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# The relationship between posttraumatic growth and cognitive emotion regulation strategies in hemodialysis patients

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## Abstract:

**BACKGROUND AND AIM:** Posttraumatic growth following traumas such as chronic illnesses can occur in some people. The psychological factors, such as cognitive emotion regulation (CER), can influence its formation. CER is a type of coping strategy that helps to efficiently deal with trauma. Due to the importance of the topic and the lack of sufficient studies on posttraumatic growth and CER in hemodialysis patients, this study aims to investigate the relationship between posttraumatic growth and CER in hemodialysis patients.

**METHODS:** This is a descriptive study performed on hemodialysis patients in Bou Ali and Velayat hospitals in Qazvin. One hundred and sixty-two patients were selected by the convenience sampling method, and Garnefski Cognitive Emotion Regulation Questionnaire ( $\alpha = 0.92$ ) and Tedeschi Posttraumatic Growth Questionnaire ( $\alpha = 0.96$ ) were used. Data were analyzed using Pearson correlation and ANOVA tests.

**RESULTS:** The results showed that the majority of the hemodialysis patients experienced some degree of posttraumatic growth. The participants achieved high scores in the domains of spiritual development and communication with others. Moreover, posttraumatic growth was positively and significantly correlated with CER ( $r = 0.67$ ,  $P < 0.001$ ).

**CONCLUSIONS:** Hemodialysis provides the basis for the positive mental reactions known as posttraumatic growth in hemodialysis patients. Nurses and other authorities can use this phenomenon to adapt to illness and care planning.

## Keywords:

Cognitive emotion regulation, hemodialysis, posttraumatic growth

## Introduction

Cognitive emotion regulation (CER) is a type of cognitive coping strategy and characterized by processes through which individuals can control what emotions they have and when to express them. CER is the source of an individual's response to stressors and encompasses all internal and external processes that are responsible for controlling, evaluating, and moderating emotional responses.<sup>[1]</sup>

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One of the stressors that can activate cognitive-emotional regulation for people is severe illnesses such as chronic kidney failure.<sup>[2]</sup> In recent years, chronic renal failure has been recognized as an important health problem.<sup>[3]</sup> More than a thousand people have died due to the disease, and in the United States alone, 300,000 suffer. According to statistics available in Iran, 1200–1600 people are added every year to patients with chronic renal failure.<sup>[4]</sup> Chronic kidney disease is said to be a kidney injury or a gradual decline in kidney function for 3 months or more.<sup>[5,6]</sup>

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Hemodialysis is intended to replace renal function in chronic renal failure patients.<sup>[7]</sup> Living with hemodialysis is a permanent challenge due to the existence of a treatment plan, its complications, and dietary constraints.<sup>[8]</sup> Therefore, patients' quality of life is affected by physical and mental problems caused by these challenges.<sup>[9]</sup> Studies have shown that this group of patients often experience problems including economic issues, difficulty in maintaining a job, reduction of libido and impotence, depression due to chronic illnesses, and fear of death.<sup>[7]</sup> In fact, such patients are exposed to physiological and psychological stress factors in their daily lives.<sup>[10]</sup> It is believed that physical, psychological, and social stressors resulting from hemodialysis can lead to delusion, depression, anxiety, suicide, and sexual and mental impairments.<sup>[11]</sup> An individual's lifestyle and use of cognitive-emotional regulation adaptive strategies can lead to adaptation and improvement in complications. Therefore, one of the situations that may indicate the need to use CER strategies is hemodialysis.

On the other hand, placing in a stressful situation such as hemodialysis is the basis for creating a positive psychological change. Posttraumatic growth is a concept, which means positive changes in emotions and cognition that lead to a change in behavior.<sup>[12]</sup> In fact, this concept refers to positive changes in personal and psychological dimensions that have been created after a bad event, and the outcome of a person's struggle with this incident is challenging.<sup>[13]</sup>

Understanding the concept of posttraumatic growth helps patients to adapt to the crisis and have positive effects on their behavior and performance. It also helps provide care for patients by the treatment team and fellows. In fact, posttraumatic development facilitates the process of recognizing the crisis and makes positive changes in their emotional and cognitive dimensions, which will have a positive effect on their behavior, performance, and lifestyle.<sup>[14,15]</sup>

Using adaptive regulation strategies leads to psychological well-being, improved relationships, improved academic and occupational performance in individuals, indicating posttraumatic growth, whereas maladaptive regulation strategies lead to depression, anxiety, and mental disorders.<sup>[16]</sup>

In the study by Philips *et al.*, patients with multiple sclerosis (MS) reported experiencing more difficulties in emotion regulation. Difficulties in emotion regulation predicted the poorer psychological and social quality of life in MS.<sup>[13]</sup> While Banihashemian *et al.* evaluating patients with hepatitis report that there was a direct and significant relationship between posttraumatic growth and CER.<sup>[1]</sup> Studies investigating types of CER strategies

that are associated with posttraumatic growth have yielded mixed results.

Understanding the different dimensions of the concept of posttraumatic growth and CER strategies, and more importantly, examining the type and the relationship between these concepts with each other can provide valuable data for the patients and health-care providers. Using these concepts to plan daily care and interactions leads to a more effective compromise of the patients with the stressful situations and better care of their caregivers. Considering the relationship between posttraumatic growth with social, cultural and supporting systems of the target population and the lack of sufficient studies on the relationship between these two variables in hemodialysis patients in Iran, the purpose of this study was to investigate the relationship between posttraumatic growth and CER strategies in these patients. It was hypothesized that CER strategies could predict posttraumatic growth in hemodialysis patients.

## Methods

This was a descriptive-correlational study conducted to investigate the relationship between posttraumatic growth and CER strategies in hemodialysis patients. All hemodialysis patients referred to the hemodialysis ward of Buali Sina and Velayat Hospitals under the supervision of Qazvin University of Medical Sciences, Qazvin, Iran, from February to October 2019 participated in the study. The criteria for entering the study were as follows: The ability to communicate and answer questions, passing at least 1 year after diagnosis of chronic renal failure and dialysis initiation, having at least 18 years and a maximum of 65 years and voluntary willingness to participate in the study. Participants who experienced extreme stress in the past month or died were excluded from the study. According to Morgan's table, the sample size was 162. This sample size was selected by convenience sampling method from hemodialysis patients.

The instruments used in the present research included a demographic characteristics questionnaire, the Posttraumatic Growth Inventory and Cognitive Emotion Regulation Questionnaire (CERQ).

### Demographic characteristics questionnaire

Demographic characteristics consist of data about patient age, sex, marital status, education status, and employment status.

### Posttraumatic growth inventory

Designed to examine the concept of posttraumatic growth by Tedeschi and Calhoun in 1996, in the United States. The tool has 21 items, which determines the level

of psychological development of the individual after facing a stressful situation, in five domains including new situations (5 items), communicating with others (7 items), valuing life (3 items), personal empowerment (4 items), and spiritual development (2 items). The tool is scored based on the six-point Likert scale, with scores ranging from 0 (not at all) to 5 (very high). Scores range from 0 to 105, with higher scores indicating higher growth and lower scores indicating lower growth. The validity of this tool was confirmed by Heidarzadeh *et al.*, in Iranian society, Cronbach's alpha coefficient was calculated 0.87 for the whole tool. Studies different determined the reliability of the questionnaire using Cronbach's alpha to be 0.96.<sup>[1,14,17]</sup>

### Cognitive Emotion Regulation Questionnaire

This questionnaire, which is available in English and Dutch, was developed by Garnefski *et al.*, in the Netherlands. The CERQ is a multidimensional questionnaire that is used to identify people's cognitive coping strategies after experiencing negative events or situations. This questionnaire is a self-report tool that can be used for people up to the age of 12 years (both normal and clinical populations). The questionnaire has 36 sections with 9 subscales. Five subscales of this questionnaire include adaptive regulation strategies including acceptance, positive refocusing, refocus on planning, positive reappraisal, putting into perspective, and 4 subscales of this questionnaire include maladaptive regulation strategies including self-blame, rumination, catastrophizing, and other-blame. It has a five-point Likert response range: never (1), sometimes (2), frequently (3), often (4), and always (5). The score for each strategy is obtained by summing the scores given to each of the terms constituting the strategy. This can range from 4 to 20, and the total scores range from 36 to 180. The high scores on each subscale indicate the greatest use of the strategy described above in dealing with stressful and negative events. Psychometric studies have yielded alpha coefficients for the total scale ranging from 0.68 to 0.80. This scale has been used in several studies in Iran, and a Cronbach's alpha reliability of 0.92 was reported.<sup>[1,16,18]</sup>

This study was approved by the Ethics Committee affiliated with Qazvin University of Medical Sciences (IR.QUMS.REC.1397.346). The researcher referred to the Nursing Office of Buali Sina and Velayat Hospitals and submitted the study authorization. Then, the researcher went to the hemodialysis ward and coordinates were done for sampling with the head nurses. All participants were informed about study aims and procedures before signing informed consent. They were also assured about the confidentiality and anonymity of their information. Moreover, they were allowed to leave the study whenever they wish, and if desired with no

excuse, the results of the research would be available to them. After obtaining informed consent and providing explanations about the questionnaires, 162 participants responded to the questionnaires while they were in comfort. After the completion of questionnaires and collection, data were analyzed using descriptive statistics (mean, median, frequency) and inferential statistics (Chi-square, *t*-test, ANOVA, Pearson correlation coefficient) in SPSS software, version 21 (SPSS Inc. Released 2007 SPSS for Windows, Version 21.Chicago, SPSS Inc.). The statistical significance level was set as  $P < 0.05$ .

## Results

In this study, 162 hemodialysis patients participated and the results showed that the mean age of the participants was  $57.72 \pm 15.76$ . The majority of the participants were male (60.5%,  $n = 98$ ), married (88.9%,  $n = 144$ ), unemployed (42%,  $n = 68$ ), and undergraduate (41.4%,  $n = 67$ ).

Table 1 shows the distribution of posttraumatic growth scores and their domains. The posttraumatic growth averaged  $71.17 \pm 17.94$ . Of the five domains studied, the highest weighted average is related to the domain of spiritual development and communication with others, and the lowest weighted average relates to the domain of new situations.

Table 2 shows the distribution of scores on CER strategies, which averaged  $120.54 \pm 19.4$  for the overall CER strategies. The highest mean score is related to the acceptance strategy and putting into perspective, while the lowest mean score is related to the other-blame and catastrophizing strategies.

Table 3 indicates the correlation between posttraumatic growth and CER strategies based on which there is a positive and significant statistical relationship between posttraumatic growth and CER strategies ( $r = 0.67$ ,  $P < 0.001$ ).

## Discussion

The results showed that all participants in the present study had high posttraumatic growth. Consistent with the current study, Aflakseir and Manafi, in patients with MS, Basak *et al.*, in women with breast cancer, Rahimi *et al.*, in patients with myocardial infarction and Heidarzadeh *et al.*, in cancer survivors, reported a high degree of posttraumatic growth.<sup>[16,19-21]</sup> Moreover, Zarin *et al.*, in patients with spinal cord injury and Banihashemian *et al.*, in patients with hepatitis B stated that posttraumatic growth was moderate-to-high.<sup>[1,22]</sup> While Dursun *et al.*, in Turkish University students, Ackroyd *et al.*, in patients with MS and Leung

**Table 1: Distribution of posttraumatic growth scores and their domains in hemodialysis patients**

Variable	Mean±SD	Number of items	Mean score of items in each dimension
Valuing life	10.33±3.1	3	3.44
New situations	14.15±5.9	5	2.83
Communication with others	25.19±7.42	7	3.59
Personal empowerment	13.78±4.63	4	3.44
Spiritual development	7.7±2.97	2	3.85
Overall score	71.17±17.94	21	3.38

SD=Standard deviation

**Table 2: Distribution of cognitive emotion regulation strategies scores in hemodialysis patients**

Variable	Mean±SD
Acceptance	15.4±3.5
Rumination	13.61±4.11
Positive refocusing	14.91±4.85
Refocus on planning	14.32±4.48
Catastrophizing	11.64±4.01
Positive reappraisal	14.32±4.32
Putting into perspective	15.12±4.62
Blaming others	8.79±4.64
Self-blame	12.39±5.11
Overall score	120.54±19.4

SD=Standard deviation

**Table 3: Correlation of posttraumatic growth variables and cognitive emotion regulation strategies in hemodialysis patients**

Variable	Cognitive emotion regulation strategies
Posttraumatic growth	
<i>r</i>	0.67
Significant	0.00

*et al.*, in cardiac patients, concluded that the degree of posttraumatic growth was low.<sup>[23-25]</sup> The discrepancy on posttraumatic growth observed among the participants of this study compared with other studies may be related to the age, severity of illness, and degree of self-control. Furthermore, the patients in this study suffered from a severe illness, and this condition may provide patients to get some positive views. Chronic renal failure and hemodialysis have severe consequences such as the limitations of the role, physical pressure, exhaustion, and change in family relations.

According to the results of the current study, the study participants experienced the highest growth in the field of spiritual change and communication with others and the lowest growth in the new situations. Consistent with the present study, Rahimi *et al.*, in patients with myocardial infarction and Heidarzadeh *et al.*, in cancer patients reported that they had the highest growth in domains of spiritual change and communication with others.<sup>[20,21]</sup> Moreover, Rahimi *et al.*, in patients with myocardial infarction and Teodorescu *et al.*, in Norwegian immigrants reported that they had the lowest growth in new positions.<sup>[21,26]</sup> However, contrary to the

current study, the results of the study conducted by Morris *et al.*, in cancer patients, Bellizzi *et al.*, in women with breast cancer and Lee *et al.*, in Iraqi and Afghan soldiers showed that the lowest growth occurred in the domains of spiritual development and communication with others.<sup>[27-29]</sup> The contradictory results of the studies on different domains of posttraumatic growth, in different events and societies, can be due to differences in the type and quality of stress experienced, cultural differences, religious teachings, and the values of each society that is logically expected and require a more in-depth evaluation with a qualitative approach.

Concerning CER, the results showed that hemodialysis patients were more likely to use acceptance and putting into perspective strategies, and less likely to use other-blame and catastrophizing strategies. In line with the present study, Domaradzka and Fajkowska, In Polish people and Moghaddam Zeabadi *et al.*, in nurses working in intensive care units reported that other-blame and catastrophizing strategies were less used than other strategies.<sup>[30,31]</sup> In addition, consistent with the current study, Mohammadkhani *et al.*, in HIV patients, reported that they used more acceptance strategy and less than blaming others to regulate their emotions.<sup>[32]</sup> All of these studies confirm that greater use of adaptive strategies such as acceptance predicts an increase of optimism, positive thinking, life expectancy, disease recovery, and subsequently posttraumatic growth. On the other hand, maladaptive strategies such as blaming others and catastrophizing, because of hopelessness, negative thoughts, and depression, deprive the patient of the opportunity to grow and reduce posttraumatic growth.

Regarding the relationship between posttraumatic growth and CER strategies, the results showed that there was a positive and significant relationship between these two variables. Consistent with the present study, Aflakseir and Manafi studying patients with MS, Banihashemian *et al.*, evaluating patients with hepatitis and Losiak and Nikiel, studying patients with myocardial infarction report that there was a direct and significant relationship between posttraumatic growth and CER.<sup>[1,16,33]</sup> As the results of various studies have shown, despite numerous physical, psychological, and social problems in chronic patients, exposure to



these stressful events through CER can have positive psychological consequences. The use of self-report tools was one of the limitations of this study. Patients may not have a clear understanding of the implications of this study to answer related questions, so it is recommended that larger studies be conducted qualitatively and through open interviews.

## Conclusions

Researchers believe that posttraumatic growth experience can facilitate the process of identifying stressful events for patients and provide a positive perspective on patients, their relatives, and lifestyles. This concept creates positive and meaningful changes in the emotional and cognitive lives of individuals that consequently have a positive impact on their behavior and performance. Health-care providers can use these concepts in care planning and daily interactions to pave the way for a more effective adjustment of patients with stressful situations and better care delivery by caregivers.

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## Conflicts of interest

There are no conflicts of interest.

## References

1. Banihashemian K, Naami A, Zargar Y, Arshadi N. Investigation of the relationship between cognitive emotional regulation and posttraumatic growth in men and women with hepatitis B. *J Res Behav Sci* 2015;13:602-8.
2. Yazdani R, Zamani-Alavijeh F, Kheiriati M. Factors associated with preventive behaviors of hepatitis B among high school girls using the health belief model. *Daneshvar Med* 2013;20:1-11.
3. Nezamipour E, Ahadi H. The effect of cognitive emotion regulation strategies on the relationship between personality traits and quality of life in dialysis patients. *Qom Univ Med Sci J* 2016;10:70-81.
4. Henrich WL. *Principles and Practice of Dialysis*. Philadelphia: Lippincott Williams & Wilkins; 2016.
5. Azemi Zeinal A, Ghaffari O. The effectiveness of acceptance and commitment therapy on depression, physical health and mental health of patients hemodialysis. *Fundam Mental Health* 2016;18:412-8.
6. Hinkle J, Cheever K. *Brunner and Suddarth's Textbook of Medical-surgical Nursing: Kidney and Urinary Tract*. Tehran: Jamee Negar Publication; 2014.
7. Shinde M, Mane S. Stressors and the coping strategies among patients undergoing hemodialysis. *Int J Sci Res* 2014;3:266-76.
8. Salehitali S, Ahmadi F, Zarea K, Fereidoni Moghadam M. The role of health team in coping process of family caregivers with patients under hemodialysis: A qualitative study. *Jundishapur J Chron Dis Care*. 2018; 7(1):e63304.
9. Nasiri M, Kheirkhah F, Rahimiyan B, Ahmadzadeh B. Stressful factors, coping mechanisms and quality of life in hemodialysis patients. *Iran J Crit Care Nurs* 2013;6:119-26.
10. Shahrokhi Z, Rayyani M, Sabzevari S, Haghdoost A. Stressors and coping strategies of dialysis patients. *J Crit Care Nurs* 2014;6:184-93.
11. Mafi M, Moghaddam Zeabadi S, Mafi M, Hosseini Golafshani S. Relationship between stressors and coping strategies in Iranian patients undergoing hemodialysis. *Jundishapur J Chronic Dis Care* 2018;8:e84508.
12. Zebrack B, Kwak M, Salsman J, Cousino M, Meeske K, Aguilar C, *et al.*. The relationship between posttraumatic stress and posttraumatic growth among adolescent and young adult (AYA) cancer patients. *Psychooncology* 2015;24:162-8.
13. Philips LH, Henry JD, Nouzova E, Cooper C. Difficulties with emotion regulation in multiple sclerosis: Links to executive function, mood, and quality of life. *J Clin Neuropsychol* 2014;36:831-42.
14. Mousavi V, Vatankhah M. Prediction of posttraumatic growth through religion, meaning of life and social support in female breast cancer. *J Psychol Achiev* 2015;1:33-48.
15. Nikmanesh Z, Mirabdollahi N. Prediction of posttraumatic growth base on of spirituality and social support in patients with breast cancer. *Iran Q J Breast Dis* 2013;2:35-42.
16. Aflakseir A, Manafi F. Posttraumatic growth and its relationship with cognitive emotion regulation strategies in patients with multiple sclerosis in Shiraz, Iran. *Pract Clin Psychol* 2018;6:57-62.
17. Heidarzadeh M, Rassouli M, Shahbolaghi F, Alavi Majd H, Mirzaei H, Tahmasebi M. Assessing dimensions of posttraumatic growth of cancer in survived patients. *J Holistic Nurs Midwifery* 2015;25:33-41.
18. Sabzali Gol M, Kazemi A. Comparison of cognitive-emotional ordering between two groups of men; individuals with cancer and non-infected people. *J Islamic Azad Univ* 2016;26:256-63.
19. Basak B, Irem E. Relationship between posttraumatic growth and demographic and clinical factors among Turkish Cypriot breast cancer survivors. *Proc Soc Behav Sci* 2015;205:709-16.
20. Heidarzadeh M, Rassouli M, Shahbolaghi F, Majid H, Karam AM, Ghanavati A, *et al.*. The relationship of posttraumatic growth with quality of life in cancer patients. *Bull Environ Pharmacol Life Sci* 2014;3:98-102.
21. Rahimi R, Heidarzadeh M, Hassanzadeh R. Post-traumatic growth among patients with myocardial infarction. *Cardiovasc Nurs J* 2015;4:44-52.
22. Zarin S, Khanjani M, Foroughan M, Hosseini M, Bakhshi E, Kamali M. Relationship between locus of control with posttraumatic growth among individuals with spinal cord injury. *J Mod Rehabil* 2017;11:109-18.
23. Ackroyd K, Fortune DG, Price S, Howell S, Sharrack B, Isaac CL. Adversarial growth in patients with multiple sclerosis and their partners: Relationships with illness perceptions, disability and distress. *J Clin Psychol Med Settings* 2011;18:372-9.
24. Dursun P, Saracli S, Konuk O. The roles of meaningful life and posttraumatic stress in posttraumatic growth in a sample of Turkish university students. *Proc Soc Behav Sci* 2014;159:702-6.
25. Leung YW, Gravely-Witte S, Macpherson A, Irvine J, Stewart DE, Grace SL. Post-traumatic growth among cardiac outpatients: Degree comparison with other chronic illness samples and correlates. *J Health Psychol* 2010;15:1049-63.
26. Teodorescu DS, Siqveland J, Heir T, Hauff E, Wentzel-Larsen T, Lien L. Posttraumatic growth, depressive symptoms, posttraumatic stress symptoms, post-migration stressors and quality of life in multi-traumatized psychiatric outpatients with a refugee

- background in Norway. *Health Qual Life Outcomes* 2012;10:84.
27. Bellizzi KM, Smith AW, Reeve BB, Alfano CM, Bernstein L, Meeske K, *et al.*. Posttraumatic growth and health-related quality of life in a racially diverse cohort of breast cancer survivors. *J Health Psychol* 2010;15:615-26.
  28. Lee JA, Luxton DD, Reger GM, Gahm GA. Confirmatory factor analysis of the Posttraumatic Growth Inventory with a sample of soldiers previously deployed in support of the Iraq and Afghanistan wars. *J Clin Psychol* 2010;66:813-9.
  29. Morris BA, Shakespeare-Finch J, Scott JL. Posttraumatic growth after cancer: The importance of health-related benefits and newfound compassion for others. *Support Care Cancer* 2012;20:749-56.
  30. Domaradzka E, Fajkowska M. Cognitive emotion regulation strategies in anxiety and depression understood as types of personality. *Front Psychol* 2018;9:856.
  31. Moghaddam Zeabadi S, Hosseinigolafshani S, Hasandoost F. Cognitive emotion regulation strategies used by critical care nurses: A descriptive-analytic study. *Nurs Healthc Int J* 2018;2:150.
  32. Mohammadkhani S, Haddadi Kuhsar A, Soleimani H, Eatemadi E. A prediction of resilience from cognitive emotion regulation in individuals with HIV infection. *Health Psychol* 2017;6:104-15.
  33. Losiak W, Nikiel J. Posttraumatic growth in patients after myocardial infarction: The role of cognitive coping and experience of life threat. *Health Psychol Rep* 2014;2:256-62.