

Reduction of Deterministic Thinking Among Cancer Patients as a New Method to Increase Psychosocial Adjustments

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Abstract

Background: Deterministic thinking is one of the major cognitive distortions. This type of thinking ignores any possibility in making a conclusion about events. Any consequence of an event may be thought as: $2 \times 2 = 4$. Equality is a dominant factor among all conclusions of this kind of distortion. Distortion emerges in cognitive rigidity in the mind and could be the source of all distortions. Cognitive rigidity is a main reason for depression and other psychosocial maladjustments.

Methods: Challenging distortion was discussed as a new method for improving psychological conditions of cancer patients. Adapting the cultural base of the method, distortion is explained as a destructive factor which ruins the balance of fear and hope, the two important signs of faith in Islamic perspective.

Results: The consequence of challenging distortion to reduce depression and anxiety has been explained based on the Islamic Culture.

Conclusion: For the first time, in this study, it was proposed that how this method can be used in the treatment of psychological disorders of cancer patients.

Keywords: Cognitive therapy; Neoplasm; Depression; Anxiety

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Introduction

Cancer patients suffer many psychological disorders in addition to their physical problems. They particularly experience depression and anxiety which create much psychological maladjustment. Nearly 16-25% of newly diagnosed cancer patients endure depression or maladjustment with depressed mood [1, 2]. Depression has also been associated with functional limitations in cancer survivors [3]. Both anxiety and depression can independently play a role in functional and overall health [4, 5]. In the view point of psychopathology, it seems that the way people think about themselves or about the world make a major difference in their level of vulnerability to stress, anxiety and depression. It is not a matter of being optimistic or pessimistic – some people may cope better than others by certain thinking styles [6]. Cognitive therapy may attempt to persuade the patient to unlock himself from improper *cognitions* and to set eyes on the reality as it is [7-9]. 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 [10]. There are many cognitive distortions which play a major role in developing depression and anxiety [8, 10-15].

These distortions include [16,17]: Arbitrary Inference, Selective Abstraction, Personalization, Dichotomous Thinking, Labeling and mislabeling, Magnification and minimization, Overgeneralization and Et cetera.

One of the major cognitive distortions is deterministic thinking. This type of thinking ignores any *possibility* or *probability* in making a conclusion about events and it is able to create many cognitive distortions. Distortion leads to conclusion, and *distortion of deterministic thinking* rules out any probability or possibility in concluding [15]. Distortion emerges in cognitive rigidity in the mind and may be the mother of all distortions [18]. Cognitive rigidity is a main reason for depression and other psychosocial

maladjustments [19]. Any consequence of event may be thought as: $2 \times 2 = 4$, and quality is a dominant factor among all conclusions of this kind of distortion; for instance, divorce = misery; cancer = death or being informed of having a cancer = misery [20].

In religious perspective, which is sometimes essential to consider in cognitive therapy of some people [16], this distortion is seen as a destructive factor for ruining the *balance of fear and hope* [20, 21] because any exception for consequences of bad or good events should be ruled out by deterministic thinking.

There are some strong remarks from the most important religious leaders of Islam (Imam Ali (S), Imam Kazem (the grandson of the great prophet Mohammad) for keeping the balance of fear and hope as signs of faith and mental health [22-24]. In prediction of consequences of favorite or undesirable events, any deterministic thinking about the events was rejected in the Holy Quran: "sometimes an undesirable event may bring you luck and sometimes bad luck" [25] (Quran). Therefore, being too disappointed or too hopeful about events is not accepted in this perspective as prediction of events may not be possible. Even prediction of God's will is not promising in Shiite perspective -Arafeh praying, Imam Hossein [26]. This view is called "bada" in Shiite ideology which means everything can be initiated from the beginning. There is a phrase used most often by Moslems around the world when they are faced with different events and situations: "Insha Allah" which means "If God Wants". This means that any consequence of events is due to will of God [19, 27, 28]. Similarly, in the scientific approach, accepting or rejecting hypothesis by P value of zero is avoided despite possessing firm experimental reasons. The main reason for this approach is that some scientists believe in no absolute reality.

Creatures and events are identified partially by not being initiated or by not coming to an end [29]: "You are not aware of what have gradually been created in world of creatures." [25] (Quran). "What are in the Earth or Heavens to request from God and every day he is in the position of creating" [25] (Quran). In this philosophy, creation is not finished, and new creation is still expected; therefore, in this ongoing job prediction of life's events may not be assured.

Prediction of negative events and its effects on psychological disorders and adjustments has recently received increased research attention from the scientific community [30-32]. The prediction of negative events can be merged in "fear networks" which serves to activate fear [33]. 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 [34-36] and recall bias associated with anxiety [37, 38]. Other cognitive etiological models [39-41] have suggested that biased processing of information leads to the development and maintenance of psychological disorders.

Bentz, and Williamson found that the level of anxiety was associated with pessimistic predictions of threat-related events [42]. 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 compared to male participants and females with lower levels of anxiety. Somehow the finding is consistent with the study of Kelly [30] who investigated the relationship between anxiety and predicting task duration. Younesi and Bahrami [43] found a significant correlation between depression and Deterministic Thinking (DT) among Iranian couples. The more deterministic the Iranian couples were in their way of thinking, the more depressed they were. The clinical observations showed that DT had a major role in depression [44]. In accordance with 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 [45-49].

Cognitive therapists neither paid attention to (DT) nor challenged it based on cultural beliefs of patients. The aim of this study was to propose a new approach to confront depression and anxiety of cancer patients. The approach consists of a new method in challenging negative automatic thoughts and cognitive distortions of cancer patients which lead to relief of their symptoms.

Materials and Methods

Challenging negative cognitions of cancer patients

As cognitive therapists, we look for equalities among the statements of these patients. They can be obtained through some questions: i.e.,: How do you feel about having cancer? (Depressed patients); what if you get cancer? (Anxious patients)

What is the implication of happening this in your life?

It may be helpful to present a part of the clinical intervention here which the therapist had with a cancer case. The patient was a 53 year old engineer

who suffered from prostate cancer. He has had some sessions of chemical therapy and his progress in the treatment was good. He complained about restlessness and agitation due to anxious thoughts.

Case: I am so worried about my cancer.

Therapist: Could you elaborate?

Case: I think something bad is going to happen to me all the time. I am not sure I could recover from this bloody disease.

Therapist: But your file shows otherwise, as you had good progress in the treatment.

Case: I am not sure if this would be the case for the future. Maybe the cancer would recur.

Therapist: What do you think the chances are for the recurrence of the cancer?

Case: I think the possibility is more than 90%.

Therapist: How did you reach this level of prediction?

Case: Nothing is guaranteed in the medical science as my doctor says: "we are doing our best but the result of our treatment cannot be predicted certainly. So, there is a risk of recurrence."

Therapist: I wrote what you stated directly from your doctor. Your doctor neither says your disease will recur for sure nor does he say there is no chance for recovery. If we do not consider your file which indicates good progress in the treatment, the chance for recovery and the risk for recurrence are the same.

Case: Doctor! You persuade me to be optimistic but let's be honest. It is common sense that if you get cancer you must write your will and wait to die.

Therapist: What I understand from your statement is that (while writing on the whiteboard): cancer = death? So if somebody gets cancer, he will die.

Case: hum... something like that.

Therapist: If you believe in this equation, you should accept its opposite as well (while writing on the whiteboard): No cancer = life.

Therapist: I have got some homework for you. Please write these two equations on the paper and show it to other doctors or to those whose opinion you value.

Case: Doctor! You are pushing me to reach to a dead end position. It is obvious nobody can accept these equations.

Therapist: But you accepted them few moments ago.

Case: The patient was silent.

Therapist: You have been in this position before I challenged your thoughts. This might be one of the reasons for your anxiety. As you mentioned, equality does not exist at all; even in mathematics equality only exists in the mind.. In reality, two things are not

the same so two things are not equal. That is why nothing can be predicted for sure.

At the moment, what do you think the chances are for recurrence of the disease?

Case: hum... Less than 60%.

Therapist: How do you feel now?

Case: Obviously, I feel better.

Therapist: When you reach to a dead end position through perceiving things in equality, you are in pathway of determinism. So you perceive everything as $2 \times 2 = 4$. You block any hope in your life because you predict the things certainly. Even in science, things cannot be predicted certainly, there are many exceptions, and many errors may take place. The more you are detached from determinism, the more you are hopeful and feel better.

Therapist: For your next session you should do a home work. Please write down what you think about your disease in the notebook and consider how much equality you find in your thoughts. If you did not find the equalities in your thoughts, please bring them here and we will help you to find them in the next session.

Discussion

Challenging Deterministic Thinking (DT) can lead to the hope of cancer patients. The research shows that there is negative correlation between hope in life and deterministic thinking. The more deterministic, the more hopeless you are [49, 50]. Moreover, challenging DT can lead to less anxiety in cancer patients. In a study Younesi, Tooyserkani and Esbati [51] found a positive correlation between anxiety and deterministic thinking. It means more determinism in thought, the more anxiety in life. People who tend to see things and events in certain conditions without any degree of probability, always experience more anxiety because they sabotage the balance between hope and fear. In Islamic literature, the balance between hope and fear is a sign of faith [18, 21]. Becoming so hopeful or hopeless (leading to fear and anxiety) in confronting the events are blamed in Islamic perspective [24,27] as it indicates we should not be too disappointed for negative events, and should not be too happy for positive events. Another comment by Quran is that sometimes an undesirable event may bring you luck and sometimes a desired one brings you bad luck [25] (Quran,). Therefore, being too disappointed or too hopeful about the events is not accepted in the perspective of Quran. Since prediction of any event is not certainly possible in this view, there is an expression in Islamic discourse which is widely used by people in Western and Eastern countries when

they are faced with events: "Insha Allah" which means "If God Wills". The expression is the opposite of deterministic thinking because any consequence of events comes back to the will of God and it is only God who knows of it [21]. Even prediction of God's will is not promising in Shiite perspective [26] (Arafah praying, Imam Hossein. This view is called "bada" in Shiite ideology which means everything can be initiated from the beginning. Because it is possible to change God's will by praying [27]. Similarly in scientific approach, in spite of firm experimental reasons, accepting or rejecting hypothesis by P value of zero is avoided. The main reason for adopting such an approach is that some scientists believe in no absolute reality because the sequence of events and realities is not stable from the beginning to the end. Creatures and events can not be identified partially from their initiating or ending points [29]: "You are not aware of what have been gradually created in world of creatures." [25] (Quran,). "What is in the earth or sky call for God and every day he is in the position of creating" [25] (Quran,). In this philosophy, creation is not finished and new creation is expected so in this ongoing job it is not possible to predict life's events for sure.

Conclusion

Therefore, prediction of recurrence or treatment of cancer is not achievable. Concentrating on this unachievable process can help the cancer patient to alleviate anxiety and depression.

Prediction of negative events and its effects on psychological disorders and adjustments have recently received increased research attention from the scientific community [30-32]. The prediction of negative events can be merged in "fear networks" which serves to activate fear [33]. 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 [34-36] and recall bias associated with anxiety [33, 37]. Other cognitive etiological models [38-41] have suggested that biased processing of information leads to the development and maintenance of psychological disorders. Therefore, it is not possible to predict the end of unfinished jobs. In other words, individuals who seek more hope than fear with optimism in prediction or seek more fear than hope with pessimism in foreseeing the events both experience anxiety and depression [27]. In another study, statistically

meaningful correlation was found between Beck Depression Inventory and Deterministic Thinking Questionnaire (DTQ) among Tehranian couples [42]. In accordance with 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. Moreover, Younesi, Manzari and Abdoli found a statistically meaningful correlation between pathological defense Mechanism inventory and (DTQ) among university students (51). 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 [46]. A negative correlation was found between DTQ and forgiveness scale, so the more the determinism in thinking, the less the forgiveness in relationship with others [47-52]. They also found that couples who filed for divorce had more DT than normal couples.

It is suggested that psychologists who treat psychological maladjustments of cancer patients focus on the DT as the pathological base of mental disorders. Moreover, it is proposed that the DT of the patients be measured by a questionnaire. Younesi and Bahrami [42] developed a questionnaire which assessed the rate of DT in five factors.

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Conflict of Interest

The authors have no conflict of interest in this article.

Authors' Contribution

The theory was developed and applied by Seyyed Jalal Younesi and the literature was collected by Akramsadat Mirafzal and Mahdieh Toyserkani.

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