Psychological, social, cultural, educational, and economic variables differentiate women and men, as well as predict health outcomes. One such determinant under investigation is the gender of the person (Kaufert, 1996). Being female may not directly cause passivity and emotional expressivity, but may lead to a tendency to withdraw and be passive when interpersonally aggressive situations arise. Chronic passivity, in turn, has been linked to cancer incidence, albeit with some associated controversy (Eysenck, 1998). Although some differences are hormonally related, there are probably many more differences between the sexes that are caused by behaviour rather than sex hormones.

Although there are cases in which the incidence of cancer is higher in women, there are far more in which the men outstrip the women, largely because of different smoking and drinking behaviours, and in some cases, occupational exposures. Stomach cancer is related presumably to a combination of things that create reflux, like late night eating, drinking of alcohol and coffee, and smoking. For liver cancer, the incidence in men is estimated at about 10,000 versus 5,300 in women, again probably related to more alcohol consumption, which also accounts for the greater incidence of head and neck cancers in men. Meningioma, a type of brain cancer, makes up about 15% of brain tumors. It is much more

common in women, probably because this particular tumor has estrogen and progesterone receptors. For that reason, tamoxifen is sometimes part of the treatment for this kind of brain tumor. It illustrates that even though some cancers are not thought to be related to the sex of the patient, the hormonal environment is indeed relevant. Malignant tumors of the thyroid are much more common in women than in men. Although the reason for this is not clearly spelled out, it is known that women have more autoimmune disease than men, and this could explain some of the difference. Women are also much more likely to get cancer of the gallbladder - about 4,000 new cases in women versus 2,900 in men. Women who are overweight are at higher risk, and historically women are more overweight than men. Differences in the metabolism of steroids and cholesterol in men and women is related in part to the estrogen and androgen difference. More men than women get squamous cell cancer of the lungs - the kind associated with smoking - than do women. Some studies have shown gender differences at the cellular level, with relatively high aromatic hydrophobic DNA adducts in female as opposed to male lung cancer patients. Hormonal factors, such as late age at menopause and estrogen replacement therapy, may also play a role in greater female susceptibility to tobacco carcinogens (Michaela Kreuzer, 2002).

## **PSYCHOLOGICAL FACTORS IN THE INCIDENCE AND PROGNOSIS OF CARDIOVASCULAR DISEASE AND CANCER**

The increasing emphasis on the interaction between psychological factors and development of lifestyle diseases esp. cardiovascular diseases and cancer is attracting considerable attention.

### **Personality and Cardiovascular Diseases**

Research has revealed that a particular type of people (Type A behaviour) who are aggressive, always short of time, short tempered and stressful are much prone to develop heart disease. Most of the young heart patients of modern day have Type A behaviour. People classified as Type A, compared to Type B individuals, have higher blood pressure (Conrada, 1989), produce less HDL-the “good cholesterol” and are twice as likely to suffer from heart disease (Weidner, Istvan and Mcknight, 1989).

Type A behaviour has been independently associated with incidence of heart disease in numerous prospective studies. Classic symptoms include hurried manner and speech, eating while doing other things, impatience and behaving in an over assertive manner (Rosenman, 1996). It now appears that anger is the critical component that leads to coronary disease and other health problems (Fekken and Jakubowski, 1990), so the term hostile Type A increasingly used by health psychologists.

Denollet and De Potter (1992) had identified a discrete personality type that may predispose patients with CHD to adverse health outcomes. Cluster analysis of their results yielded a personality subtype coronary patients who tended to experience negative emotions (ie. higher score on negative affectivity) and simultaneously tended to inhibit self-expression (ie. high score on social inhibition). This provided the basis of using negative affectivity and social inhibition as definitions of the ‘distressed personality type or Type D (Denollet et al., 1995).

The distressed personality (Type D) is an emerging risk factor in cardiovascular disease (CVD) that incurs a risk on par with left ventricular dysfunction in patients with ischemic heart disease. Type D is defined as the co-occurring tendencies to experience increased negative emotions and to inhibit self-expression in social interactions. Evidence is accumulating that Type D may also be a risk factor for adverse outcome across CVD patient groups, including patients

undergoing revascularization with drug-eluting stent implantation or bypass surgery, patients with heart failure, peripheral arterial disease, and arrhythmia. In these patient groups, Type D personality has been associated with a 2-5 fold increased risk of adverse prognosis, impaired quality of life and symptoms of anxiety and depression independent of traditional biomedical risk factors, including disease severity. Although little is known about the pathways responsible for the detrimental effects of Type D on clinical outcome, the immune system and health-related behaviours, such as smoking and noncompliance, are likely candidates (Pedersen., Susanne., Denollet., Johan, 2006).

### **Personality and Cancer**

The role of personality factors in the development of cancer had been suspected for centuries. In psycho-oncology, the concept of a "cancer-prone personality" has gained some attention. The cancer – prone person is described as inhibited, over socialized, confirming, compulsive, and depressive. He/she is said to have particular trouble expressing tension, anger and anxiety, instead presenting the self as pleasant, calm, compliant, and passive (Bahnsen, 1981). Bahnsen (1981) proposed that cancer patients use particular defense mechanisms and express their emotions abnormally. In particular, cancer patients may cope with stressful events through denial and repression. Type C behaviour has been independently described by Greer and Morris (1975) and Temoshok (1984). It is defined as an aggravate of several coping styles, in particular being stoic, cooperative, appeasing, unassertive and inexpressive of negative emotions, particularly anger. It is thought to be linked to the development of cancer. In essence, 'Type C' individuals are individuals who are co-operative and unassertive, who tend to suppress negative emotions (particularly anger) and who accept/ comply with external authorities.

A number of studies have shown an association between Type C and the incidence and progression of cancer. Studies have supported some Type C tendencies. For example, one study enabled significant identification of cervix cancer patients, as compared with controls, on the basis of high defensiveness and extraversion scores. Of the Type C components, defensiveness was related to shorter survival as well as to a particular personality type whose major characteristics are dealing with loss by despair and retaining closeness to people with whom one's relationship has ended (Grossarth-Maticck, Kanazir, Schmidt, and Velter, 1985). Longitudinal studies have also shown Type C characteristics to predict cancer. Shaffer et al., (1987), followed 972 physicians for a 30 year period and found that participants characterized by high levels of 'acting out' and emotional expression had less than 1 % risk of developing cancer. Participants characterized as 'loners' and thought to inhibit emotional expression were 16 times more likely to develop cancer than those in this group.

Suppression of emotion is the most widely investigated of the Type C tendencies. Suppression of negative effect, excessive conformity, severe stress, and lack of social support predict a poorer medical outcome from cancer (Spiegel and Moore, 1997).

Cancer patients with a repressive coping style also have a poorer prognosis for treatment compared to patients with a non-repressive coping style. In addition to having a repressive coping style, Type C individuals are unassertive, helpless, and avoid interpersonal conflict (Knier and Temoshok, 1984). Greer and Morris (1975) have found that women who suppressed their anger or had a confirming personality were more likely to have malignant changes than those without these characteristics. A life long history of anger suppression, which might be considered as the repression of anger, is another characteristic of breast cancer patients.

Pessimism has been linked to a number of health indicators. Pessimistic cancer patients were found to be more likely to die during a follow up period compared with less pessimistic counter parts (Schulz, Bookwala, Knapp, Scheier and Williamson, 1996). Accordingly, pessimism (Schultz et al., 1996) and introversion (Hislop et al., 1987) have also been associated with poor prognosis in patients been diagnosed with cancer. Patients were more likely to die during the next eight months if they had a pessimistic attitude toward treatment and recovery from cancer (Kawachi et al., 1994).

Studies of cancer patients have shown that perceived control and a sense of helplessness are strong predictors of recurrence of the disease and death. Similarly, low perceived control has been implicated in cardiovascular disease (Shapiro et al., 1996). Although a sense of control often does not reverse the course of a disease, atleast in its final stages, perceived control has been linked to individual's adjustment to disease and overall quality of life. Although there has been a lack of consensus on this issue, some suggested that the traits of neuroticism and extroversion might be associated with increased cancer vulnerability (Aarstad et al., 2002). Yet a number of recent studies have found no association between personality and cancer (Nakaya et al., 2003).

The studies reviewed found that psychological factors have an important role in the incidence and prognosis of these diseases. Life style disease especially cardiovascular disease and cancer seem to be increasing in women in Kerala. Having noticed the differences between men and women regarding cardiovascular disorders and cancer, this study was taken up to probe the personality pattern of female cardiovascular and cancer patients.

## **METHODOLOGY**

### **Sample**

The sample for the present study consisted of 225 women from Kerala, which consist of 75 cardiovascular patients, 75 cancer patients, and 75 normals. The cvd patients and cancer patients were selected using purposive sampling technique from the various hospitals across Kerala. Comparable group of normals were selected from the general population. Cardiovascular disease types selected for the study were coronary artery disease, cardiomyopathy, aneurysm, myocardial infarction, ischemic heart disease. The cancer types were breast cancer, ovarian cancer, lung cancer, colorectal cancer, thyroid cancer and cervical cancer.

### **Tools**

The tools used for collecting the data were Personal data schedule and Five factor personality inventory. The Five factor personality inventory was developed by Dr. Kumari Bhagavathy and Dr. Neelima Renjith. The test consists of 73 statements pertaining to the five dimensions of personality namely extroversion, agreeableness, conscientiousness, neuroticism & openness to experiences which are represented as 5 sections: A, B, C, D, E respectively. There are 7 lie scale items and is presented after every 10<sup>th</sup> item in the inventory. The reliability of the Five factors personality inventory is 0.5 and validity of five factor personality inventory ranges from 0.150 to 0.874.

### **Data Collection Procedure**

Data were collected individually after ascertaining the willingness and co-operation on the part of the respondents. Incomplete response sheets were not scored and used for analysis.

## Statistical Techniques

The statistical techniques used for analyzing the data were one-way ANOVA and Duncan test.

## RESULTS AND DISCUSSIONS

The scores obtained by the three groups under study (cvd patients, cancer patients and normals) on the five factor personality inventory were analysed using one-way ANOVA to find out whether there were any significant differences among the three groups on the personality factors of extraversion, agreeableness, conscientiousness, neuroticism and openness. The details are given in Table 1.

**Table 1: One Way ANOVA of the Scores Obtained on the Five Factors of Personality of the Three Groups- Cardiovascular Patients, Cancer Patients and Normals**

Variables	Source	Sum of Squares	Df	Mean Squares	F Ratio
Extraversion	Between Groups	222204.987	2	11102.493	267.395**
	Within Groups	9217.653	222	41.521	
	<b>Total</b>	<b>31422.640</b>	<b>224</b>		
Agreeableness	Between Groups	21743.396	2	10871.698	109.552**
	Within Groups	22030.827	222	99.238	
	<b>Total</b>	<b>43774.222</b>	<b>224</b>		
Conscientiousness	Between Groups	10996.596	2	5498.298	79.167**
	Within Groups	15418.293	222	69.452	
	<b>Total</b>	<b>26414.889</b>	<b>224</b>		
Neuroticism	Between Groups	15161.627	2	7580.813	314.321**
	Within Groups	5354.213	222	24.118	
	<b>Total</b>	<b>20515.840</b>	<b>224</b>		
Openness	Between Groups	4942.160	2	2471.080	45.968**
	Within Groups	11934.000	222	53.757	
	<b>Total</b>	<b>16876.160</b>	<b>224</b>		

**Note:** \*\* The F ratio is statistically significant at 0.01 level

The F ratios indicated that there were significant differences in the personality factors of extraversion, agreeableness, conscientiousness, neuroticism and openness among cvd patients, cancer patients and normals. Post hoc Duncan test was done to find out the significance of differences in the personality factors among the three groups. Duncan's Multiple Range test provides different critical difference values for particular comparisons of means depending on how adjacent the means are. The details are given in Table 2.

**Table 2: Significance of Differences among the Groups on Their Personality Factors as Revealed in the Duncan Test**

Variables	Sl. No	Group	Mean Score	1	2	3
Extraversion	1	Cvd	56.98	( )	*	*
	2	Cancer	34.60	..	( )	*
	3	Normals	37.53	..	..	( )
Agreeableness	1	Cvd	32.64	( )	*	*
	2	Cancer	56.13	..	( )	*
	3	Normals	48.96	..	..	( )
Conscientiousness	1	Cvd	34.33	( )	*	*
	2	Cancer	50.37	..	( )	*
	3	Normals	37.16	..	..	( )
Neuroticism	1	Cvd	25.09	( )	*	*
	2	Cancer	44.92	..	( )	*
	3	Normals	37.90	..	..	( )



**Table 2: Contd.,**

Openness	1	Cvd	41.89	()	*	*
	2	Cancer	36.13	..	()	*
	3	Normals	30.41	..	..	()

**Note:**\* Indicates significant difference between the groups compared

Table 2 reveals that the cvd patients, cancer patients and normals showed significant differences in the five factors of personality. Considering the personality pattern of the cvd patients, it was seen that they possess significantly more of the characteristics of extraversion and openness compared to cancer patients and normals. The cancer patients were seen to possess significantly more of the personality characteristics of agreeableness, conscientiousness and neuroticism compared to cvd patients and normals. The personality pattern of the cvd patients was found to be significantly different from that of the cancer patients. Both the patient groups differ significantly from the normal group with regard to the five personality factors.

The mean scores indicated that the female cvd patients in this study had significantly more of extraversion and openness hence was characterized by positive emotions, seeking out stimulation and the company of others. They tend to be enthusiastic, action-oriented individuals. In groups they like to talk, assert themselves, and draw attention to themselves. Hence the cvd patients in this study who had indicated more of openness and extraversion tend to show more outgoing nature than cancer patients and normals. They found more time for leisure time activities to maintain an outgoing nature. They were interested to engage in entertainment programs. They were seen to be more adventurous and to have risk taking behaviour than cancer patients or normals. Hence it can be assumed that the characteristics of extraversion and openness make individuals more prone to cardiovascular disorders.

Van Dijil (1979) found that male myocardial infarction patients are more “sociable” than “healthy” men. Women with high levels of Neuroticism, Extraversion, and Openness have been linked to less healthy habits (McCrae, and Costa, 2004). Those with low conscientiousness and either high extraversion (Impulsives, Hedonists) or high neuroticism (Insecures) were particularly inclined to engage in multiple, risky health behaviours.

Cancer patients in this study who were females had more conscientiousness, agreeableness and neuroticism than female cvd patients and normals. Conscientious people have a tendency to show self-discipline, act dutifully, and aim for achievement. They have high levels of thoughtfulness, good impulse control, goal-directed behaviours, organized and mindful of details. They seem to be extremely cautious in cleanliness and in keeping things neat and tidy. Any kind of irregularities, tension and stress can irritate them. They maintained rigid rules and regulations in their lives, it gradually lead to more tension and stress. Hence it can be assumed that these characteristics make one more prone to develop cancer. As women were more involved in cleaning and the organizing part of house hold duties, they were seen to have more of conscientiousness as a characteristic of their personality.

The female cancer patient groups were also seen as significantly high in agreeableness. Hence they tend to be compassionate and cooperative towards others. They were generally considerate, friendly, generous, helpful, and willing to compromise their interests for others. This personality dimension included attributes such as trust, altruism, kindness, affection, and other pro-social behaviours. Since the sample for the present study was women, they were the ones who take care of the responsibilities of each family member; they were more responsive to the sensitive issues and demands of other family members. These characteristics also tend to make people prone to cancer.

Research studies found that people high in agreeableness were more emotionally responsive in social situations. The effect was especially pronounced among women. People high in agreeableness were more likely to control negative emotions like anger in conflict situations. Those who were high in agreeableness were more likely to use constructive tactics when in conflict with others, whereas people low in agreeableness were more likely to use coercive tactics (Jensen-Campbell et al., 2001., Graziano et al 1996., Tobin et al., 2000).

Certain patterns of personality characteristics, like Type C, have a risk for cancer. Type C has been described as compliant, unassertive, submissive and avoiding the expression of negative emotions, especially of cancer (Temoshok, 1987). These findings also supported the present findings. Suppression of emotion was the most widely investigated of the Type C tendencies. Furthermore, the apparent non emotionality in cancer patients may be due to their intention to suppress emotions as part of their effort to appear others rather than to an authentic alexithymia (Servaes, Vingerhoets, Vergdenhil, Keuning and Broekhuijsen, 1999).

The female cancer patient group showed significantly higher score on the personality characteristic of neuroticism, which was the tendency to experience negative emotions, such as anger, anxiety, or depression. It is sometimes called emotional instability. Those who score high in neuroticism were emotionally reactive and vulnerable to stress. They were more likely to interpret ordinary situations as threatening, and minor frustrations as hopelessly difficult. Their negative emotional reactions tend to persist for unusually long periods of time, which means they were often in a bad mood. Individuals high in this trait tend to experience emotional instability, anxiety, moodiness, irritability, and sadness making them more prone to develop cancer.

It's hoped that the outcome of this study will lead to identify the personality factors prone to cvd and cancer. Effective distress management techniques can then be taken up to improve the well-being of those who suffering from these life style diseases.

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