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Post-traumatic growth, hope, and depression in elderly cancer patients

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ABSTRACT

Post-traumatic growth (PTG), depression, and hope have not been adequately studied among elderly cancer patients living in Middle East countries. The aim of the study was to assess these constructs in elderly cancer patients and examine whether depression and hope contributed to variations in PTG among these patients. A sample of 142 Iranian elderly people with Azari ethnicity (55 female, 87 male), with average age of 68.4, diagnosed with cancer who admitted to oncology wards and cancer clinics of Hospital were participated in the study. Study tools included demographic details questionnaire, "posttraumatic growth inventory", Herth Hope Index (HHI), and Beck Depression Inventory (BDI). Data were analyzed using SPSS-22 software. The means and standard deviations of the PTG, BDI, and HHI scores for all participants were 70.27 ± 12.43 , 12.1 ± 6.5 , and 34.63 ± 3.13 , respectively. The results showed that PTG was negatively correlated with depression ($r = -0.60$, $p < 0.001$), and positively correlated with hope ($r = 0.50$, $p < 0.001$). All dimensions of the PTG were significantly correlated with total BDI and HHI scores. Depression and hope correlated with some of the variance of PTG in the Iranian elderly patients with cancer. Offering counseling programs and delivering appropriate levels of nursing care may help decrease patients' depression and increase their hope.

Keywords: Post-traumatic growth, Hope, Depression, Elderly

INTRODUCTION

Cancer is the third leading cause of death in Iran [1]. Many cancers have higher incidence rates among older persons [2] due to factors like environmental risks, aging, and genetic components." Elderly people who have been recently diagnosed with cancer face uncertainty [3]. That may lead to psychosocial distress and decrease their quality of life. For example, these patients frequently experience painful medical procedures, fear, loneliness, risk of death, and changes in interpersonal relationships [4]. Because aging is associated with diminished functioning of multiple organ systems and decreased tolerance for psychosocial and physical stressors [5]. Elderly cancer patients may experience different sets of concerns compared to non-elderly adults with cancer. Older cancer patients are also less likely to have social support systems [6] and more likely to experience isolation, increasing the risks of depression, anxiety, and difficulties coping with mental health issues [7].

Despite the stress caused by the diagnosis and treatment of cancer, the foundation may also be prepared for post-traumatic growth (PTG), defined as positive psychological changes that occur as a result of managing highly

stressful events [8]. Studies on cancer outcomes have indicated that many people who survive cancer experience positive psychological changes during the course of the disease [9-13].

The present study used Tedeschi and Calhoun's cognitive processing theory as its theoretical framework. According to this theory, post-traumatic growth occurs with attempts to adapt to highly stressful circumstances [14]. The present literature also shows some degree of PTG in cancer patients [9-13]. However, few studies have addressed the experience of PTG among elderly patients with cancer. In one of them, although Brix *et al.* (2013) found some degree of growth in elderly patients with breast cancer, but they didn't observe statistically significant difference in overall PTG between elderly people with and without breast cancer [15].

PTG is a complex concept influenced by many variables. According to cognitive processing theory, coping success, such as a reduction of emotional distress is an initial step for growth processes to occur. Individual skills such as the ability to endure stress, including depression, and some traits, such as hope, may be important for cognitive processing that occurs following exposure to trauma [14].

Depression is one of the most common psychological complications occurring among adult cancer patients, with an estimated prevalence of 20%–50% [16-19]. In a study by Nikbakhsh *et al.* (2014), the prevalence of depression was reported as 48% among Iranian persons with cancer [17]. Theoretically, depression as a form of emotional distress in cancer patients may relate to PTG, but the literature shows divergent results. For instance, some studies investigating the relationship between PTG and depression found negative relationship between them [20]. While others indicated no relationship between PTG and depression [21, 22]. It seems that the role of depression in explaining PTG is not clear and doing much investigation in this regard is necessary.

Hope is another factor that can help patients adapt to cancer [23], and is related with post-traumatic growth. Hope is defined as positive thinking towards the future and the desire to live [24]. A study by Baglama and Atak (2015), found a positive relationship between hope and PTG in women with breast cancer [25]. In another study, Ho *et al.* (2011) found a positive correlation between hope and PTG [26].

PTG, depression, and hope are having not been adequately studied among elderly cancer patients living in Middle East countries. In this study, we sought to assess these constructs in elderly cancer patients and examine whether depression and hope contributed to variations in PTG among these patients.

MATERIALS AND METHODS

This descriptive correlational study examined PTG, depression, and hope among Iranian elderly patients with cancer.

Subjects

The study population was comprised of a convenience sample of Iranians of Azari ethnicity who had been admitted to oncology wards and cancer clinics operated by Tabriz Hospital with a primary diagnosis of cancer. A total of 215 elderly patients with cancer were admitted to the hospital over a period of 8 months; however, 47 persons were excluded because they did not meet the inclusion criteria, and of the remaining 168 patients, 142 (84%) provided informed consent to participate in the study. Individuals whose cancer diagnosis had been confirmed by an oncologist were included only if they were aware of their disease, had been diagnosed with cancer for one year or more, and were 60 years of age or older. The researchers invited the patients who met the inclusion criteria to the study, briefed them on the objectives of the study, informed them of the confidentiality of the data, and obtained written informed consent. Participants then completed questionnaires individually. The researcher read the items to illiterate individuals and marked their responses.

Instruments

The instruments included a demographic questionnaire, the Herth Hope Index (HHI), Beck Depression Inventory (BDI), and the Post-traumatic Growth Inventory (PTGI). The demographic characteristics questionnaire included ten questions about age, gender, marital status, living status, education, occupation, place of residence, the type of cancer the participant was diagnosed with, cancer staging, type of treatment, and duration of the illness.

The PTGI was developed in 1996 by Tedeschi and Calhoun to assess the concept of post-traumatic growth in the United States. This tool has 21 items, which cover 5 domains of psychological growth after encountering a traumatic

stressor: new possibilities, relating to others, appreciation of life, personal strengthening, and spiritual changes. The PTGI psychometric properties were validated by Heidarzadeh *et al.* in Iran [9].

The BDI is a 21-item scale designed to measure the cognitive, affective, motivational, and physiological symptoms of depression [27]. The HHI is a 12-item, four-point Likert scale, where higher scores are positively related to higher levels of hope [28]. The validity and reliability of the HHI in Iranian cancer patients was validated by Abdi and Asadi-Lari [29].

Data analysis

The data analysis included descriptive statistics (mean, median, range, and frequency) and inferential statistics (correlational tests) using SPSS for Windows version 22 (SPSS Inc., Chicago, IL., USA).

Ethical Considerations

The researchers obtained the approval of the Ethics Committee of Ardabil University of Medical Sciences prior to beginning the study. All participants provided informed consent prior to filling out the questionnaires.

RESULTS

Description of the sample

A total of 142 patients with cancer were evaluated. Their ages ranged from 60 to 91 years, with a mean age of 68.4 years. Most participants, 128 (90.1%), lived with their families, including partners and children, one lived with their children only, and the remainder (9.1%) lived alone. Other demographic and clinical characteristics of the participants are shown in Table 1.

Table 1. Demographic characteristics of elderly cancer patients and their total PTG score

Demographic characteristics		Number (%)	Mean (SD)
Gender	Female	55 (38.7)	69.67 (14.5)
	Male	87 (61.3)	67.2 (14.9)
Living status	Lives alone	13 (9.2)	68.5 (14.7)
	Lives with family	129 (90.8)	69.2 (14.7)
Education	Illiterate	86 (60.6)	65.9 (14.7)*
	Literate	56 (39.4)	69.7 (14.4)*
Duration of cancer diagnosis	1 year	55 (39.9)	68.6 (13.7)
	More than 1 year	83 (60.1)	69 (17.3)
Type of cancer	Breast	19 (13.4)	71.2 (13.6)*
	Gastrointestinal	39 (27.5)	66.6 (14.6)*
	Hematology	32 (22.5)	70.8 (13.8)
	Prostate	3 (2.1)	64.6 (13.4)
	Lung	5 (3.5)	63.5 (16.5)*
	Other	44 (31)	64.5 (15.9)

* Denotes significant difference; SD: Standard deviation

Depression status, PTG scores, and HHI scores are presented in Table 2. The means and standard deviations of the PTG, BDI, and HHI scores for all participants were 70.27 ± 12.43 , 12.1 ± 6.5 , and 34.63 ± 3.13 , respectively. Table 3 shows the correlation coefficients between PTG and its dimensions with BDI and HHI scores. The results showed that PTG was negatively correlated with depression ($r = -0.60$, $p < 0.001$), and positively correlated with hope ($r = 0.50$, $p < 0.001$). All dimensions of the PTG were significantly correlated with total BDI and HHI scores. The PTG dimension of "relating to others" had the smallest correlation with BDI score ($r = -0.18$) and HHI score ($r = 0.18$) of the five PTG dimensions.

Table 2. PTG and HHI scores in elderly cancer patients by BDI score group

Depression (12.1 ± 6.5)	Number (%)	PTGI score (SD)	HHI score (SD)
Without depression (BDI = 0–10)	64 (45)	76.64 (11.36)	35.73 (2.9)
Mild depression (BDI = 11–20)	61 (43)	67 (9.65)	34.16 (2.74)
Severe depression (BDI \geq 21)	17 (12)	58.1 (12)	32.1 (3.5)
Total	142 (100)	70.27 (12.44)	34.63 (3.13)

Table 3. Correlation coefficients for total PTG scores and PTG dimensions with BDI and HHI scores in elderly cancer patients

Dimensions	Minimum score	Maximum score	Mean	Standard deviation	Mean Item	HHI score	BDI score
New Possibilities	0	25	11.00	5.58	2.2	r = 0.45*	r = - 0.58*
Relating to others	5	35	27.22	4.28	3.88	r = 0.18	r = - 0.18
Personal strengthening	0	20	13.3	3.46	3.32	r = 0.47*	r = - 0.58*
Appreciation of life	0	15	11.02	2.05	3.67	r = 0.40*	r = - 0.53*
Spiritual changes	0	10	7.74	1.3	3.87	r = 0.35*	r = - 0.32*
Total score of PTG	25	105	70.27	12.43	3.34	r = 0.50*	r = - 0.60*

DISCUSSION

The aim of this study was to examine post-traumatic growth in elderly cancer patients and to evaluate its relationships with depression and hope. The results of this study showed that experiencing a stressful event such as cancer can lead to positive psychological effects. Previous studies also showed PTG following cancer diagnosis among non-elderly adults [9, 10, 12]. And elderly adults [15, 30].

A few studies have investigated PTG in elderly patients with cancer. Jansen et al. found that most of a sample of German elderly patients with colorectal cancer experienced PTG (30). Bri et al. (2013) found some degree of PTG among Danish women with breast cancer [15]. In comparing the mean scores of the results, the mean total score of PTG in this study was higher than those found in other studies with adult [10, 12, 31]. And elderly (15, 30) patients with cancer. Another difference in this study was related to the mean scores for the dimensions of PTG. In our study, “relating to others” and “spiritual changes” had the highest mean domain scores, while in other studies the highest mean domain scores were found in the “appreciation of life” domain [10, 12, 15, 32]. The mean total and dimensional PTG scores in this study were similar to those found by Heidarzadeh et al. (2014) [9], which had investigated PTG in Iranian non-elderly adults with cancer, with the exception of this study finding a higher mean dimension score for “relating to others” among our sample of elderly cancer patients. Our findings suggest that aging may not increase or decrease PTG scores for Iranians with cancer. Also, it may indicate that increased emotional support from one's family and relatives, measured in the PTGI dimension of “relating to others,” could be vital as a main source of support for the elderly patients in our study.

As with other studies that showed depression to be a highly prevalent psychological stressor in cancer patients [16, 18, 19]. This study indicated that 55% of our sample experienced mild to moderate depression. This prevalence of depression is higher than those found in other studies. A systematic review by Mitchell et al. (2011) found that the prevalence of depression in people with cancer was around 24.6% (17.5%–32.4%) [33]. The prevalence of depression in a study by Carlson et al. (2004) was found to be 36.3% (34). Other studies reported depression prevalence rates of 4%–12.5% [35-37].

Our results showed a significant negative relationship between BDI and PTG scores. However, we also observed high mean BDI and PTG scores, meaning that patients with high BDI scores were also reporting high PTG scores. These findings are consistent with Tedeschi and Calhoun's theory, which stated that the existence of some degree of psychological distress is necessary to stimulate positive emotional changes. Previous studies have shown different results; although some found negative relationships between depression and PTG [20, 22], others found no significant relationships [38-40]. In studies by Lechner et al. (2006) and Kleim and Ehlers (2009), PTG did not show a linear relationship with depression in breast cancer patients [39, 40]. It appears that the relationship between PTG and depression is complicated, and requires more study, especially using longitudinal research.

Hope was another variable in this study that reported at moderate levels by the participants. Our sample reported lower mean HHI scores than the adult cancer patients surveyed by Abdullah-zadeh et al. [41]. Hope is a coping strategy for patients with cancer [42-44], and an important factor in the process of PTG [45]. This study also showed that hope has a direct relationship with PTG and determined 25% of the variance of PTG. There was a significant positive relationship between hope and the dimensions of PTG, as well. Unexpectedly, the dimension of “relating to others” in items concerned with a sense of closeness with others and increased emotional support showed poor correlations with hope, so that “relating to others” had the highest mean dimension score in the PTGI, but also had the lowest correlation with HHI and BDI scores. This conflicts with other studies' results, which had found significant correlations between emotional support and hope. For example, Pour Ghaznin et al. found that there is a positive relationship between Iranian cancer patients' social support and their levels of hope [46]. In another study,

Vellone et al. reported that support from family and friends had a positive influence on cancer patients' hope [47]. Lin and Tsay (2005) found a significant relationship between hope and both social support and familial relationships among a Taiwanese sample [48].

These findings indicate that a sense of closeness with others and increased emotional support occurs for both hopeful and hopeless elderly cancer patients. Cultural contexts and the traditional family structures of Iranian households, especially in the northwest of the country, seem to be important factors that facilitate increased abilities to relate to others [49]. Past studies in Iran showed that relations between patients and their relatives improve following disease diagnosis [49-51]. And is the most important source of support for patients in these times.

CONCLUSION

This study found that elderly Iranian cancer patients experience relatively high degrees of positive psychological consequences following diagnosis. For these patients, the PTG dimensions of "relating to others" and "spiritual changes" are two of the most important features of psychological growth, based on the participants' PTGI scores. Depression and hope correlated with some of the variance of PTG in the Iranian elderly patients with cancer. Given that low levels of depression and high levels of hope are associated with positive psychological changes in elderly patients, controlling depression and promoting hope enhancement are essential for the elderly patients with cancer. Offering counseling programs and delivering appropriate levels of nursing care may help decrease patients' depression and increase their hope.

Limitations

Some studies have shown a non-linear relationship between depression and PTG that change over time. However, our cross-sectional study could not show changes over time due to its design. Because our study used convenience sampling, caution must be used when generalizing our results. Moreover, although this study suggested a relationship between hope, depression, and PTG, our instruments differed from some of those used in previous studies, which complicates the ability to compare results between studies.

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REFERENCES

- [1] Mousavi SM, Gouya MM, Ramazani R, Davanlou M, Hajsadeghi N, Seddighi Z. Cancer incidence and mortality in Iran. *Annals of Oncology*. 2009;20(3):556-63.
- [2] Ries L, Melbert D, Krapcho M, Stinchcomb D, Howlader N, Horner M, et al. SEER Cancer Statistics Review, 1975-National Cancer Institute. Bethesda, MD. 2005.
- [3] Sajjadi M, Rassouli M, Abbaszadeh A, Brant J, Majd HA. Lived Experiences of "Illness Uncertainty" of Iranian Cancer Patients. 2015.
- [4] Stanczyk MM. Music therapy in supportive cancer care. *Reports of Practical Oncology & Radiotherapy*. 2011;16(5):170-2.
- [5] Balducci L, Extermann M. Management of cancer in the older person: a practical approach. *The oncologist*. 2000;5(3):224-37.
- [6] Kroenke CH, Kubzansky LD, Schernhammer ES, Holmes MD, Kawachi I. Social networks, social support, and survival after breast cancer diagnosis. *Journal of Clinical Oncology*. 2006;24(7):1105-11.
- [7] Hurria A, Li D, Hansen K, Patil S, Gupta R, Nelson C, et al. Distress in older patients with cancer. *Journal of Clinical Oncology*. 2009;27(26):4346-51.
- [8] Love C, Sabiston CM. Exploring the links between physical activity and posttraumatic growth in young adult cancer survivors. *Psycho-Oncology*. 2011;20(3):278-86.
- [9] Heidarzadeh M, Rassouli M, Shahbolaghi FM, Majd HA, Karam A-M, Mirzaee H, et al. Posttraumatic growth and its dimensions in patients with cancer. *Middle East Journal of Cancer*. 2014;5(1):23-9.
- [10] Morris BA, Shakespeare-Finch J, Scott JL. Posttraumatic growth after cancer: the importance of health-related benefits and newfound compassion for others. *Supportive Care in Cancer*. 2012;20(4):749-56.

- [11]Sears SR, Stanton AL, Danoff-Burg S. The yellow brick road and the emerald city: benefit finding, positive reappraisal coping and posttraumatic growth in women with early-stage breast cancer. *Health Psychology*. 2003;22(5):487.
- [12]Thornton AA, Perez MA. Posttraumatic growth in prostate cancer survivors and their partners. *Psycho-Oncology*. 2006;15(4):285-96.
- [13]Widows MR, Jacobsen PB, Booth-Jones M, Fields KK. Predictors of posttraumatic growth following bone marrow transplantation for cancer. *Health psychology : official journal of the Division of Health Psychology, American Psychological Association*. 2005;24(3):266-73. Epub 2005/05/19.
- [14]Tedeschi RG, Calhoun LG. " Posttraumatic Growth: Conceptual Foundations and Empirical Evidence". *Psychological Inquiry*. 2004;15(1):1-18.
- [15]Brix SA, Bidstrup PE, Christensen J, Rottmann N, Olsen A, Tjønneland A, et al. Post-traumatic growth among elderly women with breast cancer compared to breast cancer-free women. *Acta Oncologica*. 2013;52(2):345-54.
- [16]Burgess C, Cornelius V, Love S, Graham J, Richards M, Ramirez A. Depression and anxiety in women with early breast cancer: five year observational cohort study. *Bmj*. 2005;330(7493):702.
- [17]Nikbakhsh N, Moudi S, Abbasian S, Khafri S. Prevalence of depression and anxiety among cancer patients. *Caspian J Intern Med*. 2014;5(3):167-70.
- [18]Okamura M, Yamawaki S, Akechi T, Taniguchi K, Uchitomi Y. Psychiatric disorders following first breast cancer recurrence: prevalence, associated factors and relationship to quality of life. *Japanese Journal of Clinical Oncology*. 2005;35(6):302-9.
- [19]Pasquini M, Biondi M. Depression in cancer patients: a critical review. *Clinical Practice and Epidemiology in Mental Health*. 2007;3(1):1.
- [20]Helgeson VS, Reynolds KA, Tomich PL. A meta-analytic review of benefit finding and growth. *Journal of consulting and clinical psychology*. 2006;74(5):797.
- [21]Cordova MJ, Cunningham LL, Carlson CR, Andrykowski MA. Posttraumatic growth following breast cancer: a controlled comparison study. *Health Psychology*. 2001;20(3):176.
- [22]Magruder KM, Kılıç C, Koryürek MM. Relationship of posttraumatic growth to symptoms of posttraumatic stress disorder and depression: A pilot study of Iraqi students. *International Journal of Psychology*. 2015;50(5):402-6.
- [23]Chaturvedi SK, Shenoy A, Prasad K, Senthilnathan S, Premlatha B. Concerns, coping and quality of life in head and neck cancer patients. *Supportive Care in Cancer*. 1996;4(3):186-90.
- [24]Kygäs H, Mikkonen R, Nousiainen EM, Ryttilahti M, Seppänen P, Vaattovaara R, et al. Coping with the onset of cancer: coping strategies and resources of young people with cancer. *European journal of cancer care*. 2001;10(1):6-11.
- [25]Bağlama B, Atak IE. Posttraumatic Growth and Related Factors among Postoperative Breast Cancer Patients. *Procedia-Social and Behavioral Sciences*. 2015;190:448-54.
- [26]Ho S, Rajandram RK, Chan N, Samman N, McGrath C, Zwahlen RA. The roles of hope and optimism on posttraumatic growth in oral cavity cancer patients. *Oral oncology*. 2011;47(2):121-4.
- [27]Beck AT, Ward CH, Mendelson M, Mock J EJ. An inventory for measuring depression. *Archives of General Psychia- try*. 1961;4:53-63.
- [28]Herth K. Abbreviated instrument to measure hope: development and psychometric evaluation. *Journal of Advanced nursing*. 1992;17(10):1251-9.
- [29]Abdi N, Lari MA. Standardization of Three Hope Scales, as Possible Measures at the End of Life, in Iranian Population. *Iranian Journal of Cancer Prevention*. 2011;4(2):71-7.
- [30]Jansen L, Hoffmeister M, Chang-Claude J, Brenner H, Arndt V. Benefit finding and post-traumatic growth in long-term colorectal cancer survivors: prevalence, determinants, and associations with quality of life. *British Journal of Cancer*. 2011;105(8):1158-65.
- [31]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. *Journal of Health Psychology*. 2010;15(4):615-26.
- [32]Teodorescu D-S, 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.
- [33]Mitchell AJ, Chan M, Bhatti H, Halton M, Grassi L, Johansen C, et al. Prevalence of depression, anxiety, and adjustment disorder in oncological, haematological, and palliative-care settings: a meta-analysis of 94 interview-based studies. *The lancet oncology*. 2011;12(2):160-74.

- [34]Carlson LE, Bultz BD. Efficacy and medical cost offset of psychosocial interventions in cancer care: making the case for economic analyses. *Psycho-Oncology*. 2004;13(12):837-49.
- [35]Burnet KL, Parker C, Dearnaley D, Brewin CR, Watson M. Does active surveillance for men with localized prostate cancer carry psychological morbidity? *BJU international*. 2007;100(3):540-3.
- [36]van den Bergh RC, Essink-Bot ML, Roobol MJ, Wolters T, Schröder FH, Bangma CH, et al. Anxiety and distress during active surveillance for early prostate cancer. *Cancer*. 2009;115(17):3868-78.
- [37]Watts S, Leydon G, Eyles C, Moore CM, Richardson A, Birch B, et al. A quantitative analysis of the prevalence of clinical depression and anxiety in patients with prostate cancer undergoing active surveillance. *BMJ open*. 2015;5(5):e006674.
- [38]Abdullah L, Iman MF, Nik Jaafar NR, Zakaria H, Rajandram RK, Mahadevan R, et al. Posttraumatic growth, depression and anxiety in head and neck cancer patients: examining their patterns and correlations in a prospective study. *Psycho-Oncology*. 2015;24(8):894-900.
- [39]Kleim B, Ehlers A. Evidence for a curvilinear relationship between posttraumatic growth and posttrauma depression and PTSD in assault survivors. *Journal of traumatic stress*. 2009;22(1):45-52.
- [40]Lechner SC, Carver CS, Antoni MH, Weaver KE, Phillips KM. Curvilinear associations between benefit finding and psychosocial adjustment to breast cancer. *Journal of consulting and clinical psychology*. 2006;74(5):828.
- [41]Abdullah-zadeh F, Agahosseini S, Asvadi-Kermani I, Rahmani A. Hope in Iranian cancer patients. *Iranian journal of nursing and midwifery research*. 2011;16(4).
- [42]Afrooz R, Rahmani A, Zamanzadeh V, Abdullahzadeh F, Azadi A, Faghany S, et al. The nature of hope among Iranian cancer patients. *Asian Pac J Cancer Prev*. 2014;15(21):9307-12.
- [43]Feuz C. Hoping for the best while preparing for the worst: a literature review of the role of hope in palliative cancer patients. *Journal of Medical Imaging and Radiation Sciences*. 2012;43(3):168-74.
- [44]Mack JW, Wolfe J, Cook EF, Grier HE, Cleary PD, Weeks JC. Hope and prognostic disclosure. *Journal of Clinical Oncology*. 2007;25(35):5636-42.
- [45]Frank VE. *Man's search for meaning: An introduction to logotherapy* 1964.
- [46]Pourghazneyn T, Talasaz FE, Houshmand P, Esmaeili H. A Comparative Study of the Hopefulness in Cancer Patients Under Treatment and Those Having Completed the Treatment. 2001.
- [47]Vellone E, Rega ML, Galletti C, Cohen MZ. Hope and related variables in Italian cancer patients. *Cancer nursing*. 2006;29(5):356-66.
- [48]Lin CC, Tsay HF. Relationships among perceived diagnostic disclosure, health locus of control, and levels of hope in Taiwanese cancer patients. *Psycho-Oncology*. 2005;14(5):376-85.
- [49]Rabee Rahimi, Mehdi Heidarzadeh, Rahimeh Shoaee. The Relationship between Posttraumatic Growth and Social Support in Patients with Myocardial Infarction. *Canadian Journal of Cardiovascular*. 2016;26(2).
- [50]Farsi Z, Dehghan Nayeri N, Negarandeh R. Coping strategies of adults with leukemia undergoing hematopoietic stem cell transplantation in Iran: a qualitative study. *Nursing & health sciences*. 2010;12(4):485-92.
- [51]Taleghani F, Yekta ZP, Nasrabadi AN. Coping with breast cancer in newly diagnosed Iranian women. *Journal of Advanced nursing*. 2006;54(3):265-72.