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**EARLY MALADAPTIVE SCHEMAS AND COGNITIVE DISTORTIONS AMONG  
CANCER PATIENTS AND NORMAL PEOPLE**

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**ABSTRACT**

The aim of the present study was to compare and explain early maladaptive schemas and cognitive distortions among cancer patients and normal people in 2013. To this end, a group of 60 cancer patients from female patients referring to state hospitals in Shiraz and a group of 60 normal people as the treatment and control groups were selected through availability sampling as the participants in the study. The participants were asked to respond to items in Young Maladaptive Schema Questionnaire (YMSQ) and Cognitive Distortion Questionnaire. The collected data were analyzed through MANOVA and independent samples t-test. The results indicated that there were significant differences between the control group and the cancer group in terms of emotional deprivation, abandonment, deficit, shame, failure, dependence, inadequacy, involvement, altruism, obedience, stringent standards, inhibition, and self-discipline. It was also found that there were significant differences between normal and cancer female participants regarding perfectionism, vulnerability, affection, and appeasing. However, there was no significant difference between both groups in terms of affection.

**Keywords: maladaptive schemas, cognitive distortions, cancer patients, normal people**

## INTRODUCTION

Knowledge and will are two endowments of God given to human beings. Obviously, in order to use these endowments, formulate problems, and make conclusions in the world of creation; human beings need suggestions to extend their knowledge and will beyond their capacity and to dominate problems and go beyond knowledge boundaries so that they become worthwhile of serving as God's successors. Problems including diseases emerge upon humans' will so that they can assay their knowledge and will through encountering such problems.

Cancer is the second most common cause of death after cardiovascular diseases in Iran. According to the 2005 World Health Organization Report, 4700 persons have died in Iran because of cancer; of whom 2700 were less than 70 years old. Principally, it is believed that although the treatment of cancer is a challenging task, its prevention is relatively easy. Several studies have demonstrated that providing mental support to patients especially those suffering from cancer can affect their treatment process and the quality of their life. We have often heard many stories of patients who were affected by incurable diseases but they have managed to challenge diseases and successfully overcome

them. One of the factors that affect a patient's adjustment to life and his/her disease is his/her personality and beliefs. Doctors believe that patients with positive attitudes who are provided with family and social support are able to overcome the disease more successfully and lead a good life than those who lack such attitudes and support. Cancer is a chronic disease which atrophies the patient's physical ability, reduces his/her daily activities, and creates some sexual problems. Besides, a person affected by cancer may develop mood disorders such as depression as a result of the disease (Ahadi and Kheirjou, 2008).

Cancer as a traumatic event may cause post-traumatic stress. According to Dalglishin (1999), trauma victims frequently process information inconsistent with pre-existing schemas so that they could integrate it into previous schemas. However, processing such information as a threatening act incongruent to previous schemas creates an imminent threat. It is assumed that chronic activity of emotions from fears forms the cognitive system in a way that trauma related clues are processed selectively so that it reinforces a feeling of ongoing threat. It is not surprising that research shows a significant relationship

between changes in personal attitudes of the world and psychological problems (Torner, 2006).

Since maladaptive schemas vary in terms of types of trauma, psychological bases affecting the quality of life and the treatment process among cancer patients need to be investigated. In addition, demographic characteristics, cognitive errors, and early maladaptive schemas among cancer patients must be taken into account and compared with normal people. Based on what was mentioned, the present study is going to explain early maladaptive schemas and cognitive distortions among cancer patients. It is also going to find out if there is any significant difference in early maladaptive schemas and cognitive distortions between cancer patients and normal people or not.

### LITERATURE REVIEW

Since the present study addresses early maladaptive schemas and cognitive distortions among patients suffering from cancer, previous literature is presented based on the following classification:

Early maladaptive schemas and physical and psychosomatic disorders:

Kohan and Koten (2006) conducted a study on relatives of cancer patients in Israel and found that cognitive interventions can

improve relatives' adjustment to the disease significantly.

Grassi et al., (2004) showed that of 277 cancer patients under study, 34% scored high on hospital anxiety and depression scale. They also found a significant correlation between the scores on this scale and cancer worry inventory and cancer adjustment scale. Ways to cope with cancer were fatalism, avoidance, and desperate withdrawal.

### Early maladaptive schemas and psychological disorders:

Pinto-Gouveria et al., (2006) studied early maladaptive schemas in social phobia. The participants were 62 social phobia patients, 41 patients suffering from other anxiety-related disorders, and 55 normal persons. The researchers concluded that early maladaptive schemas in social phobia are significantly higher among patients than the participants in the control group.

Muris (2006), in a study on non-clinical adolescents, found that maladaptive schemas were associated with a number of psychological symptoms including anxiety disorders, depressions, destructive behaviors, eating problems, and drug abuse. The most frequently found schemas among non-clinical adolescents were altruism, stringent standards, and insufficient self-control and

self-regulation. These schemas were most common among non-clinical adults (Rijkeboer et al., 2005; Valer et al., 2001, cited in Muris, 2006).

### **Cognitive distortions and physical and psychosomatic disorders:**

Aktas and Ogce (2005) on a study on cancer patients concluded that nutrition therapy, herbal therapy, sport exercises, art therapy, music therapy, dance therapy, yoga, and acupuncture have a positive effect on cancer patients. Besides, a more exhaustive study of dance as a dimension of movement therapy showed that dancing can have good physical, emotional, and cognitive impacts on patients and improve their thought processes as a complementary medicine.

In a study of cancerous pains in family, Eccleston et al., (2002) concluded that white and black cognitive distortions, overgeneralizations, labeling, and exaggeration can be found among parents and adolescents in families with a cancer patient.

### **Cognitive distortions and psychological disorders:**

Brewin, Gregory, Lipton, and Burgess (2010) observed involuntary memories and visual images in a variety of illnesses such as post-traumatic stress, anxiety disorders, and depression. In addition, such disorders may

result in involuntary images, visual memories, and morbid thoughts among patients with special diseases.

Mobini et al., (2006) found that individuals with high impulsivity as the most common symptom in many specific diseases have significantly higher levels of dysfunctional cognitions and sensation seeking. The main finding of the study showed that individuals with high impulsivity show higher levels of negative cognitions. Consistent with this finding, the results of regression analysis showed that impulsivity factors are predictors of cognitive distortions. In addition, negative correlations of ego with impulsivity and cognitive distortions suggest that impulsivity and cognitive distortions are reduced by increasing ego. These findings show positive correlations between sensation seeking scale and impulsivity. However, no relationship was found between sensation seeking and cognitive distortion scores.

In general, a review of theories, perspectives, and findings of previous research suggest that cancer plays a significant role in psychological diseases especially mood and anxiety disorders. It also causes many problems in interpersonal relations. In addition, according to cognitive psychology, psychological disorders point to cognitive

distortions and early maladaptive schemas among cancer patients. Reviews also show there are few systematic studies in the area of psychology. Therefore, there is a serious need for more detailed studies to help psychotherapists in the treatment of cancer.

#### **Research hypotheses:**

H1: Components of early maladaptive schemas are significantly different between cancer patients and normal people.

H2: Components of cognitive distortions are significantly different between cancer patients and normal people.

#### **MATERIALS AND METHODS**

The present study is an ex post facto comparison of psychological individualities (early maladaptive schemas and cognitive distortions) among cancer patients and normal persons. Since this study employed an ex post facto research design, it was not possible to modify the dependent variable. Therefore, to explore the role of cancer in early maladaptive schemas and cognitive distortions, cancer patients and normal people were compared. Besides, care was taken to control interfering variables in systematically controlled experimental conditions. The population under study included all patients diagnosed with a case of cancer who referred to hospitals and clinics supervised by Shiraz

University of Medical Sciences in 2012. A group of 60 female cancer patients referring to state hospitals in Shiraz and a group of 60 normal people as the control group were selected through availability sampling as the participants in the study. The instruments used in the study were as follows:

#### **Young Maladaptive Schema Questionnaire (YMSQ):**

YMSQ is a 75 item questionnaire which was developed to measure 15 early cognitive schemas including motional deprivation, abandonment, mistrust, maltreatment, social isolation, defectiveness, shame, inadequacy, vulnerability to undeveloped self-loss, obedience, altruism, emotional inhibition, stringent standards, entitlements or hauteur, insufficient self-control, and failure. The questionnaire was developed by Young and Brown (1994). YMSQ original form included 205 items. The short form of the questionnaire was developed in 1998. Welburn et al., (2002) stated that all 15 subscales in YMSQ short form have an acceptable internal consistency. Besides, Cronbach alpha values of all schemas were estimated in a range of 0.76 to 0.93. The reliability coefficient of YMSQ short form through test-retest method was 0.64 in this study.

Validity in Welburn et al.'s (2002) study strongly supported factorial results of YMSQ internal structure. In addition, an estimation of relationships between YMSQ subscales and anxiety, depression, and paranoia symptoms supported structural validity of the questionnaire and confirmed the associations between cognitive schemas and psychological symptoms.

#### **Cognitive Distortion Questionnaire:**

Cognitive Distortion Questionnaire (Wissmann & Beck, 1978) contains 40 items to measure attitudes and beliefs that make a person vulnerable to depression. The questionnaire is based on Beck's cognitive theory to measure depression levels with 5 subscales: vulnerability, need for confirmation, success, perfectionism, need to please others, and need to impress others. The internal reliability of the questionnaire was reported to be 0.9 and its reliability in a 6 week evaluation was equal to 0.73 (Mehrbar & Gharib, 1998 cited in Rezaei, 2003).

Bin Razi Namayeshi (2008) conducted a factorial analysis of the Persian form of the scale and extracted three factors of absolutism, social confirmation, and vulnerability from 30 items in the scale. The reliability of the whole items, the first factor (absolutism), the second factor (social

confirmation), and the third factor (vulnerability) were 0.87, 0.88, 0.81, and 0.52, respectively. The questionnaire in this study was scored based on Bin Razi's (2008) scoring.

The theoretical data were collected from university libraries. The practical data were collected from professionals and cancer patients by administering questionnaires. The collected data were analyzed using descriptive statistics such as mean and standard deviation and inferential statistics including MANOVA and independent samples t-test by SPSS18.

#### **RESULTS**

This section presents the results of testing hypotheses. To prevent the impact of age and gender as two interfering factors, the both treatment and control groups were matched. Then, components of maladaptive schemas were compared for the two groups of cancer patients and normal people. Table 1 shows the descriptive statistics for different components of maladaptive schemas in both groups:

Given the F-value from Pillay coefficient ( $F = 119.694$ ) and the significance level ( $P = 0.000$ ), it can be concluded that the data mean differences are highly significant. Therefore, the mean differences between the two groups are compared in terms of different

components of maladaptive schemas as shown in Table 2:

Given the F-value from Pillay index ( $F = 3.391$ ) and the significance level ( $P = 0.0007$ ), it can be suggested that the mean differences between the two groups are highly significant. Therefore, the mean differences are compared in terms of different components of maladaptive schemas as shown in Table 3:

As can be seen in the above table 4, F-value observed in Pillay index is not high. In other words, there is no significant difference in mean scores of different age groups ( $P = 0.8723$ ). As such, no significant difference is expected between different age groups concerning maladaptive schema components and thus there is no need to discuss these components in detail (See Table 6 for more detailed information).

As can be seen in the above **table 5**, F-value observed in Pillay index is not high. In other words, there is no significant difference in mean scores of different age groups ( $P = 0.225$ ). As such, no significant difference is expected between different age groups concerning cognitive distortion components and thus there is no need to discuss these components in detail (See Table 7 for more information).

As evident in the above table 6, there are significant differences between the mean scores of both groups on emotional deprivation (0.001), abandonment (0.001), defectiveness/shame (0.001), failure (0.002), dependence/incompetence (0.000), involvement (0.005), obedience (0.039), altruism (0.000), stringent standards (0.03), and inhibition/poor self-discipline (0.004). However, the differences between the two groups concerning other components are not significant. This shows differences in the attitudes of cancer patients and normal persons about maladaptive schemas.

As shown in the above table 7, there are significant differences between the mean scores of both groups on perfectionism (0.005), affection (0.003), and pleasing (0.004). However, the difference between the two groups concerning their impression is not significant. This shows differences in the attitudes of cancer patients and normal persons about cognitive distortions.

As can be seen, there is no significant difference between various age groups concerning 15 components of maladaptive schemas. In other words, age is not a contributing factor in forming one's attitudes about maladaptive schemas.

Table 1: Descriptive statistics for different components of maladaptive schemas in both groups

Components	Groups	Number	Mean score	Standard deviation
Emotional deprivation	Cancer	60	13.56	6
	Normal	60	10.05	5.35
	Total	120	11.80	5.93
Abandonment	Cancer	60	14.68	7.42
	Normal	60	10.23	5.11
	Total	120	12.45	6.72
Mistrust/mistreatment	Cancer	60	12	6.24
	Normal	60	10.30	5.12
	Total	120	11.15	5.75
Social isolation/alienation	Cancer	60	10.25	6.54
	Normal	60	8.63	5.03
	Total	120	9.44	5.87
Defectiveness/shame	Cancer	60	8.76	5.13
	Normal	60	6.11	3.16
	Total	120	7.44	4.45
Failure	Cancer	60	11.48	5.72
	Normal	60	8.43	4.61
	Total	120	9.95	5.40
Dependence/incompetence	Cancer	60	9.76	5
	Normal	60	6.71	3.43
	Total	120	8.24	4.54
Vulnerability to loss and disease	Cancer	60	10.66	5.65
	Normal	60	9.31	5.23
	Total	120	99.9	5.46
Involvement	Cancer	60	10.11	5.28
	Normal	60	8.28	4.31
	Total	120	9.20	4.88
Obedience	Cancer	60	19.93	6.25
	Normal	60	15.85	5.56
	Total	120	17.89	6.24
Altruism	Cancer	60	13.41	7.04
	Normal	60	12.76	6
	Total	120	9.13	6.52
Emotional inhibition	Cancer	60	18.83	5.89
	Normal	60	1.17	5.74
	Total	120	17.92	5.86
Stringent standards	Cancer	60	16.18	6.26
	Normal	60	14.85	5.27
	Total	120	15.51	5.80
Entitlement	Cancer	60	3.14	5.41
	Normal	60	11.25	4.83
	Total	120	12.64	5.29
Inhibition.poor self-discipline	Cancer	60	10.11	5.28
	Normal	60	8.28	4.31
	Total	120	9.20	4.88
Pillay index = 0.945		F = 119.694		Sig = 0.000

Table 2: Descriptive statistics for different components of cognitive distortions in both groups

Components	Groups	Number	Mean score	Standard deviation
Perfectionism	Cancer	60	30.91	8.383
	Normal	60	27.20	5.66
	Total	120	29.05	7.36
Vulnerability	Cancer	60	23.66	8.78
	Normal	60	20.76	6.95

	<b>Total</b>	120	22.21	8.02
<b>Affection</b>	<b>Cancer</b>	60	37.50	8.38
	<b>Normal</b>	60	33.05	7.53
	<b>Total</b>	120	35.27	8.24
<b>Impression</b>	<b>Cancer</b>	60	33.06	7.85
	<b>Normal</b>	60	31.21	6.54
	<b>Total</b>	120	32.14	7.25
<b>Pleasing</b>	<b>Cancer</b>	60	36.21	6.33
	<b>Normal</b>	60	32.66	6.98
	<b>Total</b>	120	34.44	6.87
<b>Pillay index = 129.0</b>			<b>F = 3.391</b>	<b>Sig = 0.007</b>

Table 3: Descriptive statistics for different age groups in terms of maladaptive schema components

Components	Age groups	Number	Mean score	Standard deviation
<b>Emotional deprivation</b>	<b>Under 37</b>	18	12.77	5.48
	<b>37 to 46</b>	22	13.18	6.56
	<b>47 and above</b>	20	14.70	5.94
	<b>Total</b>	60	13.56	6
<b>Atonement</b>	<b>Under 37</b>	18	16.00	7.82
	<b>37 to 46</b>	22	12.54	7.06
	<b>47 and above</b>	20	15.85	7.25
	<b>Total</b>	60	14.68	7.42
<b>Mistrust/mistreatment</b>	<b>Under 37</b>	18	12.61	6.56
	<b>37 to 46</b>	22	11.40	6.02
	<b>47 and above</b>	20	12.10	6.44
	<b>Total</b>	60	12	6.24
<b>Social isolation/alienation</b>	<b>Under 37</b>	18	10.72	6.98
	<b>37 to 46</b>	22	9.95	5.92
	<b>47 and above</b>	20	10-15	7.08
	<b>Total</b>	60	10.25	6.54
<b>Defectiveness/shame</b>	<b>Under 37</b>	18	8.83	4.51
	<b>37 to 46</b>	22	8.36	4.31
	<b>47 and above</b>	20	9.15	6.53
	<b>Total</b>	60	8.76	5.13
<b>Failure</b>	<b>Under 37</b>	18	11.55	5.72
	<b>37 to 46</b>	22	10.68	5.56
	<b>47 and above</b>	20	12.30	6.07
	<b>Total</b>	60	11.48	5.72
<b>Dependence/incompetence</b>	<b>Under 37</b>	18	10.22	4.72
	<b>37 to 46</b>	22	9.04	4.84
	<b>47 and above</b>	20	10-15	5.57
	<b>Total</b>	60	9.76	5.00
<b>Vulnerability to loss and disease.</b>	<b>Under 37</b>	18	11.88	6.60
	<b>37 to 46</b>	22	9.63	4.97
	<b>47 and above</b>	20	10.70	5.51
	<b>Total</b>	60	10.66	5.65
<b>Involvement</b>	<b>Under 37</b>	18	10.38	4.70
	<b>37 to 46</b>	22	12.54	6.82
	<b>47 and above</b>	20	11.90	5.74
	<b>Total</b>	60	11.68	5.86
<b>Obedience</b>	<b>Under 37</b>	18	9.38	3.75
	<b>37 to 46</b>	22	10	6.26
	<b>47 and above</b>	20	10.90	5.42
	<b>Total</b>	60	10.11	5.28
<b>Altruism</b>	<b>Under 37</b>	18	5.20	5.32
	<b>37 to 46</b>	22	9.19	6.71
	<b>47 and above</b>	20	20.75	6.67
	<b>Total</b>	60	19.93	6.25

<b>Emotional inhibition</b>	<b>Under 37</b>	18	13.33	5.97
	<b>37 to 46</b>	22	13.90	8.15
	<b>47 and above</b>	20	12.95	6.93
	<b>Total</b>	60	13.41	7.04

Table 4: Descriptive statistics for different age groups in terms of maladaptive schema components

Components	Age groups	Number	Mean score	Standard deviation
<b>Stringent standards</b>	<b>Under 37</b>	18	19.55	5.27
	<b>37 to 46</b>	22	17.86	6.72
	<b>47 and above</b>	20	19.25	5.59
	<b>Total</b>	60	18.83	5.89
<b>Entitlement</b>	<b>Under 37</b>	18	18.16	6.44
	<b>37 to 46</b>	22	15.40	6.55
	<b>47 and above</b>	20	15.25	5.64
	<b>Total</b>	60	16.18	6.26
<b>Inhibition/poorself-discipline</b>	<b>Under 37</b>	18	14.61	6.22
	<b>37 to 46</b>	22	13.95	5.67
	<b>47 and above</b>	20	13.60	4.48
	<b>Total</b>	60	3.14	5.41
<b>Pillay index = 0.382</b>		<b>F = 0.692</b>	<b>Sig = 0.873</b>	

Table 5: Descriptive statistics for different age groups in terms of cognitive distortion components

Components	Age groups	Number	Mean score	Standard deviation
<b>Perfectionism</b>	<b>Under 37</b>	18	28.33	9.09
	<b>37 to 46</b>	22	34.36	8.18
	<b>47 and above</b>	20	29.45	6.91
	<b>Total</b>	60	30.91	8.38
<b>Vulnerability</b>	<b>Under 37</b>	18	23.16	9.73
	<b>37 to 46</b>	22	24.90	8.85
	<b>47 and above</b>	20	22.75	8.08
	<b>Total</b>	60	23.66	8.78
<b>Affection</b>	<b>Under 37</b>	18	39.22	6.98
	<b>37 to 46</b>	22	38.09	8.53
	<b>47 and above</b>	20	35.30	9.27
	<b>Total</b>	60	37.50	8.38
<b>Impression</b>	<b>Under 37</b>	18	33.22	7.22
	<b>37 to 46</b>	22	32.50	9.34
	<b>47 and above</b>	20	33.55	6.90
	<b>Total</b>	60	33.06	7.85
<b>Pleasing</b>	<b>Under 37</b>	18	37.22	4.60889
	<b>37 to 46</b>	22	36.18	7.63848
	<b>47 and above</b>	20	35.35	6.25994
	<b>Total</b>	60	36.21	6.33016
<b>Pillay index= 0.204</b>		<b>F = 0.108</b>	<b>Sig = 0.225</b>	

Table 6: Results of MANOVA for maladaptive schema components in the two groups

Variables	Sample groups				
	The sum of squares	Degrees of freedom	Mean square	F	Sig
<b>Emotional deprivation</b>	<b>371</b>	<b>1</b>	<b>371</b>	<b>11.45</b>	<b>0.001</b>
<b>Abandonment</b>	<b>594.07</b>	<b>1</b>	<b>594.07</b>	<b>14.63</b>	<b>0.000</b>
<b>Mistrust/mistreatment</b>	<b>86.70</b>	<b>1</b>	<b>86.70</b>	<b>2.65</b>	<b>0.106</b>

Social isolation/alienation	78.40	1	78.40	2.300	0.132
Defectiveness/shame	210.67	1	210.67	11.56	0.001
Failure	279.07	1	279.07	10.30	0.002
Dependence/incompetence	279.07	1	279.07	15.14	0.000
Vulnerability to loss and illness	54.67	1	54.67	1.84	0.177
Involvement	238.00	1	238.00	8.28	0.005
Obedience	100.83	1	100.83	4.33	0.039
Altruism	500.20	1	500.20	14.27	0.000
Emotional inhibition	12.67	1	12.67	.29	0.588
Stringent standards	99.00	1	99.00	2.92	0.030
Entitlement	53.33	1	53.33	1.59	0.210
Inhibition/poor self-discipline	232.40	1	232.40	8.82	0.004

Table 7: Results of MANOVA for cognitive distortion components in different age groups

Components	Sample groups				
	The sum of squares	Degrees of freedom	Mean square	F	Sig
Perfectionism	414.408	1	414.40	8.09	0.005
Vulnerability	252.300	1	252.30	4.01	0.047
Affection	594.075	1	594.07	9.34	0.003
Impression	102.675	1	102.67	1.96	0.164
Pleasing	378.075	1	378.07	8.51	0.004

Table 8: Results of MANOVA for maladaptive schema components in different age groups

Variables	Age groups				
	The sum of squares	Degrees of freedom	Mean square	F	Sig
Emotional deprivation	40.14	2	20.07	0.54	0.581
Abandonment	158.97	2	79.48	1.46	0.239
Mistrust/mistreatment	14.60	2	7.30	0.18	0.834
Social isolation/alienation	6.13	2	3.06	0.06	0.933
Defectiveness. shame	6.59	2	3.29	0.12	0.886
Failure	27.56	2	13.78	0.41	0.665
Dependence/incompetence	18.11	2	9.05	0.35	0.704
Vulnerability to loss and illness	50.26	2	25.13	0.77	0.464
Involvement	47.45	2	23.72	0.68	0.510
Obedience	22.10	2	11.05	0.38	0.680
Altruism	29.22	2	14.61	0.366	0.695
Emotional inhibition	9.81	2	4.90	0.096	0.909
Stringent standards	33.548	2	16.77	0.475	0.625
Entitlement	101.415	2	50.70	1.306	0.279
Inhibition/poor self-discipline	9.901	2	4.95	0.164	0.849

## DISCUSSION AND CONCLUSION

The aim of the present study was to compare and explain early maladaptive schemas and cognitive distortions among cancer patients and normal people. To this end, a group of 60 cancer patients from female patients referring to state hospitals in Shiraz and a group of 60 normal people as the treatment and control groups were selected through availability sampling as the participants in the study. Young Maladaptive Schema Questionnaire (YMSQ) and Wissmann and Beck's Cognitive Distortion Questionnaire were administered to the participants in both groups. The collected data were analyzed through MANOVA. This section presents the results of the study and discusses them in the light of findings from previous research.

### Explaining results from research hypotheses:

H1: Components of early maladaptive schemas are significantly different between cancer patients and normal people.

To test the above hypothesis, the data were analyzed using MANOVA. The results as shown in Table 8 indicated that there are significant differences between the mean scores of the two control and treatment groups on emotional deprivation, abandonment, defectiveness/shame, failure,

dependence/incompetence, involvement, obedience, altruism, stringent standards, and inhibition/poor self-discipline. This suggests that there is a difference between the two groups concerning their opinions about the components of maladaptive schemas. Besides, since the cancer group scored higher on these components, it can be sad that they had higher levels of maladaptive attitudes than the normal group. This may put cancer patients in a dysfunctional mental cycle, aggravate their illness, and hinder the treatment process (Baqbanian, 2012). However, there was no significant difference between the two groups in terms of social isolation/alienation, vulnerability to loss and illnesses, emotional inhibition, entitlement, and mistrust/mistreatment.

### General results for maladaptive schemas components:

Generally speaking, the development of a refractory disease such as cancer disrupts intentionally or unintentionally the main psychological structures and mentally adjusted plans in patients. The development of beliefs such as emotional deprivation, feelings of atonement, defectiveness/shame, failure, dependence/incompetence, involvement, obedience, altruism, stringent standards, and inhibition, poor self-discipline

is in most cases unavoidable. It seems that as fundamental beliefs (early maladaptive schemas) form over time due to different incidents, it is natural to expect that one's schemas are formed in line with his/her life events. The development of cancer is one of the major negative events in an individual's life which may result in chronic stress (Baqbanian, 2012). Through intervention, it is possible to disrupt this dysfunctional cycle and contribute to the effectiveness of the treatment. Such patients, after being diagnosed with cancer, had better to undergo training program by therapists so that they be able to control themselves against early maladaptive schemas and enjoy more positive and effective outcomes. As can be seen in Table 6, there were significant differences in 10 components of maladaptive schemas between the participants while the differences observed in the remaining 5 schematic components were not significant. As such, it can be said that the first 10 schemas which addressed the patients' beliefs about themselves were affected more commonly than the other 5 components by the disease and thus they were more maladaptive among the cancer patients in this study. Basically, fundamental beliefs can create different responses in different situations. Sometimes

responses are direct and extreme and sometimes indirect and extreme. Therefore, even in cases where maladaptive schemas exist among patients; socially developed schemas may also cause indirect responses. A possible explanation for why there was no significant difference between the cancer patients and the normal people regarding some schemas is that the mean scores of normal people in the society are high on a given schema. Other reasons such as cultural differences, education level, social class, economic position, and other factors must be taken into account in future research. Accordingly, by holding training, sport, and recreational classes and using other techniques which may improve individual attitudes, it is possible to reconstruct maladaptive schemas hold by cancer patients and expect for improved treatment outcomes among such patients as suggested by Aktas and Ogce (2005). The results of this study concerning maladaptive schemas among cancer patients are consistent with the findings from previous research (Price, 2007; Pinto-Gouveria et al., 2007).

**H2:** Components of cognitive distortions are significantly different between cancer patients and normal people.

The results of data analysis through MANOVA indicated that there is a significant difference between cancer patients and normal people in terms of different components of cognitive distortions except for impression. This is in line with the results found by other researchers (e.g. Aktas & Ogce, 2005; Saniah & Zainal, 2010; Eccleston et al., 2002; Lipon, 2001) who stated that psychosomatic diseases and cancer can cause numerous cognitive distortions.

#### **General results for cognitive distortion components:**

The results of the study shown in Table 7 indicated that impression as one of the components of cognitive distortions was not significantly different between the two treatment and control groups. However, there were significant differences between the two groups in terms of other components. In other words, there were significant differences between the two groups concerning perfectionism, vulnerability, affection, and pleasing as components of cognitive distortions. This implies that the addition of a problem (cancer) to other daily problems experienced by people may result in individuals' psychological disruption and thus the loss of their self-belief in estimating their capabilities. Again social treatment

techniques can assist individuals, families, and the society to overcome such problems and produce satisfactory outcomes. In addition, given that our society is, according to some doctors, is facing a cancer tsunami, such investigations can lead to a more comprehensive knowledge about cancer and the use of effective psychological interventions to eliminate mental problems associated with the disease. To this end, the present study attempted to identify common destructive beliefs at two levels of cancer patients and spontaneous thoughts to assist therapists in using psychological techniques and treatment schemas when helping their patients. Insufficiency of research on variables manipulated in this study and cultural, social, and emotional differences between various countries show the significance of this study.

#### **SUGGESTIONS**

- It is suggested that the present study be replicated with larger populations and samples.
- Early maladaptive schemas and cognitive distortions can be examined using other variables such as mental health and psychological disorders.
- Similar studies can be conducted on both male and female populations.

• Further studies can be conducted on early maladaptive schemas and cognitive distortions and their results can be compared with the findings of the present study.

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