

Comparing Personality Characters, Type C Personality and Coping Styles In People With Breast, Uterine Cervix, Lung and Prostate Cancer

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Abstract

Goal of this research is to compare personality characters, type C personality and coping styles in people with breast, uterine cervix, lung and prostate cancer. The statistical sample included 193 patients with cancer (93 women and 100 men) who were selected with convenience sampling. The participants filled the revised personality questionnaire (NEO– PI– R) and Eysenck Personality Questionnaire and coping inventory for stressful situations (CISS) of Andler & parker. The study method was of comparative causal type and to analyze the information, one-way MANOVA was used. The obtained findings showed that there was significant relationship between the people with breast, uterine cervix, lung and prostate cancers in neuroticism. No difference was found between the people with breast, uterine cervix, lung and prostate cancers in terms of type C. A significant difference was found between problem-focused coping strategy, emotional coping strategy and avoidance coping strategy in people with cancer.

Key words: type C personality, coping strategies, cancer, personality characters

Introduction

This thought that psychological –social factors are effective on some physical diseases has been recognized for long. Today, the states in which physical complaints are accompanied by tissue lesions and injuries but have psychological cause are called psychosomatic disorders. The ancient Greek people believed that physical health of people was affected by his mental health and cause of disease should be found in lifestyle of the people (Casper, 2012, translated by Montazeri). There is evidence about relationship between cancer and mental stress and the emotional factors which are integral part of the civilized societies. Different studies have shown that negative emotions and mental stressful events make the person

susceptible to cancer by weakening immunity system of the person. Immunity system of the body has interaction with another system of the body by protecting internal environment of body against attack of infectious organisms; therefore, dysfunction of other parts of the body disrupts the immunity system and may be effective on resistance of the body against infections. The factors which affect immunity system are stress and repeated experience of negative emotions (Beirami and Sogoli Tapeh, 2008). Different studies have shown that cancer has relationship with some personality characters and personality may be effective on formation of cancer (Dimatteo , translated by Kaviani et al., 2011).

Studies have shown that the cancerous patients have some characters such as denial and suppression of emotions particularly anger, non-submission, lack of assertiveness and being defensive (as the main characteristics of type c personality (Kermani et al., 2010). considering that stress has increased probability of affliction with viral infections and reduced immunity of the body and since immune system of the body plays important role in cancer, therefore, stress causes cancer in people. Studies have shown that the cancerous patients have some characteristics such as denial and suppression of emotions particularly anger, submission, lack of assertiveness and being defensive (Khanjani et al., 2012).

According to Iran cancer statistics, more than 51000 new cases of cancer are identified in the country and 35000 deaths occur due to cancer in the country (quoted from Hassani Khiaban et al., 2011). In our country, incidence and frequency of cancers follow a special pattern considering age pyramid. Although cancer in Iran has lower frequency than that in other countries, this trend will change due to change in age composition, population policies and family planning in the next decades. Since cancer is typically one of the diseases during middle age and old age, its frequency is increasing in the society which is going toward middle age and old age (Naseri Rad and Tavakol, 2011). Considering varied and sometimes contradictory findings about effect of psychological factors on affliction with cancer, the present research has been conducted to study personality character, type C personality and coping strategies in people with cancer. The research hypotheses were studied as follows: 1- there is difference between people with breast cancer, uterine cervix, lung and prostate cancers in terms of components of personality characters

(neuroticism, extroversion, agreeableness, openness to experience and conscientiousness). 2- There is difference between people with breast cancer, uterine cervix, lung and prostate cancers in terms of type c personality. 3- There is difference between people with breast cancer, uterine cervix, lung and prostate cancers in terms of coping strategies (emotional coping strategy, problem-focused coping strategy, and avoidance coping strategy).

Cancer is mainly a genetic disease. In most human cancers, in order for a normal cell to become a tumor cell, a string of different genetic mutations should occur complexly (Andreoli and Carpenter, 2010, Samedani Fard, translated by Arjmand and Saadat). Cancer can emerge in all parts of the body. This disease occurs in any age but mostly emerges in old ages (Osvadi, Kermani, Ashrafian, Zeinali, Imani, Shabanloei, 2010). The prevalent cancers include breast cancer, cancer of uterine cervix, lung and prostate cancers.

Breast is regarded as a gland in body. This disease is the most prevalent cancer and the main cause of mortality resulting from cancer among the women in the world. Breast cancer has included 23% (1.383.500 cases) of all new cases of cancer and 14 % (458.400 cases) of all mortality cases resulting from cancer in 2008 (Ghaisvand, 2012).

Uterine cervix is an organ in which fetus is kept in female body. Uterine cervix is located in surrounding of pelvis as an inverse pear and in the middle line between vesica and rectum. Uterine cervix carcinoma has the second place after breast cancer as morality factor resulting from cancer in the world. In America, its incidence has been reduced considerably in the past decades. This reduction is greatly dependent on effective screenings and treatment of primary damages. Among the women who don't have suitable access to health care particularly in

developing countries, cancer of uterine cervix is prevalent yet (Bunz, 2010, translated by Nahaghi Sistani et al.).

Lung is a conical organ with sponge tissue which is located in chest as a pair. The right lung comprises of 3 pieces and left lung comprises of 2 pieces. Lung cancer is a type of disease in which malignant tissue grows in one or both lungs. The main cause of lung cancer is smoking (Pasha Akbar Zadeh, 2010).

Prostate cancer is the most prevalent cancer in men and the second cause of death resulting from cancer after lung cancer. Prevalence of prostate cancer increases in old age (Anderoli and Carpenter, 2010, translated by Samedani Fard et al.).

Personality characters are regarded as an organized and single set of relatively stable character in people which distinguishes between one person and another person (Shamloo, 2011). Big fire theory was presented by two psychologists residing in USA states, Paul Costa and Robert McCrae in later 80s and reevaluated in early 90s. Basis of this theory was Eysenck works in the first instance (Hagh Shenasi, 2011). Robert McCrae (1949) performed extensive research plan which specified five main factors. These factors include neuroticism, extroversion, openness to experience, agreeableness and conscientiousness. These factors were confirmed through all evaluation techniques such as self-ratings, objective tests and observers' reports (Shultz and Shultz, 2013, translated by Seyed Mohammadi).

Eysenck (1994) first introduced cancer prone type with a questionnaire called stress personality. He also believed that cancer prone people tended to cooperate, be calm and convinced. People with type c personality are future-oriented and consider all aspects before making decision. If these people get angry with something, they will

use silence method and tend to suppress their negative emotions (Sharma, 2007). Type c personality is a special type of personality which keeps calm apparently due to suppression of emotions but cannot dominate over nervous and mental problems and stresses. As a result, they will feel hopeless and become depressed (quoted from Davoodi, Safi Khani, Honarmand, 2009). Type c personality or anger in personality is regarded as a suppressive and on the alert personality pattern. Its most important characters include strong defensive mechanism which results in inability to express and identify special negative emotions of the person. Negative reactions include hopelessness and uselessness, lack of control in stressful situations, control of emotions and tendency to fulfill others even if the person doesn't fulfill all of his needs (Lala, Bobirnac & Tipe, 2010). It seems that this suppressive style is related to weak endocrine and immunity responses to chronic stress and leads to inability of person to resist against disease at the start and stage of attack of the disease (Zetu, Lacob and Dumitrescu, 2013). People behave in different ways to cope with stress and release from pressures resulting from it. This type of reactions is called coping. Effective coping allows people to balance mental stress and continue their life without physical and mental damages (Lazarus and Lazarus, translated by Najafi Zand, 2008). - Zeidner & Endler (1996, quoted from Kar, translated by Pasha Sharifi, 2008).

Coping inventory for stressful situations has been classified into three task-oriented strategy, emotion-oriented strategy and avoidance coping strategy.

ANOVA Results of the research on effect of difference in personality characters on affliction with disease by Mohammadi, Ahmad Zadeh and Ghasemi Nejad (2013)

showed that there was significant difference in neuroticism, extroversion, openness in health, cardiac and cancerous groups ($P < 0.05$). Results of this research show that personality styles are of the important factors in affliction with physical diseases. Therefore, change of such strategies by the prone people plays considerable role in prevention of cancer and cardiac diseases. Khanjani, Bashirpoor and Khosroshahi (2012) in a research entitled comparing personality characters with stress rate in people with cancer and normal people found that patients with cancer were exposed to severe stress compared with the healthy people. These people obtained lower scores in factor of extroversion and obtained higher score in factor of neuroticism and in type C compared with the healthy people. On the other hand, depression rate in patients with cancer was higher than that in patients with cancer. Hamzeh, Birami and Nosrat Abadi (2011) in a research entitled comparison of personality traits, experience of negative emotions and coping strategies in healthy and cancerous women concluded that women with cancer obtained lower score in extroversion and experience more negative emotions (anger, anxiety and stress) than the healthy people in life and use emotional coping strategies more and problem-focused coping strategies less. In a research which was conducted to compare stress and depression coping strategies in three groups of patients with cancer by Ahadi, Mehryar, Nafisi, Nikoofar and Jahanian (2011), 88 patients with stomach and intestine cancers ($n=26$), breast cancer ($n=33$) and head and neck cancers ($n=30$). Results showed that approximately 60% of the studied people suffered from mild to severe depression and depression rate in emotional cancerous patient was higher than that in problem-focused coping strategy. Comparison of stress coping strategies in three cancerous patient groups indicates that

the patients with breast cancer use emotional coping strategies more than patients with stomach cancer and intestine cancer and head and neck cancer use emotional coping strategies ($P < 0.05$). Jafari, Sohrabi, Jamhari and Najafi (2009) in a research entitled relationship between type C personality, control source and hardiness in patients with cancer and normal people concluded that type C personality and control sources were high in women and men with cancer and hardiness in these people was low. Kermani, Ashrafian, Zeinali, Imani Far and Shabanlooei (2009) conducted a research entitled study of personality profile of patients with cancer and its comparison with normal people with 195-member sample (100 cancerous patients and 95 healthy persons). Findings showed that neuroticism in cancerous patients is higher than that in normal people ($P < 0.01$). Openness to experience in normal people is higher than that in cancerous patients and this difference is significant ($P < 0.01$). Extroversion rate in normal people is higher than that in cancerous patients ($P < 0.05$) but there is no significant difference between cancerous patients and normal people in agreeableness and conscientiousness. A research was conducted to compare dimensions of personality, type C and coping strategies in people with cancer and normal people by Beirami and Nemati Sogoli (2008). Results of the findings show that scores of the patients group in dimension of neuroticism, extraversion ($P < 0.01$), psychosis, type C ($P < 0.05$) and emotional coping strategies ($P < 0.01$) are higher than those of the healthy group. Based on the obtained results, there was no significant difference between two groups in problem-focused coping strategy. Hayati and Mahmoudi (2008) in a research entitled stress coping strategies in women with breast cancer referring to hospitals affiliated to Tehran universities of medical

sciences with a sample containing 175 persons among the women with breast cancer concluded that 57.1% of the samples (medium), 41.7% (good) and 1.1%(weak) used problem-focused coping strategies . In emotional coping strategies, 89.7% of the samples (medium), 6.9% (good) and 3.4 %(weak) used emotional coping strategies . During a study which was conducted by Lemogne et al. (2013), 139 patients with cancer were followed for 15 years. In this longitudinal study, there was relationship between 4 criteria of type 1 personality ((suppression of emotional expression) and type 5(logical /anti-emotional), hostility and type A and incidence of cancer. Type A personality was accompanied by reduction of affliction with breast cancer. Type 5 personality didn't show significant relationship with reduction of affliction with prostate, breast and large intestine cancer and the cancers which are related to smoking but had relationship with other cancers. Hostility was accompanied by increased risk of affliction with cancers related to smoking which had been explained with smoking habits and type A didn't show significantly relationship with each of the end points of cancer. A research was conducted in Turkey as studying personality characters in patients with cancer (Serdar Turhag , Demirhan , Satici , Cinar & Kinar, 2013). This study had been planned to study personality characters of patients with cancer with different treatments adjustments and relationship between population and personality characters in different sections. Results showed that there was significant difference among the patients referring to clinic of Marmara University in terms of reconcilability, extraversion and responsibility ($P < 0.05$). Description of the patient mentioned by the patient or his/her relatives showed significant difference in openness ($P < 0.05$). Parameters such as

education, family record, age and marital status didn't show relationship with their personality. Results showed that patients with cancer are usually more reconcilable, responsible, relatively stable and extravert. Nakaya et al. (2011) conducted a research entitled studying cancer prone personality character in healthy people and patients with breast cancer. The researcher followed 2733 cases of people with cancer for 29 years to analyze relationship between extraversion personality traits and neuroticism and risk of affliction with cancer. During this term, 1548 mortalities resulting from cancer occurred. Personality scales were studied as continuous variable. Results didn't show any significant difference between these traits and mortality risk after cancer. Results don't support this hypothesis that extraversion and neuroticism are the risk factors which have direct effect on cancer or survival after cancer. Vespa , Jacobsen , Spazzafumo & Balducci (2011) studied mental factors and coping strategies and spirituality in patients with tumor . Results showed that patients with cancer who had spirituality score were more prone to increase their abilities and capacities. They have more efficient coping strategies for coping with stressful situations. People with cancer who had low spirituality score had inefficient coping strategies, depression, inattention to self in physical and spiritual dimensions and self criticism. A research entitled in Healthy Study Subjects and in Patients with Breast Disease and Breast Cancer Using the Commitment Questionnaire was conducted in Finland by Eskelinen & Ollonen(2011). Results showed that patients with breast cancer (biopsy) obtained higher score than the patients with benign cancer diseases and healthy people in scale of commitment to children, work and spouse. In summary, patients with breast cancer (biopsy) have tendency to characters of increased risk for tolerating high

commitment and this pattern can contribute to risk of affliction with cancer through immunity system of the body and hormone routes.

Oniszczenko & Laskowska(2011) studied reactivity , coping style and cancer trauma symptoms. Results showed that individual coping styles are the most determining for intensity of cancer symptoms. Destructive coping style (the most important determining factor of cancer symptoms) and high reactivity are regarded as one of the mood traits which intensify reactivity, coping style and cancer trauma symptoms in adults. Findings show that cancerous patients have emotional coping style. As a result, constructive coping style and low reactivity may act as a special protector against cancer trauma symptoms in adults. Leandro & Castillo (2010) in a research found that neuroticism had positive correlation with emotional and avoidance coping styles.-Lee-Baggley & Preece(2005) found that the use of emotional strategies was accompanied by less mental health and more negative consequences. Costa and MaCrae(1990) also believe that this type of stress coping has relationship with some personality traits particularly high neuroticism and optimism , internal control source , self-esteem and low resistance. Matsushita , Matsushima & Maruyama(2005) conducted a study t o investigate relationship between psychological state , quality of life , and coping style in patients with digestive cancer. The results showed that patients with digestive cancer under surgery have emotional coping style and have tendency to anxiety and depression dependent on emotional role and function and emotional and cognitive function.

Research method, statistical population of the statistical sample and sampling method

The present research is ex- post facto. The statistical population includes all female

patients with breast and uterine cervix cancer and male patients with lung and prostate cancer hospitalized in Golestan Hospital and Shafa Shahr Hospital of Ahwaz.

Sample of this research includes 193 persons from the said population which includes 93 women (48 women with breast cancer, 45 women with uterine cervix cancer) and 100 men (58 men with lung cancer and 42 men with prostate cancer). Convenience sampling method was used to select them among all patients hospitalized in Golestan Hospital and Shafa Shahr Hospital of Ahwaz.

Research instruments

In this research, NEO- Five Factor Inventory, Type C evaluation test and Coping inventory for stressful situations have been used. Considering complexity and longevity of NEO- PI- R. the presence of detailed and various dimensions relating to each one of the traits relating to five big factors of personality and necessity of fast syringe at necessary times and more importantly, unwillingness of the subjects to long instruments in clinical and research situations, a short version of NEO- PI- R as NEO- FFI was used (Hagh Shenas, 2011). This scale has 60 questions. In each question, the subject obtains scores 0 to 4. Each of the questions indicates one of the five big personality factors of Costa and MaCrae , neuroticism (N), extraversion (E), openness to experience (O), agreeableness (A) and conscientiousness(C), respectively. Each of the factors covers 12 questions. In general, the subject obtains a score from 0 to 48 in each scale (Hagh Shenas, 2011). For reliability, Cronbach's Alpha test has been used and it was obtained as 83% that is it has high reliability. Type C assessment test: an inventory called personality –stress inventory was prepared by Eysenck et al. based on personality characters and stress. This inventory differentiates 60 groups based on personality characters: 1- cancer type, 2-

coronary heart disease prone type, 3- type with psychotic behavior which is unlikely to die due to cancer or cardiac diseases, 4- healthy people who are characterized by obedience and independence (autonomous behaviors), 5- type with logical and non-emotional tendencies which is prone to depression and Rheumatoid arthritis, 6- type with offensive and antisocial behavior which is prone to addiction (Khanjani, 2012). This inventory includes 182 questions to which the subjects give yes or no answers. In this research, personality –stress inventory, cancer prone type section has been used. This test includes 35 questions. In addition, if a person gives positive answer to 2-3 questions among 35 questions, his score will be 2 and if a person gives positive answer to 18 questions or more among 35 questions, his score will be 10. After scoring, two cancer prone and non-prone groups are separated. This inventory has been normalized by Khanjani (Khanjani, 2012). Reliability coefficient (Cronbach's alpha) calculated in this research in type C inventory has been 0.72.

Coping inventory for stressful situations: coping inventory for stressful situations of Andler & parker is a pencil and paper test instrument which has been prepared by this scientist in 1990. This test was first translated and normalized in Iran by Akbar Zadeh and applied to study mental stress coping styles in Tehran in 1984-1992. Andler & parker divide people into three classes in coping with crisis and stresses including: problem-focused people who focus on problem, emotional people and avoidance personalities who use escape mechanisms (Imani Fard, 2010). This test includes 60 categories (terms) and responses of each category are specified with Likert scale from never (1) to very much (5). Coping inventory for stressful situations (CISS) includes three main contexts of coping behaviors including:

problem-focused coping strategy, emotional coping strategy and avoidance coping strategy. The desired inventory has two adult and teenager forms. In this research, adult form has been used. By studying results of the conducted researches in Iran such as researches by Akbar Zadeh in 1982-1992, Ghoreishi 1997, Bahrami 1997, Tabatabaei 1998, Ghareh 2000 and Fotovat Ahadi 2001, it is shown that internal correlation of the subject and correlation of that relation with different variables are relatively high and this quality indicates validity of test. In research by Ghoreishi, correlation coefficients of the factors of coping inventory for stressful situations were calculated as 0.58 among the retest responses in level of 0.99 and degree of freedom of 3, 0.55 in emotional coping style and 0.82 in avoidance coping strategy. These results led the researcher to use this instrument as a valid instrument in the research through review of the theorists and experts (Imani Fard, 2010). Reliability coefficient (Cronbach's alpha) calculated in this research in CISS has been 0.79.

To analyze data in this research, statistical methods such as MANOVA, ANOVA, LSD post hoc test were used and to analyze the research data, SPSS computer software, 18th version has been used.

Findings

In this research, 58 persons suffer from lung cancer and 42 persons suffer from prostate cancer. Among 93 female cases, 48 persons suffer from breast cancer and 45 persons suffer from uterine cervix cancer. Among 4.1% of the single people, 6 persons suffer from breast cancer, 1 person suffers from lung cancer and 1 person suffers from prostate cancer. Among 95.9% of the married people, 42 persons suffer from breast cancer, 45 persons suffer from uterine cervix cancer, 58 persons suffer from lung cancer and 41 persons suffer from prostate cancer. 33.7% of the persons are employed and 66.3% are

unemployed/housewives. Among 33.7 employed persons, 5 persons suffer from breast cancer, 35 persons suffer from lung cancer and 25 persons suffer from prostate cancer. Among 66.3 unemployed persons /housewives, 43 persons suffer from breast cancer, 45 persons suffer from uterine cervix cancer, 23 persons suffer from lung cancer and 17 persons suffer from prostate cancer. 74.1% of people hold high school degree below, 17.6% hold high school degrees, 4.1% hold associate's degree and 4.1% hold bachelor's degree. Among 74.1% of people with high school degree below, 33 persons suffer from breast cancer, 31 persons suffer from uterine cervix cancer, 44 persons suffer from lung cancer and 35 persons suffer from prostate cancer. 76.7% of the people don't have any record of cancer in family and 23.3% have record of cancer in family.

Among 76.75 of the people without record of cancer, 33 persons suffer from breast cancer, 32 persons suffer from uterine cervix cancer, 47 persons suffer from lung cancer and 36 persons suffer from prostate cancer. Among 23.3% with record of disease, 15 persons suffer from breast cancer, 13 persons suffer from uterine cervix cancer, 11 persons suffer from lung cancer and 6 persons suffer from prostate cancer. For normality of the data distribution, kolmogorov- smirnov test has been used. In two-way K-S test which was conducted on mean of the data obtained from the inventory on the research factors, hypothesis of the mean distribution normality of factors (as null hypothesis) was confirmed against mismatch of mean distribution with normal distribution (as the alternative hypothesis).

Table 1- mean and standard deviation of the scores of personality characters, type C personality and coping styles of patients with all types of cancer (breast, uterine cervix, lung and prostate)

Number	Standard deviation	Mean	Statistical index	Variable
			← group	
48	5/36	22/64	Patients with breast cancer	Personality character of neuroticism
45	5/22	25/62	Patients with uterine cervix cancer	
58	6/22	25/68	Patients with lung cancer	
42	6/85	21/71	Patients with prostate cancer	
193	6/15	24/05	Total	
48	4/71	30/37	Patients with breast cancer	Personality character of extraversion
45	6/06	28/08	Patients with uterine cervix cancer	
58	5/21	29/43	Patients with lung cancer	
42	4/05	29/64	Patients with prostate cancer	
193	5/10	29/39	Total	
48	3/35	28/12	Patients with breast cancer	Personality

45	4/67	26/82	Patients with uterine cervix cancer	character of openness to experience
58	5/12	29/89	Patients with lung cancer	
42	7/01	31/00	Patients with prostate cancer	
193	5/33	28/97	Total	
48	4/19	24/66	Patients with breast cancer	Personality character of agreeableness
45	6/25	26/15	Patients with uterine cervix cancer	
58	5/84	29/17	Patients with lung cancer	
42	5/21	28/76	Patients with prostate cancer	
193	5/72	27/25	Total	Personality character of conscientiousness
48	3/34	29/33	Patients with breast cancer	
45	4/67	29/53	Patients with uterine cervix cancer	
58	4/66	32/36	Patients with lung cancer	
42	5/01	29/80	Patients with prostate cancer	Type C personality
193	4/61	30/39	Total	
48	4/61	24/77	Patients with breast cancer	
45	4/56	26/31	Patients with uterine cervix cancer	
58	4/15	25/15	Patients with lung cancer	Problem-focused coping strategy
42	3/13	26/78	Patients with prostate cancer	
193	4/22	25/68	Total	
48	6/62	47/47	Patients with breast cancer	
45	5/82	45/06	Patients with uterine cervix cancer	Emotional coping strategy
58	6/46	49/79	Patients with lung cancer	
42	6/27	47/07	Patients with prostate cancer	
193	6/50	47/52	Total	
48	8/49	51/45	Patients with breast cancer	Avoidance coping strategy
45	7/46	49/06	Patients with uterine cervix cancer	
58	6/88	54/62	Patients with lung cancer	
42	6/87	54/04	Patients with prostate cancer	
193	7/71	52/41	Total	Avoidance coping strategy
48	7/84	54/52	Patients with breast cancer	
45	5/92	49/80	Patients with uterine cervix cancer	
58	5/70	53/55	Patients with lung cancer	
42	5/90	53/85	Patients with prostate cancer	Avoidance coping strategy
193	6/59	52/98	Total	

To study hypotheses 1,2,3 of the research, , MANOVA method has been used. Before MANOVA, match of the variables was studied and for this purpose, Wilks's lambda test was used and results are given in Table 2.

Table 2- Results of one-way MANOVA on the scores of personality characters, type C personality and coping styles of patients with all types of cancer (breast, uterine cervix, lung and prostate)

Significance level (P)	F	DF Error	DF Hypothesis	Value	Test name
0/0001	4/03	549	27	0/497	Pillai's Trace
0/0001	4/01	529	27	0/580	Wilks's lambda trace
0/0001	3/98	539	27	0/599	Hotelling's Trace
0/0001	5/07	183	9	0/249	Roy's Largest Root

As shown in Table 2, significance levels of all tests indicates that there is significant difference between patients with cancers (breast, uterine cervix, lung and prostate) at least in terms of one of the dependent variables (personality characters, type C personality and coping styles)($p=0.0001$ and $F=4.01$). To find the difference, results obtained from MANOVA are shown in Table 3.

Table 3- Results of MANOVA on the scores of personality characters, type C personality and coping styles of patients with all types of cancer (breast, uterine cervix, lung and prostate)

Significance level	F	Mean squares	Degree of freedom	Sum of square	Variables
0/001	5/56	196/98	3	590/94	Neuroticism
0/187	1/61	41/83	3	125/51	Extraversion
0/001	5/84	154/90	3	464/71	Openness to experience
0/0001	7/68	228/19	3	684/57	Agreeableness
0/001	5/46	108/77	3	326/33	Conscientiousness
0/071	2/38	41/64	3	124/92	Type C personality
0/003	4/83	193/02	3	579/06	Problem-focused coping strategy
0/001	5/16	314/18	3	942/56	Emotional coping strategy
0/002	5/05	206/16	3	620/28	Avoidance coping strategy

As shown in Table 3, there is significant difference between patients with cancers (breast, uterine cervix, lung and prostate) in terms of Neuroticism ($p=0.001$ and $F=5.56$). There is no

significant difference in terms of extraversion personality character ($p=0.187$ and $F=1.61$). There is significant difference in terms of openness to experience personality character ($p=0.001$ and $F=5.84$). There is significant difference in terms of Agreeableness personality character ($p=0.0001$ and $F=7.68$). There is significant difference in terms of conscientiousness personality character ($p=0.001$ and $F=5.46$). There is no significant difference in terms of Type C personality character ($p=0.071$ and $F=2.38$). There is significant difference in terms of Problem-focused coping strategy ($p=0.003$ and $F=4.83$). There is significant difference in terms of emotional coping strategy ($p=0.001$ and $F=5.16$). There is significant difference in terms of avoidance coping strategy ($p=0.002$ and $F=5.05$). Significance of ANOVA doesn't specify between what groups there is difference, therefore, Scheffé's post-hoc analysis was done following these analyses and its results are shown in Tables 4 to 10.

Table 4- Results of Scheffé's post-hoc analysis for comparing the scores of personality characters, type C personality and coping styles of patients with all types of cancer (breast, uterine cervix, lung and prostate)

4	3	2	1	Mean	Groups	
—	—	—		22/64	Breast cancer	1
* ($p=0/027$)				25/62	uterine cervix cancer	2
* ($p=0/014$)				25/68	Lung cancer	3
				21/71	Prostate cancer	4

As shown in Table 4, patients with prostate cancer have lower personality character of extraversion than the patients with uterine cervix cancer and lung cancer. There is no significant difference between other cases.

Table 5- Results of Scheffé's post-hoc analysis for comparing the scores of Openness to experience of patients with breast, uterine cervix, lung and prostate cancers

4	3	2	1	Mean	Groups	
—	—	—		28/12	Breast cancer	1
* ($p=0/003$)	* ($p=0/031$)			26/82	uterine cervix cancer	2
—				29/89	Lung cancer	3
				31	Prostate cancer	4

As shown in Table 5, patients with uterine cervix cancer have lower personality character of openness to experience than the patients with lung cancer and prostate cancer. There is no significant difference between other cases.

Table 6- Results of Scheffé's post-hoc analysis for comparing the mean scores of agreeableness of patients with breast, uterine cervix, lung and prostate cancers

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4	3	2	1	Mean	Groups	
*	*	—		24/66	Breast cancer	1
(p=0/007)	(p=0/001)				uterine cervix cancer	2
—	*			26/15	Lung cancer	3
—	(p=0/050)			29/17	Prostate cancer	4
				28/76		

As shown in Table 6, patients with breast cancer have lower personality character of Agreeableness than the patients with lung cancer and prostate cancer. In other words, the number of patients with lung and prostate cancer is higher than that of patients with breast and uterine cervix cancer.

Table 7- Results of Scheffé's post-hoc analysis for comparing the mean scores of conscientiousness of patients with breast, uterine cervix, lung and prostate cancers

4	3	2	1	Mean	Groups	
—	*	—		29/33	Breast cancer	1
—	(p=0/008)				uterine cervix cancer	2
*	*			29/53	Lung cancer	3
(p=0/050)	(p=0/019)			32/36	Prostate cancer	4
				29/80		

As shown in Table 7 and considering means, patients with lung cancer have higher personality character of conscientiousness than the patients with breast cancer, uterine cervix cancer and prostate cancer. There is no significant difference between other cases.

Table 8- Results of Scheffé's post-hoc analysis for comparing the mean scores of problem-focused coping strategy of patients with breast, uterine cervix, lung and prostate cancers

4	3	2	1	Mean	Groups	
—	—	—		47/47	Breast cancer	1
—	*			45/06	uterine cervix cancer	2
—	(p=0/003)			49/79	Lung cancer	3
				47/07	Prostate cancer	4

As shown in Table 8 and considering means, patients with uterine cervix cancer have lower personality character of problem-focused coping strategy than the patients with lung cancer. There is no significant difference between other cases.

Table 9- Results of Scheffé's post-hoc analysis for comparing the mean scores of emotional coping strategy of patients with breast, uterine cervix, lung and prostate cancers

4	3	2	1	Mean	Groups	
_____	_____	_____		51/45	Breast cancer	1
* (p=0/023)	* (p=0/003)			49/06	uterine cervix cancer	2
_____				54/62	Lung cancer	3
				54/04	Prostate cancer	4

As shown in Table 9 and considering means, patients with uterine cervix cancer have lower personality character of emotional coping strategy than the patients with lung and prostate cancer. There is no significant difference between other cases.

Table 10- Results of Scheffé's post-hoc analysis for comparing the mean scores of avoidance coping strategy of patients with breast, uterine cervix, lung and prostate cancers

4	3	2	1	Mean	Groups	
_____	_____	* (p=0/006)		54/52	Breast cancer	1
* (p=0/036)	* (p=0/036)			49/80	uterine cervix cancer	2
_____				53/55	Lung cancer	3
				53/85	Prostate cancer	4

As shown in Table 10 and considering means, patients with uterine cervix cancer have lower personality character of avoidance coping strategy than the patients with breast, lung and prostate cancer. There is no significant difference between other cases.

Discussion and conclusion:

Considering the above results, the first research hypothesis is confirmed. Neuroticism in patients with uterine cervix cancer and lung cancer is higher than that in patients with breast and prostate cancer. This finding is in line with findings of Mohammadi et al. (2013), Khanjani et al. (2012), Hamzeh et al. (2011), Kermani et al. (2009), Beirami and Sogoli (2008), Serdar

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Turhan (2013) , Lando and Castillo (2010). The people who have high neuroticism have negative emotions such as fear, grief, arousal, anger, guilt feeling, shyness, hostility, depression, vulnerability , permanent and overall distress . Since destructive emotion is effective on adjustment of person and environment, the woman and man who have higher score in this index, it is more possible that they have irrational beliefs , have lower control power in control of impulses , and have weaker degrees of adjustment to others and stressful situations. These features and situations cause the person to have lower wellbeing. The people who obtain high score in scale of openness to experience (lung and prostate cancers) are the ones who are

curious in productivity of internal experiences and the surrounding world and have life full of experience. These people seek to enjoy new theories and unconventional values and have abundant positive and negative feelings compared with the closed people. These people are usually creative people and have divergent thinking but the closed people are courteous and considerate and their emotional responses are relatively slow and hidden. Costa and McCrae describe openness to experience as: the people with openness to experience are interested in experience due to the experience itself and are enthusiastic of variety, tolerate ambiguity and have richer, more complex and unconventional life. On the contrary, the closed people have weak imagination, are not sensitive to art and beauty, are limited in emotions, are inflexible and ideologically prejudiced. The variable of agreeableness in which the average number of patients with lung and prostate cancer is higher than that of patients with cervix cancer and breast cancer emphasizes on interpersonal communication tendencies. The agreeable person is philanthropic and sympathizes with others, tends to help them and believes that others communicate with him. In comparison, the non-agreeable person is egocentric and is suspicious of others' intention and is more competitive than cooperative. The agreeable people are more popular than the non-agreeable people. The highest mean of the conscientiousness was found among the patients with lung cancer. Two major features of ability to control impulses and tendencies and apply plan in behavior are included in this index to reach the studied

goals. The person with high score in this index has strong and predetermined goals and demands. These people are careful, trustable and punctual. The people with low score have not enough carefulness for performing affairs and are not insistent on reaching goals. Need for enjoyment and interest in sexual affairs are higher in the people with low score than the people with high score. Considering results, the second research hypothesis was not confirmed. This finding is in line with findings of Khanjani et al.(2012), Jafari et al. (2009), Beirami and Sogoli (2008), Lemogne et al. (2013), Eskelinen and Ollonen (2012). To explain this finding, it can be said that there is close relationship between personality of person and psychosomatic diseases. The cancer prone people with characteristics such as perspicacity and sensitivity, use of denial defense mechanism, emotional inactivity, and excessive attention to needs of others become hopeless and helpless gradually and are directed to type C personality. The people with type C personality are more prone to cancer than other people and have the worst precaution about affliction with cancer. To explain probability of confirming relationship between type C personality and affliction with cancer, increase in adrenocortical hormone which is induced by prevention of expressing emotion. The people who suppress their emotions instead of expressing them are more prone to high adrenocortical level i.e. stress hormones and in fact, such hormones have prohibiting effect on body immunization defenses. Therefore, lowness of these defenses may accelerate affliction with different diseases

such as cancer. Therefore, type C personality is a factor affecting affliction with cancer. The people who have high type C personality are inactive and quiet and don't express their emotions. These people are very patient, synoptic, quiet, timid and kind. They have defensive behaviors, they are not able to tolerate inter personal stresses and feel helpless, hopeless and depressed when coping with problems. Considering results, third research hypothesis was confirmed. This finding is in line with findings of Hamzeh, Beirami, Nosrat Abadi (2011) , Ahadi et al. (2011), Beirami and Sogoli Tapeh(2008), Hayati and Mahmoudi(2008), Vespa , Jacobsen , Spazzafumo , and Balducci (2011), Oniszczenko and Laskowska (2011),) , Lando and Castillo (2010), Matsushita , Matsushita and Maruyama (2005).

Generally, the statistical findings show that the highest coping style in four cancers (breast, uterine cervix, lung and prostate) belongs to emotional and voidance coping style and the lowest mean relates to problem-focused coping style. Considering the means, patients with uterine cervix have lower problem-focused style than the patients with lung cancer. Considering the means, mean of emotional coping style in patients with lung and prostate cancers is higher than that in patients with breast and uterine cervix cancers. Mean of avoidance coping style in patients with breast cancer is higher than that in other cancers.

Highness of emotional coping style indicates that patients with cancer seek to harness consequences of negative emotions of stress factor instead of focusing on the problem and

solving it. These people affected by this strategy neglect the problem instead of coping and less intend to receive social supports, less define the problem and are less able to find flexible solutions. As quoted from Lazarus et al. (1984), they seldom evaluate profit and loss of the existing solutions and seldom intend to acquire information and receive emotional support of others. Highness of avoidance coping style in the present research shows that these people cope with the problem through cognitive avoidance and behavioral avoidance and by preventing to express emotions and feelings or neglect it. Such coping patterns reduce stressful factor negative emotions and are effective on reduction of stress in short term but they create secondary problems in long term (such as cardiac diseases, cancer etc.). These problems are the long-term effects of inefficient coping strategies. Unfortunately, results of the present research showed that emotional and avoidance coping styles (inefficient styles) have the highest mean in four prevalent cancers. Considering that coping styles are the mediator between stress and psychosomatic disorders. Most researches have introduced emotional coping as the most effective mediator between stress and disease. Incidence of stress-oriented diseases and aggravation of disease and endangering public health are found in the people who use emotional coping. Emotional coping strategies not only didn't play role in change of situation but also may lead to elongation of it which increases continuity of disease symptoms. To confirm this research finding, Ghazanfari and Ghadam Poor (2008) showed that increase in use of emotional

coping strategy is related to increase of anxiety, physical damage and depression and reduction of using emotional strategy is related to increase in social dysfunction. In this regard, emotional coping strategy is more effective on physical and mood symptoms while problem-focused coping strategy is more effective on individual interactions and social performance of the person. Therefore, emotional coping strategy prevents patients with cancer prevent them from direct and effective coping with problem and reduce their ability to solve problems in long term. This situation causes disorder in metal solidarity and mental and emotional distress. Mental and emotional distress reduces ability to recognize stress source correctly and negatively affects physical and mental health. Therefore, considering results of the present research and the conducted psychological researches on patients with cancer, it seems that psychological factors are effective on affliction, incidence, coping and improvement trend of cancer. Considering relationship between psychosocial factors and cancer, awareness with these factors (psychosocial) such as personality which is combination of actions, thoughts, emotions, type c and coping styles will help predict disease. By recognizing psychological factors affecting cancer, not only one can prevent incidence of new cases but also one can help improve quality of life of the patients besides medical treatments and increase survivability in patients with cancer.

Finding of the present research and other findings relating to personality style of the people with cancer shows that these people

with characteristics such as suppression of emotions, inability to express or fulfill personal needs, pathological worry about him/her and relatives, excessive logicity and anti-emotionality and other related characteristics are directed to type c. People with this personality type are easily afflicted with cancer and are more susceptible to cancer than other personalities. People with this personality type will experience premature death due to stresses and disease compared with normal people. Dimension of neuroticism plays major role in susceptibility of people to cancer.

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