

**Research Article**

## **DO INCURABLE CANCER PATIENTS HAVE MORE DETERMINISTIC THINKING?**

**\*Seyyed Jalal Younesi<sup>1</sup>, Hosseinpour Amirhossein<sup>2</sup>, Kazemi Javad<sup>2</sup>, Zarei Farshad<sup>2</sup> and Rakhsha Afshin<sup>3</sup>**

<sup>1</sup>*Department of Rehabilitation Counseling, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran*

<sup>2</sup>*University of Social Welfare and Rehabilitation Sciences, Tehran, Iran*

<sup>3</sup>*Medical Faculty of Shahid beheshti University*

*\*Author for Correspondence*

### **ABSTRACT**

One of major cognitive distortions is deterministic thinking. This type of thinking ignores any possibility or probability in conclusion about the events. Equality is a dominant factor among all conclusions of this kind of distortion. The distortion comes out cognitive rigidity in the mind which may be mother of all distortions. Cognitive rigidity is a main reason for depression and other psychosocial maladjustment. 100 cancer patients (male) participated in this study to answer deterministic thinking (DTQ). The subjects emerged in two groups of curable and incurable ones. The results indicated that the significant differences to exist between two groups in subscales of DTQ ( $P \leq 0/05$ ) so incurable cancer patients have more DT than curable ones. The study possess the harmony with other researches which to appear significant correlation between depression, marital satisfaction, communicational skills and DTQ. The findings were discussed through the role of cognitive distortions in anxiety and depression as a destructive factor for sabotaging balance of fear and hope. Due to eminent role of DT in psychological life of cancer patients, using the methods of challenging the DT is essential in psychotherapy of these patients.

**Keywords:** *Cancer, Deterministic Thinking, Cognitive Distortion, Hope, Culture*

### **INTRODUCTION**

Cancer patients suffer many psychological disorders beside their physical problems. They experience particularly depression and anxiety which to create many psychological maladjustments. Nearly 16-25% of newly diagnosed cancer patients endure depression or a maladjustment with depressed mood (Sellick and Crooks, 1999; Robyn *et al.*, 2006). Depression has also been associated with functional limitations in cancer survivors (Wang *et al.*, 2002). Both anxiety and depression can independently play a role to functional and overall health (Dausch *et al.*, 2004; Simmonds, 2002). In the view point of psychopathology, it seems the way people think about them self or the world around them make a major difference in their level of vulnerability to stress, anxiety and depression. It is not a matter of being optimistic or pessimistic – people may cope better than others by some certain thinking styles (Warner, 2000). Cognitive therapy may attempt to get the patient to unlock himself from improper *cognitions* and to set eyes on the reality as it is (Beck, 2008; Beck *et al.*, 1979; Leahy, 1996). These wrong cognitions are named cognitive distortions, that is, wrong thoughts or ideas that make negative thinking and negative emotions persist. Depression and anxiety can be treated by removing these distortions and negative thoughts (Beck *et al.*, 1983). There are many cognitive distortions which have major role in forming depression and anxiety (Beck *et al.*, 1979; Beck *et al.*, 1983; Burns, 1989; Teasdale, 1993; Teasdale and Bernard, 1993; Clark and Fairburn, 1997; Younesi and Booger, 2008).

These distortions include (Sommers and Summers, 2004; Younesi, 2004): Arbitrary Inference, Selective Abstraction, Personalization, Dichotomous Thinking, Labeling and mislabeling, Magnification and minimization, overgeneralization,...etc.

## Research Article

One of major cognitive distortions is deterministic thinking. This type of thinking ignore any *possibility* or *probability* in conclusion about the events and it is able to create many cognitive distortions. Because any distortion leads to conclusion; and *distortion of deterministic thinking* to rule out any probability or possibility in concluding (Younesi, 2008), the distortion emerges in cognitive rigidity in the mind and may be mother of all distortions (Younesi, 2004). Cognitive rigidity is a main reason for depression and other psychosocial maladjustment (Weissar and Beck, 1992).

Equality is a dominant factor among all conclusions of this kind of distortion ie: divorcing from wife=misery; to get a cancer = death or revealing my cancer = misery (Younesi and Mirafzal, 2007).

In religious perspective which is sometimes essential to be considered in cognitive therapy for some people (Sommers and Summers, 2004), this distortion is seen as destructive factor for ruining *balance of fear and hope* (Younesi, 2005; Al tamimi Al madi, 1979) because any exception for consequences of bad or good events to be ruled out by deterministic thinking.

There is an strong comments from most important religious leaders of Islam for keeping the balance of fear and hope as sign of faith and mental health ( for example: Imam Ali (S), ground sons of great prophet Mohammad <s> (Al tamimi Al madi, 1979; Islam, 1973; Islam, 1980). In prediction of consequences of favourite or undesirable events, any deterministic thinking about the events has been rejected in Holy Quran: "sometimes undesirable event may bring you a luck and sometimes desired one to bring you un luck" (Anonymous 1978). So being too disappointed or too hopeful in relation with the events, either positive or negative is not accepted in this perspective. Since prediction of any event is not certainly possible in this view (Weissar and Beck, 1992; Younesi, 2011; Younesi et al., 2008).

Similarly in scientific approach, accepting or rejecting hypothesis by P value of zero is avoided in spite of possessing firm experimental reasons. The main reason for the approach is that some scientists believe in no absolute reality which can be imperfect because our perception of events and realities to be not from beginning or final state.

Prediction of negative events and its effects on psychological disorders and adjustments have recently received increased research attention from the scientific community (Kelly, 2002; Society for Research in Child Development (2007); Bentz et al., 1999). The prediction of negative events can be merged in fear networks which serves to activate fear (Lang, 1984). This is achieved through cognitive information encoded into memory in the form of fear networks and the development, maintenance, and activation of these fear networks is attained through biased attention, encoding, and retrieval of threat-related information. Support for this hypothesis has been reported in studies of attention bias (Mathews and MacLeod, 1986; MacLeod et al., 1986; McNally et al., 1991) and recall bias associated with anxiety (Cloitre and Liebowitz, 1991; Zeitlin and McNally, 1991). Other cognitive etiological models (Bower, 1981; Izard, 1993; McNally, 1990) have suggested that biased processing of information leads to the development and maintenance of psychological disorders.

Bentz and Williamson (1998) found the level of anxiety was associated with pessimistic predictions of threat-related events (Bentz and Williamson, 1998). This study also found an interaction between anxiety and gender upon threat probability ratings. Highly anxious female participants reported higher probability ratings of future threat in comparison to male participants and females with lower levels of anxiety. Somehow the finding is consistent with the study of Kelly (2002) who investigated the relationship between anxiety and predicting task duration. Younesi and Bahrami (2009) found a significant correlation between depression and deterministic thinking (DT) among Iranian couples ( $P \leq 0/05$ ). The more deterministic in thinking, the more depressed they were. The clinical observations show that DT to have major role in creating depression (Younesi, 2007). In accordance pathological role of DT, the authors found a negative correlation between marital satisfaction and DT among the participants showing the eminent role of DT in psychosocial maladjustment either in personal or family aspects (Honarian et al., 2010; Younesi, 2008; Maghsoudzade, 2010; Borooghani, 2010; Rahanjam, 2010). In a study, Younesi et al., (2012) found that reducing DT among cancer patients through cognitive therapy may improve anxiety

## **Research Article**

and depression these patients. So far cognitive therapists have neither paid attention (DT) nor to challenge it based on cultural beliefs of patients. Recently Younesi, *et al.*, (2012) noticed eminent role of DT in psychosocial life of cancer Patients (Younesi *et al.*, 2012).

The aim of this study was to study rate of (DT) among incurable cancer patients in comparison with curable ones.

## **MATERIALS AND METHODS**

Present study is causal-comparative in type. The statistical population of the study was the whole male cancer patients of Tehran Shodadaye Tajrish hospital. 100 patients were selected by accessible sampling who 50 of them had curable cancer and rest had incurable cancer. Cancer patients who respond to various kinds of treatment well and to be improved to be named curable cancer patients. The all curable or incurable cancer patients were on metastases stage. 50 ones with incurable cancer had undergone chemotherapy and drug therapy and also 34 patients had undergone radiotherapy and 16 patients had surgery. 50 patients include 21 one had blood cancer, 19 patients had bone marrow cancer and the rest had Bladder and Prostate Cancer. All the patients had been suffered from cancer in different periods of time: 10 patients 6-8 months, 33 ones more than one year and 7 more than two years.

The age range of patients with incurable cancers was from 34 years old to 65. All these patients were literate who 25 of them were graduated and post graduated, 20 cases with diploma and associate degree and 5 cases were under Diploma.

The patients with curable cancer had undergone chemotherapy and drug therapy and also 22 ones had undergone radiotherapy and 28 cases had surgery. The patients with curable cancer include: 21 patients with Prostate Cancer, 15 ones with Bladder cancer and the rest of them with lung and intestine cancer.

They had been suffered from cancer in different periods of time: 21 patients for more than one year, 29 ones for 5-8 months and the rest for more than two years. The age range of patients with curable cancers was from 34 years old to 65. All these patients were literate who 27 of them were graduated and post graduated, 17 cases with diploma and associate degree and 6 cases were under Diploma.

Deterministic thinking questionnaire (Younesi and Mirafzal, 2007) is developed to measure deterministic thinking based on cognitive theories and cultural viewpoint (Younesi, 2004) and clinical experiences (Younesi and Bahrami, 2009). This scale has 36 questions which are graded with Likert's 4-pointed method. For appointing the validity of the questionnaire in two introductory and conclusive stages of main project, the exploratory, confirmative and convergent factorial analysis have used. The results of analyzing the main constituents show that the questionnaire is constituted of factors which explain 38 percent of variance on the whole. Those are 1. General determinism 2. Determinism in interaction to others 3. Philosophical absolutism 4. Determinism in future anticipation 5. Determinism in tragic events. The results of the confirmative factorial analysis approve the correctness of the collected data. The validity convergence of the deterministic thinking questionnaire is detected on the basis of its correlation coefficient with the grade of Beck's depression questionnaire. This amount which is obtained from the research sample by the calculation of Pearsonian correlation coefficient in a group of 100 people is equal with  $r = 0.33$  and statistically is meaningful at the level lower than 0/01. The validity of the whole scale is equal with (0/821) by the way of internal consistency coefficient and equal to 0/78 by retesting (for a week) (Younesi and Bahrami, 2009).

After collecting data, descriptive statistics (Mean and Standard deviation) and Inferential statistics (Independent t-tests) in spss19 software was used to analyze data.

## **RESULTS**

There are descriptive statistics indicators for five scales of deterministic thinking in two groups of patients with curable and incurable cancer in the following table.

## Research Article

**Table 1: The results of five scales of deterministic thinking in two groups of patients with curable and incurable cancer**

Variable	Groups	Number	Mean	Standard Deviation
General determinism	Curable	50	24.28	6.36
	Incurable	50	27.48	3.80
Philosophical absolutism	Curable	50	17.76	4.14
	Incurable	50	20.50	4.31
Determinism in future anticipation	Curable	50	14.84	4.07
	Incurable	50	17.00	3.47
Determinism in interaction to others	Curable	50	21.56	3.53
	Incurable	50	23.44	2.44
Determinism in tragic events	Curable	50	18.92	2.70
	Incurable	50	18.60	3.72

As it's shown in the table the mean of scores in the first three subscales in patients with curable cancer is less than incurable ones, but in the subscale of determinism in tragic events this deference is less and in curable group the mean of scores is more than the other group.

Independent t-test was used to investigate the significance of means of group's scores in each subscale.

**Table 2: The results of Independent t-test in two groups**

Variables	t	Degrees of freedom	Significance Level
General determinism	-3/05	98	0/003
Philosophical absolutism	-3/24	98	0/002
Determinism in future anticipation	-2/85	98	0/005
Determinism in interaction to others	-3/09	98	0/003
Determinism in tragic events	0/49	98	0/62

Results showed significant difference ( $p < 0.01$ ) of means in the subscales, general determinism ( $t = -3/05$ ,  $p = 0/003$ ), Philosophical absolutism ( $t = 3/24$ ,  $p = 0/002$ ), Determinism in interaction to others ( $t = -3/09$ ,  $p = 0/003$ ), Determinism in future anticipation ( $t = -2/85$ ,  $p = 0/005$ ), but in Determinism in tragic events the means of groups wasn't significantly meaningful ( $p > 0/05$ ).

## DISCUSSION

The results indicate that incurable cancer patients possess more deterministic thinking than curable ones. The findings should be considered from several angles: incurable cancer patients have more psychopathological signs due to disappointment from the treatment so they to show more DT. The outcomes of this study are consistent with views of who emphasize on psychological maladjustment of cancer patients (Sellick and Crooks, 1999; Robyn et al., 2006; Wang et al., 2002). The results have harmony with findings of Younesi and Bahrami (2009) who find significant positive correlation between Beck depression inventory and DT. Considering the DT as a cognitive distortion, the results of the study are consistent with previous research findings of the researchers who insist on the role cognitive distortions to play in creating anxiety and depression (Beck, 2008; Beck et al., 1979; Beck et al., 1983; Burns, 1989; Teasdale, 1993; Teasdale and Bernard, 1993; Clark and Fairburn, 1997; Leahy, 1996). Realizing DT as a method predicting events without any probability, the findings of this study are compatible with researches which emphasize the role that negative prediction of events plays roles in producing anxiety or psychological disorders (Kelly, 2002; Society for Research in Child Development (2007); Bentz et al., 1999; 40). Challenging the deterministic thinking (DT) can lead to the hope and reducing anxious of cancer patients Younesi et al., (2012). The research shows that there is negative correlation between hope in the life and deterministic thinking. The more deterministic in the thought, the more hopeless (Rahanjam, 2010; Younesi and Rahanjam, 2011). In a study Younesi et al., (2011) found positive correlation between anxiety and deterministic thinking. It means more determinism in thought,

## Research Article

the more anxiety in life. In another study, communicational skills were predicted by the rate of DT among the couples. The more the rate of DT, the less the communicational skills (Maghsoudzade, 2010). It was found a negative correlation between DTQ and forgiveness scale, so the more the determinism in thinking, the less the forgiveness in relationship with others (Borooghani, 2010). People who tend to see things and events in certain conditions without any degree of probability, to experience always more anxious because they to sabotage the balance between hope and fear.

In Islamic literature, the balance between hope and fear is a sign of faith (Younesi, 2004; Younesi, 2005; Al tamimi Al madi, 1979; Younesi, 2011; Islam, 1973; Islam, 1980). So being too disappointed or too hopeful in relation with the events, either positive or negative is not accepted in the perspective of Quran. Since prediction of any event is not certainly possible in this view.

Did incurable cancer patients have more deterministic thinking than curable one before engaging in treatment program? Is it possible to assume that possessing more deterministic thinking among incurable cancer patients lead to reduce their chances for successful treatment? To answer these questions there is a need for further research especially in longitudinal study: to divide cancer patient in two groups of high and moderate DT before engaging into the treatment program to see how much DT can affect the treatment of the patients. It is suggested to have such longitudinal study with various type of cancer. The nurses who attend in cancer hospitals should be trained about DT and its effects on psychosocial life of cancer patients and to change their communicational skills with these patients based on challenging DT.

The results of this study insist on reducing DT in cognitive therapy with cancer patients based on some techniques which were developed by Younesi *et al.*, (2012). Knowledge of cognitive therapists and the nurses about cultural background of DT can help him to challenge DT easily among cancer patients who have religious views toward themselves and world.

## ACKNOWLEDGEMENT

The Authors would like to appreciate staff and management of Tehran Shohadaye Tajrish hospital who to cooperate in this research.

## REFERENCES

- Al tamimi Al madi A (1979).** *Ghorar Al hekam and dorar Al kalam*, **1** (Institute of Al ailami Press, Beirut).
- Anonymous (1978).** *Quran Al Karim* (Islamieh Press, Tehran).
- Beck AT (1975).** *Cognitive Therapy and the Emotional Disorders* (International Universities Press Inc.).
- Beck AT (2008).** The evolution of the cognitive model of depression and its neurobiological correlates. *American Journal of Psychiatry* **165**(8) 969-77
- Beck AT, Epstein N and Harrison R (1983).** Cognition attitudes and personality dimensions in depression. *British Journal of Cognitive Psychotherapy* **1** 1-16.
- Beck AT, Rush AJ, Show BF and Emery G (1979).** *Cognitive therapy of depression* (New York: Guilford Press).
- Bentz BG and Williamson DA (1998).** Worry and the prediction of threatening events: Association with gender and trait anxiety. *Journal of Gender, Culture and Health* **3** 41-50.
- Bentz BG, Williamson DA and Cheryl FS (1999).** The Prediction of Negative Events Associated with Anxiety and Dietary Restraint: A Test of the Content Specificity Hypothesis. *Journal of Psychopathology and Behavioral Assessment* **21**(2) 23-31
- Borooghani M (2010).** *Prediction of forgiveness by deterministic thinking among couples who are volunteers for divorce*. Unpublished M.Sc. Thesis. University of social welfare and rehabilitation sciences. Tehran, Iran
- Bower GH (1981).** Mood and memory. *American Psychologist* **36** 129-148.
- Burns DD (1989).** *The Feeling Good Handbook* (New York: William Morrow and Co).
- Clarck D and Fairburn M (1997).** *Practice of Cognitive Behavior Therapy* (London, Oxford Press).
- Cloitre M and Liebowitz MR (1991).** Memory bias in panic disorder: An investigation of the cognitive avoidance hypothesis. *Cognitive Therapy and Research* **15** 371-386.



## Research Article

- Dausch BM, Compas BE, Beckjord E Luecken L, Anderson-Hanley C, Sherman M and Grossman C (2004).** Rates and correlates of DSM-IV diagnoses in women newly diagnosed with breast cancer. *Journal of Clinical Psychological Medical Settings* **11**(3) 159-169.
- Faizol Al Islam A (1973).** *Translation and Explanation of Nahjo Al Balagheh* (Islamieh Press, Tehran).
- Honarian M, Younesi J, Shafiiabadi A and Nafisi G (2010).** The impact of couple therapy based on attachment in deterministic thinking and marital satisfaction among couples. *International Journal of Psychology and Counseling* **2**(6) 91-99. (Indexing in PubMed).
- Izard CE (1993).** Four systems for emotion activation: Cognitive and noncognitive processes. *Psychological Review* **100** 68-90.
- Kelly WE (2002).** Anxiety and the Prediction of Task Duration: A Preliminary Analysis. *The Journal of Psychology: Interdisciplinary and Applied* **136**(1) 53 – 58.
- Koleini, Seghet al., Islam, (1980).** *Osool Al Kaffi* **1** (Mostafavi Press, Tehran.)
- Lang PJ (1984).** Cognition in emotion: Concept and action. In: *Emotions, Cognition and Behavior* edited by Izard CE, Kagan J and Zajonc RB (Cambridge: Cambridge University Press) 192-226.
- Leahy RL (1996).** *Cognitive Therapy: Basic Principles and Applications* (Northvale: New Jersey).
- MacLeod C, Mathews A and Tata P (1986).** Attentional bias in emotional disorders. *Journal of Abnormal Psychology* **95** 15-20.
- Maghsoudzade M (2010).** *Prediction of marital satisfaction of shahed sons and spouses by Rate of deterministic thinking and communication skills*. Unpublished M.Sc. Thesis. University of social welfare and rehabilitation sciences, Tehran, Iran.
- Mathews A and MacLeod C (1986).** Discrimination of threat cues without awareness in anxiety states. *Journal of Abnormal Psychology* **95** 131-138.
- McNally RJ (1990).** Psychological approaches to panic disorder: A review. *Psychological Bulletin* **108** 403-419.
- McNally RJ, Kaspi SP, Rienmann BC and Zeitlin SB (1991).** Selective processing Prediction of Negative Events of threat cues in post-traumatic stress disorder. *Journal of Abnormal Psychology* **99** 398-402.
- Rah Anjam S (2010).** *Prediction of hope rate by deterministic thinking among students of Azad Universities of Tehran*. Unpublished M.Sc. Thesis. University of Azad (Central branches). Tehran, IRAN.
- Robyn L, Osborn MS and Demoncada MS (2006).** Psychosocial Interventions for Depression, Anxiety and Quality of life in cancer Survivors: Meta Analysis. *International Journal of Psychiatry in Medicine* **36**(1) 13-34.
- Sellick S and Crooks D (1999).** Depression and cancer: An appraisal of the literature for prevalence, detection, and practice guideline development for psychological interventions. *Psycho-Oncology* **8** 315-33
- Simmonds MJ (2002).** Physical function in patients with cancer: Psychometric characteristics and clinical usefulness of physical performance test battery. *Journal of Pain Symptom Management* **24**(4) 404-414.
- Society for Research in Child Development (2007).** Female Anxiety: Females More Likely To Believe Negative Past Events Predict Future. *Science Daily* [Online]. Available: <http://www.sciencedaily.com/releases/2007/09/070928092126.htm> [Accessed 26 June 2007]
- Sommers- Flanagan J and Summers- Flanagan R (2004).** Counseling and psychotherapy. *Theories in Context and Practice* (John Willy, New Jersey).
- Teasdale JD and Bernard PJ (1993).** *Affect, Cognition and Change* (Remodeling Depressive Thought. Hillsdale, NJ: Erlbaum).
- Teasdale JD (1993).** Emotion and two kinds of thinking: Cognitive Therapy and applied Cognitive Sciences. *Behavioral Research and Therapy* **31** 339- 354.
- Wang L, van Belle GJ, Kukull WB and Larson EB (2002).** Predictors of functional change: A longitudinal study of non demented people aged 65 and older. *Journal of the American Geriatric Society* **50**(9) 1525-1534.
- Warner R (2000).** *The Environment of Schizophrenia* (Brunner-Rutledge, London and Philadelphia).
- Weissar ME and Beck AT (1992).** Hopelessness and Suicide. *International Review of Psychiatry* **4** 177-84.

### **Research Article**

**Younesi J (2004).** The major role of cognitive Misconceptions" Equality in thinking" in psychological disorders. *Journal of Social Sciences and Humanities. The Research Institute of Seminary and University (HAWZEH VA DANESHGAH)* **10** 8-29.

**Younesi J (2005).** "Challenging of equality in thinking" New Method in cognitive therapy. *Journal of Novelties in Psychotherapy* **36** 29- 39.

**Younesi J (2007).** *Cognitive Therapy for Depression* (Ghatreh Press, Tehran, Iran).

**Younesi J (2008a).** *Treatment of Mental Abnormalities Among Children, Adolescents and Families* (University of Social Welfare and Rehabilitation Press, Tehran, Iran).

**Younesi J (2008b).** *Management of Marital Relationship* (Ghatreh Press, Tehran, Iran).

**Younesi J (2011).** Quran and Cancellation of Deterministic Thinking. *National Congress of Quran and Health* (Selected as outstanding paper) Tehran, Iran.

**Younesi J and Bahrami F (2009).** Prediction of Rate of Marital satisfaction among Tehranian Couples by Deterministic Thinking. *Journal of Iranian Psychologists* **14** Quarterly 56-68 (Indexing in APA).

**Younesi J and Mirafzal A (2007).** Development of deterministic thinking questionnaire. *10<sup>th</sup> European Congress of Psychology*. Prague Czech Republic.

**Younesi J and Rahanjam S (2011).** Prediction of hope rate by deterministic thinking among students of Azad Universities of Tehran. *12<sup>th</sup> European Congress of Psychology, Istanbul, Turkey*.

**Younesi J and Rahimian Booger M (2008).** *Teasdale and His Thoughts, A Window to Metacognition* (Dangheh Press, Tehran, Iran).

**Younesi J, Mirafzal A and Tooyserkani M (2012).** Reduction of deterministic thinking among cancer patients as new method to increase psychosocial Adjustment. *Iranian Journal of Cancer Prevention* **2** 81-6.

**Younesi J, Tooyserkani M and Esbati M (2011).** Relation between Deterministic thinking and anxiety-Cultural points. *12<sup>th</sup> European Congress of Psychology, Istanbul, Turkey*.

**Younesi J, Younesi M and Asgari A (2008).** Prediction of Rate of Marital satisfaction among Tehranian Couples by Deterministic Thinking. *28<sup>th</sup> International Congress of Psychology. International Journal of Psychology, Special Issue* (indexing in ISI) Berlin, Germany.

**Zeitlin SB and McNally RJ (1991).** Implicit and explicit memory bias for threat in posttraumatic stress disorder. *Behavior Research and Therapy* **29** 451-457.