



The Relationship between Cognitive Emotion-Regulation Strategies and Resiliency in Advanced Patients with Cancer

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Abstract

Background: Resiliency is a very important component in chronic diseases like cancer. Therefore, investigating factors affecting resiliency seems to be necessary. The current study investigates the relationship between cognitive emotion regulation strategies (CERS) and resiliency, on one hand, and the CERS role in predicting resiliency, on the other hand, among the studied population.

Methods: In a correlational method, 121 patients with advanced cancer, who have hospitalized in January 2015 to July 2015 in ALA cancer prevention and control center, were selected. Instruments include the Garnefski-Alt cognitive emotion regulation questionnaire and Connor-Davidson resilience inventory. Pearson correlation coefficient and multiple linear regression were used for data analysis with SPSS 20.

Results: Findings indicate that regression model is significant and CERS can predict 95% of resiliency in the level of 99%. Also, adaptive strategies can explain resiliency's changes (62%) more than maladaptive strategies (40%) in this group. In the regression model, more use of refocus on planning, putting in to perspective, acceptance and positive refocusing as well as less use of catastrophizing, positive reappraisal, self-blame, and other-blame can predict resilience strongly. Among these strategies, catastrophizing and refocus on planning were common strategies contributing to resilience.

Conclusions: These findings suggested that emotion regulation strategies chosen by patients with advanced cancer can effect on their resiliency's status. This issue might help us to determine potential targets for applying psychotherapeutic interventions based on CERS education in order to improve resiliency in this group.

Keywords: Advanced Cancer, Cognitive Emotion Regulation, Resiliency

1. Background

While cancer death rates are declining and although 62% of individuals recently diagnosed with cancer are expected to live 5 years since when they are diagnosed, it is still a major threat to public health accounting for 1 of 4 deaths in the United States (1). In fact, cancer figures, as one of the leading cause of death worldwide, accounts for 8.2 million deaths from 2012 to 2022, within the next 2 decades (2).

Cancerous tumor is usually caused by an uncontrollable division of abnormal cell, which spreads to the different parts of the body and has basically 4 stages. According to Singletary et al. staging is about severity, broadness, and depth of cancerous tumor based on the size and/or extends of the primary tumor whether or not cancer has spread in the body (3). In this regard, cancer staging plays a pivotal role in the battle on cancer. It forms the basis of un-

derstanding improvements in cancer treatment, which is the strongest factor for predicting illness's process and psychological issues (4).

In stage IV, symptoms like metastatic tumor, impaired functioning from surgery, body-image disruption, recurrent symptom, adjuvant chemotherapy, and radiotherapy seem to contribute in greater psychological morbidity for patients with cancer (5, 6). Moreover, research studies conducted among patients with cancer indicate that worry and sadness can be the major and ongoing occurrence following the diagnosis of this traumatic-stressful event (7-9).

According to the study of patients with cancer admitted to pain clinics, identified by used questionnaire (10), patients reported an average of 3.3 symptoms in addition to pain. Only 27% of these patients assessed themselves as being free of mental distress. Most described themselves as depressed, dysphoric, anxious, or in fluctuation of mood.

Considering the aforesaid results, we were intrigued

to emotion regulation (ER) concept, which means individual's ability to self-regulate and cope with stressful situations (11, 12). Today, ER is defined as a conscious or unconscious control of emotion, mood, or affect (13), which is also connected with the culture and situation of the individual (14).

Although ER is an important issue in balancing emotions and managing them, research studies have shown that cognitive emotional regulation seems to have an essential role specifically for those who passed the acute stage of symptom recovery and are in advanced chronic conditions, such as chronic pain (15). Cognitive representations of illness have been shown to be directly related to illness consequences. In other words, a stronger illness identity, more symptoms, and a longer timeline perspective, were associated with poorer physical and psychological outcomes, while believing in cure/controllability were associated with better physical-psychological outcomes (16, 17). Some researchers found that people with psychical and mental diseases report more rumination and catastrophizing and less positive reappraisal than do healthy controlled subjects (18-21); whereas, some researchers posed that rumination may facilitate coping process with chronic diseases (22). Other studies found that the habitual use of positive re-evaluation makes more resiliencies when faced with stressful events (23).

Based on a study, 9 cognitive strategies are introduced to regulate emotions: positive refocusing, refocusing on program, positive re-evaluation, acceptance, putting in to perspective, rumination, self-blame, catastrophizing, and blaming others (24). In general, some studies suggest that some people may be more vulnerable to emotional problems than others by using cognitive styles, such as rumination, catastrophizing and self-blame, while other outcomes suggest that people may be less vulnerable by using other styles, such as positive reappraisal (24-26). Abdi and Babapour also showed that positive refocusing and positive re-evaluation have significant direct relation and catastrophizing and self-blaming have negative relationship with general health (27).

According to Rowland and Baker, resiliency, among those diagnosed with cancer, is the ability to experience and remain optimistic in spite of the challenges (28). Black and Lobo believed that identifying the lack of resiliency and intervening to increase it may alter the experience and outcome for the individual with cancer and his/her family member (29). According to significant role of these strategies in predicting resiliency in chronic diseases, surprisingly no research is found in relation to the aforementioned parameters in advanced cancer specifically stage IV (end of life). In addition, despite the huge portion of resiliency in psychological well-being of this group, we

found that a few investigations dedicated to this mediator (8, 30, 31).

It is assumed that the greater employment of adaptive strategies is significantly associated with the higher resiliency and more application of maladaptive strategies is associated with lower resiliency. On the other hand, employing a group of adaptive CERS would enhance resiliency level among patients with advanced cancer in their remaining life, while employing non-adaptive CERS will decrease their resiliency level.

Considering such assumption, we aimed at finding out which one of cognitive emotional regulation strategies is a stronger factor in predicting the resiliency in end-of-life stage of patients with cancer.

2. Methods

This research is a practical research and, considering the study method, is a quantitative descriptive-correlative research. The statistical population of this research includes all women and men with advanced cancer in Tehran in 2015. Among this population, the selected sample was 121 end-of-life patients ranging from 27 to 80 years who have hospitalized from January 2015 to July 2015 in ALA cancer prevention and control center as purposeful sample. The criteria for including individuals in the research were passing all 3 stages from the cancer morbidity and having treatment experiences such as surgery, chemotherapy, and radiotherapy.

2.1. The Cognitive Emotion Regulation Questionnaire (CERQ)

The cognitive emotion regulation questionnaire (CERQ) was developed in 1999 both on theoretical and empirical bases as a standardized self-report scale, which explicitly measures conscious, self-regulating cognitive coping strategies after negative events or experiences (32). The multi-dimensional questionnaire consists of 9 distinct subscales and 36 items, each referring to what participant's thinking after a threatening event: self-blame (thoughts of putting the blame of what you have experienced on yourself), other-blame (thoughts of putting the blame of what you have experienced on the environment or another person), rumination (thinking about the feelings and thoughts associated with the negative event), catastrophizing (thoughts of explicitly emphasizing the terror of what you have experienced), putting in to perspective (thoughts of brush away the threatening of incident and understand a relativity when comparing it to other event), positive refocusing (thoughts about pleasant issues instead of thinking about actual event), positive reappraisal (thoughts about creating an optimistic meaning to the event based on personal growth), acceptance

(thoughts of accepting what have experienced resigning it again), and refocus on planning (thoughts of what steps take and how to handle the negative event). Individual tendency to engage each strategy is measured on a 5-point Likert scale ranging from 1 (almost never) to 5 (almost always). The higher score of each subscale means more frequent usage of that strategy.

The questionnaire is easy to use and has good factorial validity and high reliabilities in clinical and non-clinical samples (33, 34). The Persian version of CERS was provided and validated by Hasani in 2010 (35). Participants age ranged from 27 to 80 (mean = 50.50, standard deviation (SD) = 13.85). 57% of them were women and others (43%) were men. Most patients (88%) were married and 12% were single. Most patients (36%) had breast cancer, 23% had gastric cancer, 13% blood cancer, 9% colon cancer, 9% liver cancer, and rest of them (10%) morbid to other sorts of cancer. Internal consistency in the present sample was 0.70 (Cronbach's coefficient).

2.2. Connor-Resiliency Scale (CD-RISC)

Connor-Davidson resiliency scale (CD-RISC) was developed for clinical practice as a measurement of coping ability in the face of adversity (36). It consists of 25 items, each on a 5-point Likert scale, ranging from 0 (not true at all) to 4 (true nearly all the time). According to Wagnild and Young, (1990) resiliency scale (CD-RISC) is capable of assessing resiliency among those with cancer and within the general population (37). The validation of this scale have conducted in Iran by Mohammadi (2005) and reported as 89% (38). Internal consistency of this scale in this study was 0.97 by Cronbach coefficient.

2.3. Participants: Sample of Patients

Eligible men and women admitted to ALA cancer prevention and control center [Iran], after providing informed consent, were invited to participate in this study. Eligible patients met the following criteria: (1) diagnosed with cancer stage 4, (2) receiving treatments, and (3) being able to speak Persian. Patients with the following conditions were excluded: (1) diagnosed with untreated or unstable major medical condition other than cancer, (2) diagnosed with major psychiatric or neurological disorder that would interfere with the completion of the measures, and (3) history of substance abuse. A total of 121 patients were invited to participate in this study. All the cases had metastatic tumor, which advanced up to stage 3 or 4. At the time of study, all the patients were receiving medical treatment, especially pain control measures.

3. Results

In Table 1, the summary of descriptive indices related to the research variables are illustrated.

Table 1. Summary of Descriptive Indices Related to the Research Variables

	M ± SD
Resiliency	58.93 ± 22.81
Self-blame	8.80 ± 4.14
Acceptance	11.87 ± 1.93
Rumination	9.87 ± 2.28
Positive Refocusing	11.10 ± 4.57
Refocus on Planning	12.30 ± 4.50
Positive Reappraisal	11.48 ± 4.90
Putting in to Perspective	11.51 ± 3.60
Catastrophizing	8.89 ± 4.72
Blaming others	8.01 ± 3.41
Positive strategies	58.28 ± 18.09
Negative strategies	35.59 ± 9.82

According to Table 2, the analysis of the obtained results illustrates that there is a significant correlation between the dimensions of CERS and, as it can be seen, the correlation between all CER sub-factors and resiliency is significant, too.

Table 3 shows the results of multiple linear regression analysis for predicting resiliency through the cognitive emotional regulation strategies.

Multiple linear regression analysis illustrates that total adjusted correlation coefficient is 0.95, total F in regression equation is 264.56, the regression model is significant, and all strategies can predict 95% of resiliency in the level of 99%. As it can be seen, less use of self-blame (-0.15), positive reappraisal (-0.17) catastrophizing (-0.40) and blaming others (0.13-) and more use of acceptance (0.15), positive refocusing (0.10) refocus on planning (0.27) and putting into perspective (0.21) can predict resiliency.

Table 4 shows the results of multiple linear regression analysis in predicting resiliency through the positive and negative strategies.

As multiple linear regression shows, the regression model is significant, which means all positive strategies account for 62% of resiliency's changes and whole negative strategies account for -40% of these variances.

4. Discussion

The current study was an attempt to identify how cognitive emotion regulation strategies are related to psycho-

Table 2. Correlation Coefficient Between CERS and Resiliency

	Resiliency	1	2	3	4	5	6	7	8
1. Acceptance	0.57 ^a	1							
2. Positive Refocusing	0.90 ^a	0.53 ^a	1						
3. Refocus on Planning	0.93 ^a	0.56 ^a	0.96 ^a	1					
4. Positive Reappraisal	0.86 ^a	0.55 ^a	0.91 ^a	0.93 ^a	1				
5. Putting in to Perspective	0.85 ^a	0.41 ^a	0.86 ^a	0.88 ^a	0.86 ^a	1			
6. Self-blame	-0.72 ^a	-0.26 ^a	-0.60 ^a	-0.65 ^a	-0.55 ^a	-0.61 ^a	1		
7. Rumination	0.48 ^a	0.62 ^a	0.57 ^a	0.55 ^a	0.55 ^a	0.41 ^a	-0.33 ^a	1	
8. Catastrophizing	-0.91 ^a	-0.44 ^a	-0.85 ^a	-0.88 ^a	-0.83 ^a	-0.76 ^a	0.63 ^a	-0.35 ^a	1
9. Blaming others	-0.69 ^a	-0.25 ^a	-0.59 ^a	-0.63 ^a	-0.58 ^a	-0.57 ^a	0.42 ^a	-0.22 ^a	0.64 ^a

^a P ≤ 0.01.

Table 3. Multivariable Linear Regression for Prediction of Resiliency Based on 9 Strategies

	Beta	t	Sig	R	R ²	F	Sig
Self-blame	-0.15	4.92	0.001	0.97	0.95	264.56	0.01
Acceptance	0.15	4.82	0.001				
Rumination	-0.008	-0.18	0.85				
Positive Refocusing	0.10	1.16	0.24				
Refocus on Planning	0.27	2.47	0.01				
Positive Reappraisal	-0.17	2.54	0.01				
Putting in to Perspective	0.21	3.98	0.001				
Catastrophizing	-0.40	-0.7.5	0.001				
Blaming others	-0.13	4.99	0.001				

Table 4. Multivariable Linear Regression for Prediction of Resiliency by Positive and Negative Strategies

	Beta	t	Sig	R	R ²	F	Sig
Positive strategies	0.62	17.32	0.01	0.96	0.93	808.79	0.001
Negative strategies	-0.40	-11.02	0.01				

logical resiliency. This process was carried out in a purposeful sample of 121 patients with advanced cancer.

Correlational statistics identified statistically significant correlations between CERS and resilience (0.95), which was significant at 0.01. This demonstrates that probably for individuals with advanced cancer, the concepts of CERS and resilience are interconnected.

Considering the correlation results, our hypotheses confirmed that less negative strategies, such as self-blame, catastrophizing, and blaming others were associated with more resiliency significantly and more positive strategies, such as acceptance, positive refocusing, refocus on planning, and putting into perspective appeared to be related with more resiliency in cases with advanced cancer.

It seems that as long as patients with advanced cancer

accept the nature of their disease, refocus on its positive effects, pay attention on planning, and re-experience it by other's perspective, they find it easier to deal with it and tolerate its negative consequences, but when they caught up in a process of blaming themselves and others and review the sinful thoughts about the disease or exaggerate the problem to a catastrophe continuously, less coping with situation and tolerance of negative aspects can probably occur. This claim is in line with previous studies (8, 39, 40).

These findings are consistent with previous research studies, demonstrating that cognitive coping mediates and moderates associations between various stressors and psychosomatic adjustment (20, 41), but in contrast to other findings in another contexts (23, 42, 43). We find out that

positive reappraisal negatively predicts the variance of resiliency. This result may be indicative of inconsistent nature of cancer; thus, after morbidity to advanced cancer being entirely positive and focusing on just positive aspects of this problem beside worsened symptoms such as tumor metastasize, more loss of appetite, sensory motor dysfunctions, body deformation, more weakness, disability specially in self-caring patients, less resilient about the situation, and more vulnerability to psychological disturbances will occur.

Results also indicated that in spite of correlation between rumination and resiliency, there was no ability for predicting dependent variable by ruminating. This finding reminds us of research studies conducted by Wardel and Wicks (2012) and Soo and Sherman (2015) who claimed that although rumination is often associated only with negative content experienced automatically, in fact they are not always negative or automatic because rumination's function depends on its timing, type, and content (22, 44).

We can infer that rumination is a key factor in both positive and negative psychological responses and refers to varying psychological outcomes, such as resiliency, especially in life-limit illnesses, like cancer.

According to the results presented in Table 4, positive CERS can explain and predict 62% of resiliency and negative CERS can predict 42% of resiliency's changes. This finding reminds us of the important role of cognitive emotion regulation in persons approaching to many unpredictable and difficult conditions of life, such as chronic disease.

4.1. Conclusions

Our findings imply that, when faced with advanced cancer, not all positive cognitive emotion regulation strategies used in an informative way will help patients to tolerate negative emotions caused by very difficult conditions of about to death. In other words, only some of these strategies are more applicable, but it is still unknown that whether those differences existed before the diagnosis or just were patients' reflection of the stress induced by the disease in the case of advanced cancer; thus, assessing the procedure of cognitive emotion regulation changes is recommended for further researches.

Considering the important role of interventions of increasing resiliency and adjusting coping strategies during the advances stages, we recommend considering the intervening role of factors such as marriage, age, occupational, educational and economic status, and type of the patients' cancer.

Limitations of this study may have occurred as a consequence of study population and the site of data collection, for instance the selected sample in this study consisted of patients who were experiencing inconsistency caused by

cancer and were often encountering with unexpected intense pain, Thus, the results of this study should be applied with caution to this group of individuals.

Lack of adequate comparative or longitudinal studies in the field of advanced cancer was another problem in this survey that we hope to be met in future investigations.

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Footnotes

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