Predictions of post-traumatic growth according to spirituality, social support and positive affection in deferent age groups with breast cancer

Zahra Nikmanesh[1], Nassrin Mirabdollahi[2], Mohammad Ali Emamhadi[3]

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1. **Correspondence to:** Associate Professor, Department of Psychology, University of Sistan and Baluchestan, Zahedan, Iran
Tel/Fax: +98 541 2416120
E-mail: Kazemi@hamoon.usb.ac.ir
2. MA, of General Psychology, University of Sistan and Baluchestan, Zahedan, Iran
3. Associate Professor, of Toxicology and Forensic Medicine, School of Medicine. Shahid Beheshti University of Medicine Science, Tehran, Iran

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Abstract

Cancer causes a great suffering situation which leads the psychosocial outcomes and quality of life such as anxiety and depression. The purpose of this research is prediction of PTG by spirituality, social support and positive affection in women with breast cancer. The results were presented according to different ages. Participants were 106 females with breast cancer who were hospitalized at 3 hospitals in Tehran, Iran, in a four-month period. They were selected by census; then, they answered the Post-traumatic Growth Inventory, Spirituality Questionnaire, Medical Outcomes Survey social support scale, and Positive and Negative Affect Schedule. The data were analyzed by Pearson correlation and stepwise regression. The results, with study of age roles, showed that in the group of 25 to 35 years old, spirituality, social support and positive affection predicted Post Traumatic Growth. But in the group of 36 to 45 years old, positive affection, social support and spirituality, and in the group of 46 to 60 years old, only positive affection predicted Post Traumatic growth. Accordingly, it is inferred that through increasing of positive affection, spirituality and social support could improve the PTG. The importance of each of these variables is dependent on the patients' age.

Keywords: Age, Breast Cancer, Positive affect, Post Traumatic Growth, Spirituality

Introduction

Cancer is the second leading cause of mortality in the developed countries and the third in the developing countries. Currently, there are 25 million people worldwide living with cancer, and annually, 11 million are diagnosed with cancer and 7 million die of cancer. Research has shown that breast cancer is the most common cancer among Iranian women with the prevalence of 25 per hundred thousand and nearly 8000 patients per year, and with enormous economic, social, and psychological impacts on families [1].

Post Traumatic Growth (PTG) is the experience of positive personal change due to confrontation with crisis or traumatic event [2]. PTG that is often named growth associated with stress, positive adjustment, positive adaptation, success, grace, and growth, has been considered by Tedesch, Park, and Calhoun as significant changes in cognition and emotion that also lead to changes in behavior [3]. Cordova et al. in their research into breast cancer survivors discovered the relationship between

symptoms of Post-traumatic stress disorder and reports of Post-traumatic growth. Also, research has shown that social constraints are related to perceived cancer as a harmful stress and Post-traumatic stress disorder symptoms, and also, PTG is related to being a younger patient and perceived cancer as a harmful stress [4].

Empirical studies reveal the relationships between spirituality/religiosity and mental health in different groups and populations. Theoretically, spirituality is associated with mental health and mental well-being through influencing coping strategies, attitudes and perceived meaning [5]. Spirituality is a mechanism that causes PTG in breast cancer patients. It is often defined as a structure that encompasses meaning, and existential coping based on faith. Interventions that enhance spiritual well-being cause PTG, and enable cancer patients to re-evaluate their life goals, priorities, and sources of meaning [6].

Social support is defined as the presence of individuals that the person has confidence in, feels respected by and is important to [7]. Social support has a role in mental and physical health and in emotional adjustment, and causes greater social acceptance [8]. Social support has been identified as an important factor in the development or improvement of post-traumatic stress [3].

Positive affect is defined as a state of pleasing feelings or a fine mood [9]. Studies indicate that positive affect influences the autonomic nervous system and rapidly helps the healing of stress reactions [3]. Linley and Joseph, in reviewing 39 empirical studies that had registered positive changes following trauma and adversity, found that positive affect was also equally related to PTG [10].

Although, cancer is an important stressful factor that can be accompanied by psychosocial consequences and quality of life such as anxiety, depression, fear of relapse, concern about future, fatigue, physical constraints, and feelings of social isolation, it also has adjustment consequences that are very different for these individuals. Thus, efforts must be made to recognize reasons for effectiveness of psychological factors (given the complex combination of factors and their relationship), so that, an effective step can be taken toward understanding and prevention of psychological harms. The present study seeks to predict PTG based on spirituality, social support, and positive affect in different age groups with breast cancer.

Method

This was a descriptive study and correlational kind. The statistical population included breast cancer patients attending 3 hospitals of Ayatolah Taleghani, Tajrish Shohada, and Loghman Hakim in Tehran from November 2010 to March 2011. The sample group consisted of 106 patients, selected in census method for participation in the study (It should be noted that 115 questionnaires were issued to patients, but 9 of them were excluded because they were incomplete). Therefore, all breast cancer patients, with minimum of 6 months since their diagnosis and minimum literacy (to read and write) were invited to participate in the study. With the patients' agreement, questionnaires were completed. To avoid bias, questionnaires were individually completed by the patients, thus, minimum literacy was required. However, in case of ambiguity in understanding the questions, subjects were helped by the researcher's assistant (the ward nurse).

In this study, PTG was considered as dependent and predictable variable, social support and positive affect as criterion or predicting variables. Therefore, statistical methods of correlation and regression analysis were used to examine PTG prediction based on spirituality, social support, and positive affect variables in different age group patients with breast cancer, and the results were analyzed by SPSS-17 software.

The study tools were:

PTG Inventory (PTGI): This was designed by Tedesch and Calhoun in 1996 to evaluate people's self-perception changes associated with experience of traumatic events, and has 5

sub-scales of relating to others, new possibilities, personal strength, spiritual change, appreciation for life. Studies have shown that this scale possesses internal consistency with alpha coefficient 0.9, and its sub-scales have alpha coefficients between 0.67 and 0.85. In their study, Lelorain et al. reported alpha coefficient 0.93 for this questionnaire [11]. In the present study, Cronbach's alpha was found 0.98.

1. Spirituality Questionnaire (SQ): This questionnaire was designed by Parsian and Dunning in 2009 to evaluate importance of spirituality and its various dimensions in people's lives. It contains 29 statements and 4 sub-scales of; self-awareness, importance of spiritual beliefs, spiritual experiences, and spiritual needs. The overall alpha coefficient for the test was 0.94, and for sub-scales; self-awareness 0.91, importance of spiritual beliefs 0.91, spiritual activities 0.8, and spiritual needs 0.89 were reported [12]. In their study, Piraste and Motlagh reported alpha coefficient of 0.93 for this questionnaire [13]. In the present study, Cronbach's alpha was 0.93.

2. Social support scale (MOS): This was designed by Sherburne and Stewart in 1991, which contains 19 statements and 5 subscales including tangible support, emotional support, information, kindness, and positive social interaction. The Cronbach's alpha for these sub-scales ranged 0.74 to 0.93 [14]. In the present study, Cronbach's alpha was 0.99.

3. Positive And Negative Affection Scale (PANAS): This is a 20-item, self-reporting tool designed by Watson, Clark, and Telgen (1998) [15]. Crawford and Henry reported validity of this questionnaire using Cronbach's alpha of 0.89 for positive and 0.85 for negative emotions [16]. Busseri, Sadava, and Decourville reported Cronbach's alpha for positive emotions 0.82 and 0.85 and for negative emotions 0.83 and 0.86 [17]. Lelorain et al. found Cronbach's alpha of 0.89 for this questionnaire [18].

Results

This study was conducted on 105 patients with breast cancer undergoing treatment with age range of 20 to 65 years with frequency in three age groups of 32 patients in 20 to 35 years range, 55 in 36 to 45, and 19 in 46 to 60 years, and patients' education level frequency in three categories were 47 patients at high school level or lower, 43 at high school diploma level, and 15 had associate diplomas and degrees.

The data related to study questions were analyzed step by step using correlation and regression methods. The descriptive analysis results showed that in the case group, mean PTG was 67.26, spirituality was 86.04, social support was 67.13, and positive affect was 64.78. The results of correlation matrix in all three age groups (20 to 35, 36 to 45, and 46 to 60) showed that PTG has a positive and significant correlation (0.01) with spirituality, social support, and positive affect. Results of inferential analysis, for predicting PTG in different age groups has been presented separately:

Table 1 *Step by step regression results for predicting PTG in 20 to 35 years age group*

	R	R^2 (adjusted)	F (df)	β	t
Spirituality	0.80	0.63	54.59**(30,1)	0.80	7.38**
Social support	0.85	0.70	37.67 (29,2)	0.61**	5.20**
Positive affect			0.59**	0.33	2.82*

* Significant at 0.01 ** Significant at 0.05

The stepwise regression results for predicting PTG in 20 to 35 years age group show that, in the first step, spirituality alone predicts 0.63 of PTG, and in the second step, positive affect and spirituality together predict 0.70 of PTG variable. Therefore, spirituality and positive affect have a positive and significant correlation with PTG, and predict PTG in 20 to 35 years age group.

With PTG changing by 1 mark, the standard β coefficient changes by 0.62 for spirituality and by 0.33 for positive affect.

Table 2 *Stepwise regression results for predicting PTG in 36 to 45 years age group*

	R	R^2 (adjusted)	F (df)	β	t
Positive affect	0.85	0.72	146.34** (53, 1)	0.85	12.09 **
Positive affect	0.89	0.79	108.22** (2, 52)	0.56	6.21 **
Social support				0.39	4.40 **
Positive affect				0.40	4.24 **
Social support	0.91	0.83	89.76 **	0.33	3.97 **
Spirituality				0.27	3.32**

Criterion variable: PTG ** Significance level 0.01 * significance level 0.05

The stepwise regression results for predicting PTG in 36 to 45 years age group showed that, in the first step, positive affect variable alone predicts 0.73 of PTG. In the second step, positive affect and social support together predicted PTG of 0.80. In the third step, with spirituality variable included, prediction increases to 0.83. Therefore, positive affect, social support, and spirituality have positive and significant correlations with PTG, and they can predict it.

With PTG changing by 1 mark, the standard β coefficient changes by 0.41 for positive affection, by 0.34 for social support, and by 0.28 for spirituality.

The stepwise regression results for predicting PTG in 46 to 60 years age group showed that, positive affect variable alone predicts 0.75 of PTG. Thus, positive affect has a positive and significant correlation with PTG, and it is a positive and unique predictor of PTG.

With PTG changing by 1 mark, the standard β coefficient changes by 0.88 for positive affect variable.

Table 3 *Step by step regression results for predicting PTG in 46 to 60 years age group*

	R	R^2 (adjusted)	F (df)	β	t
Positive affect	0.876	0.754	56.02**(17,1)	0.876	485.7**

** Significant at 0.001

Discussion

Study results revealed that spirituality, social support, and positive affect had a positive and significant correlation with PTG in all age groups of patients with breast cancer. Also, regression results for predicting PTG in 20 to 35 years age group showed that spirituality alone predicts PTG by 0.63, and positive affect and spirituality together predict it by 0.7. Thus, spirituality plays an effective role in PTG in younger patients, which may be due to the diagnosis of cancer in young people being unexpected, which challenges the person's beliefs about the world. These patients may have less experience of coping with crisis, and because of expectation of being unwell, experience more concerns about their older years. Thus, they use their faith in God or their spiritual beliefs as a source of coping with the disease. The effective role of positive affect was observed in the second step, since this age group experience more stress compared to other groups, and also, because of their youth, they tend to seek positive emotions. These positive emotions are involved in improving stress-related negative effects and expand the range of knowledge and behaviors associated with health.

Other studies' results support the above findings. Experience shows religion/spirituality has a

positive correlation with length and quality of life. The effect of spirituality on health and quality of life is particularly pronounced in people that are coping with consequences of diagnosis of cancer. Researchers have found that religious/spiritual factors in patients with breast cancer are related to physical well-being, positive coping method, and higher satisfaction in life [19]. Kim et al. concluded that spirituality has a positive and linear relationship with positive emotions in people that had grown up with religious dependencies, but no longer have these dependencies, or in people that currently have different dependencies from when they were growing up [20]. Jacobson et al. in their study on patients with advanced cancer found that belief in life after death is associated with lower levels despair due to ending of life, but has no relationship with depression or anxiety. However, with controlling spirituality levels, effects of belief in life after death disappeared. The authors concluded that spirituality had a powerful influence of mental performance compared to life after death beliefs [21]. Review of some articles shows reasonable evidence that religion and spirituality with emotional compliance are better associated with cancer. The results of some studies indicate that spirituality can act as a source of support, by providing the inner strength that helps the person understand situations of severe stress. Higher levels of religious and spiritual beliefs are related to more adaptive coping responses, higher resilience to stress, optimistic life orientation, and greater perceived social support, and lower levels are associated with anxiety among recovering patients. In addition, the relationship between effective coping responses and spirituality is particularly strong among women [22]. Garlick et al. showed that combined mental and spiritual treatment may enhance well-being and cause PTG in breast cancer patients. Women (24) that completed combined mental and spiritual therapy, PTG assessments, and quality of life, showed improvements in sub-scales of physical, emotional, and functional well-being, and also showed improvements in PTG questionnaire [23]. Furthermore, review of 17 studies on spiritual behaviors or understandings as coping strategies with cancer in adults revealed that only 7 out of 17 studies contained evidence of beneficial religious coping strategy [24]. These results concur with the findings of present study about importance of role of spirituality as predicting variable of PTG. In these studies, the role of spirituality in enhancing positive affect and feeling of well-being has also been pointed out, but in none of these studies, has age been considered as an intervening variable.

The results of regression analysis for predicting PTG in 36 to 45 years age group showed that positive affect predicts PTG by 0.73, when combined with social support, they predict PTG by 0.8, and with addition of spirituality, all three variables predict PTG by 0.83. Also, regression results for the 46 to 60 years age group showed that positive affect alone predicts PTG by 0.75. Therefore for these two age groups (36 to 45 and 46 to 60) results indicate that, positive affect has an effective role in PTG. From this result, it can be inferred that in older cancer patients that somewhat tend to lose life expectancy, and isolate from the society, positive affect can create a healthy and long life expectancy and reduce risk of physical ailments. People's high energy and optimism with positive affect can cause more satisfaction with life, and create PTG. In 36 to 45 years age group, social support is in the second step. Culturally, this age group is expected to be married with children, and receive social support through their family, helping them to cope with their disease. Also, culturally, spirituality takes shape in this age range, and can find new meaning in life, and help people overcome confusion and impaired cognition. What needs to increase, in addition to spirituality and social support, is the role of positive affect.

A study by Moor showed posttraumatic cognitions in breast cancer patients are positively associated with perceived PTG. These cognitions

mediated the relationship between social support and negative effect of cancer and also between age and negative effect of cancer. Using Baron and Kenny's method, Moor showed that association of age and social support with PTG was insignificant, even though they both significantly correlated with posttraumatic cognitions. This study indicates that posttraumatic cognitions are associated with PTG after cancer [3].

Comprehensive analyses of 70 studies in 2010 assessed gender differences relationship with PTG. The results revealed that women reported higher PTG than men, and that growth scores increased with increasing age among women [25]. Seitz et al. (2011) showed that adults with cancer were significantly less satisfied with general life associated with health compared to the control group. The late physical effects, symptoms of depression, anxiety, and PTG were less associated with satisfaction with impaired health related to general life. Moreover, being married was significantly correlated with higher general life satisfaction. Consequently, adult cancer survivors experience less satisfaction with life in early adolescence than the general public [26]. Review of literature and experimental evidence confirm findings of the present study. Studies on either PTG factors in cancer patients or the roles of spirituality perceived social support, and positive affection in different aspects of mental health have conducted their assessments based on a single variable, but the present study analyzed priority of predicting variables in one study. Also, in previous studies, mediatory role of age has not been assessed, but this has been considered in the present study.

In the present study, only patients attending 3 hospitals in Tehran were selected. Thus, care must be taken in generalizing the results. Since in the present study only patients with breast cancer were assessed, it is recommended that other types of cancer patients be selected in future studies.

Conclusion

The results of this study and those of other researchers to a large extent confirm that patients with breast cancer are capable of experiencing positive changes after cancer-fighting trauma, and these positive changes are predicted by spirituality, positive affection, and social support. Spirituality and religious beliefs can also partially act as seeking meaning in life. Spiritual beliefs have a useful framework for explaining why challenging situations tend to appear, and for the consequences of dealing with these challenges. Thus, it can predict positive changes following trauma. In addition, social support can also help patients to better understand and cope with their symptoms, thereby, reducing frequency, duration and intensity of illness. Based on the results, in all age groups, positive affection plays an effective role in predicting PTG, which indicates that if people can maintain their happy mood after cancer diagnosis, they can experience PTG.

It should be noted that there is a rich culture of spirituality and social support in this society, and this is more evident when a relative falls ill. Therefore, it seems that it is better to create and extend positive affection to increase happiness and positive emotions in the lives of patients with breast cancer, so that together with spirituality, perceived social support and positive affection an effective step can be taken toward PTG and enhanced health, and reducing harms due to cancer.

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Contributions

Study design and analysis: ZN, NMA
Data collection: MAE
Manuscript preparation: ZN, NMA

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