

# Posttraumatic Growth and Its Dimensions in the Mothers of Children with Cancer

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**Received:** 11 November 2017    **Revised:** 8 January 2018    **Accepted:** 10 January 2018

## ABSTRACT

**Background:** Posttraumatic growth resulting from a stressful factor such as the diagnosis and treatment of cancer can positively affect various aspects of a mother's life as the child's main caregiver. The present study aims to determine the level of posttraumatic growth in the mothers of the children with cancer.

**Methods:** In the present descriptive study, the statistical population consisted of the mothers of the children with cancer referring to oncology clinics or hospitalized in the oncology departments of selected hospitals from June 2016 to October 2016. The samples included 180 eligible mothers selected by convenient sampling. The data were collected using "Posttraumatic Growth Inventory" (PTGI) that determines the psychological growth following exposure to traumatic events with 21 items in 5 domains of new possibilities, relationship with others, appreciation of life, personal strength, and spiritual changes and scored by 6-point Likert scale, ranging from 0 to 105; the higher scores indicate greater growth. The data were analyzed in SPSS-20 using descriptive and inferential statistical tests.

**Results:** The mean age of the participating mothers was 34±5.3, 83.3% of whom were housewives. The majority of the children suffered from leukemia, and cancer onset age was between 3 and 6 in 33.9% of the children. The mothers' mean score of posttraumatic growth was 62.4±18.9, and the highest percentage of scores in various dimensions belonged to "spiritual change" (3.59), "appreciation of life" (3.04), and "relating to others" (3.02).

**Conclusion:** Results showed that the experience of having a child with cancer can lead to posttraumatic growth in mothers.

**KEYWORDS:** Child, Growth, Mothers, Neoplasms, Post-traumatic stress disorders

**Please cite this article as:** Behzadi M, Rassouli M, Khanali Mojen L, Pourhoseingholi MA, Alaie Karahrudy F. Posttraumatic Growth and Its Dimensions in the Mothers of Children with Cancer. *IJCBNM*. 2018;6(3):209-217.

## INTRODUCTION

The incidence of life-threatening diseases such as cancer gives rise to a significant amount of stress in patients and their families,<sup>1,2</sup> and affects the patients, their families and their caregivers. Cancer is more a family disease rather than the patient's,<sup>3,4</sup> and it can lead to acute or chronic maladaptive psychological reactions.<sup>5-7</sup> Compared to fathers, mothers experience more stress, anxiety, and impaired adjustment.<sup>8</sup>

As a result of exposure to a highly stressful factor, people may experience many positive changes in their lives as well as negative consequences,<sup>9</sup> and these positive changes are referred to as posttraumatic growth, which can be created in different aspects of people's lives.<sup>10</sup> The diagnosis and treatment of cancer leads to considerable stress, but it can pave the way for posttraumatic growth<sup>11</sup> and positive changes.<sup>12</sup> Positive psychological outcomes following the exposure to traumatic events<sup>13</sup> are likely in parents of children with chronic diseases.<sup>14</sup> Posttraumatic growth is a multidimensional concept that emerges in the form of personal strength, new possibilities, relating to others, spiritual changes, and the appreciation of life.<sup>15</sup>

Many parents of children with cancer have difficulty displaying an appropriate reaction to the stress caused by the disease, and in many cases they suffer consequences such as depression, and a diminished quality of life.<sup>16</sup> Since mothers have a key role in medical decision-making and providing emotional support for the child and the family<sup>17</sup> and a decisive role in the process of child's development,<sup>18</sup> their mental health affects the child's treatment outcomes.<sup>19,20</sup> Since positive changes following traumatic events can affect the changes in lifestyle and enhance the quality of life for patients and their families,<sup>21</sup> investigating posttraumatic growth in mothers of children with cancer is highly important. Previous studies on the experience of posttraumatic growth in cancer patients and their caregivers have shown growth in Western Societies.<sup>2,10,11,14,15,22</sup> However,

there are a few studies on this subject in Eastern societies, particularly in Iran.<sup>12,21,23,24</sup> Sociocultural differences affect the nature and amount of posttraumatic growth in the study population, and there are no studies about posttraumatic growth on parents of children with cancer in Iran. Therefore, the aim of this study was to determine the level of posttraumatic growth and its dimensions in the mothers of children with cancer.

Identifying the dimensions of posttraumatic growth in mothers helps the nurses to direct the effect of the cancer-caused stress in mothers toward growth, leading to better adjustment with circumstances and an improved quality of life for the mother and child. The positive consequences of growth can be beneficial to the restoration and improvement of the health of the mother and the child with cancer.

## MATERIALS AND METHODS

Since this study is a part of a thesis that tested the Neuman Systems Model, and due to the fact that 30 samples are required for each dimension of the model,<sup>25</sup> in the present descriptive study, the statistical population consisted of 180 mothers of children with cancer visiting oncology clinics or hospitalized in oncology departments of Mofid, Children's Medical Center, and Aliasghar hospitals from June 2016 until October 2016. 180 mothers willing to take part in the present study were selected through convenient sampling and verbal consent was obtained from the participants. The sample size required based on the number of beds in the oncology departments and the clients to oncology clinics at three hospitals were divided. This means that 54 mothers eligible for the study from Mofid hospital, and respectively 61 and 65 mothers from the medical center and Aliasghar hospitals participated in the study.

The inclusion criteria in this study were: the mother's willingness to participate in the study, being literate, being informed about her child's disease through definitive diagnosis of cancer by oncologists, and the ability to communicate and respond to the questionnaires. Besides, the

exclusion criteria of the study were: quitting work after receiving the questionnaires, the child suffering from other chronic diseases in addition to cancer, recent exposure to other traumatic events besides her child's disease, and the mother's being diagnosed with chronic physical or mental illnesses based on her self-report history. The data collection tools included "a demographics questionnaire" in two parts: "mother's characteristics" and "child's characteristics", and "Posttraumatic Growth Inventory" (PTGI). PTGI determines the psychological growth following exposure to traumatic events with 21 items in the 5 domains of new possibilities (5 items), relationship with others (7 items), appreciation of life (3 items), personal strength (4 items), and spiritual changes (2 items). PTGI was developed by Tedeschi and Calhoun (1996) in the United States and its translation and psychometrics were performed in Iran by Heidarzadeh et al. The content validity index (CVI=0.97) was calculated and the reliability of the index was also determined by calculating Cronbach's alpha ( $\alpha=0.87$ ).<sup>21</sup> A confirmatory factor analysis by Heidarzadeh et al. was used to determine the factor structure of posttraumatic growth inventory and confirm the version of the factors or dimensions of the model using the LISEREL software. Eventually, the 5-factor structure of the tool (new possibilities, relating to others, appreciation of life, personal strength and spiritual changes) was approved.<sup>23</sup> PTGI is scored by 6-point Likert scale, ranging from 0 to 105, in which higher scores indicate greater growth.

Since it is necessary in each study, cognitive assessment of the tool was made according to the participants' opinions, and the internal consistency of the tool in the target population was determined. The validity of PTGI in this study was determined using face validity, in such a way that the scales were made available to 10 mothers of children with cancer, and they were asked to comment on the level of difficulty, appropriateness, and ambiguity in the statements or the meanings of words.

The researcher also tried to use a suitable and logical method of writing, wording, and appearance in the study tool. To determine the consistency of the tool, the questionnaire was given to 15 eligible mothers, who once again completed the questionnaire two weeks later. Interclass Correlation Coefficient (ICC=0.92), Cronbach's alpha for subscales ( $\alpha=0.61-0.82$ ) and Cronbach's alpha for the entire inventory ( $\alpha=0.91$ ) were calculated. The study setting was oncology clinics and wards of Mofid, Children's Medical Center and Aliasghar hospitals. One nurse from each clinic and ward familiar with mothers and patients was selected by head nurses and invited to cooperate with the researcher to collect the questionnaires. They were briefed on the study, data collection, and the questionnaires. The demographics questionnaire and PTGI were distributed among the mothers, who were given sufficient time to complete them. The questionnaires were collected and the participants were appreciated for their cooperation. The data were analyzed in SPSS-22 using descriptive (mean, frequency, lowest level and highest level) and inferential (linear regression method) statistical tests.

After obtaining the code of ethics and receiving a letter of introduction from Shahid Beheshti University of Medical Sciences, the study objectives and method were explained to the participants, verbal consent was obtained from them, and they were assured that the results would be made available to them if required. Participants were reminded of voluntary participation and withdrawal at any stage and assured of confidentiality of data and the observation of the principle of trustworthiness in all stages. The present study was approved by the Ethics committee of Shahid Beheshti University of Medical Sciences with the code number of IR.SBMU.PHNM.1395.488.

## RESULTS

The mean age of the participating mothers was  $34\pm 5.3$ . The majority of the mothers were

housewives (83.3%), and they were not divorced or widows (94.4%). The majority of children with cancer (42.8%) were aged between 3 and 6 and 46.7% of them had leukemia. Other demographic details are displayed in Table 1.

The mothers' mean posttraumatic growth score was  $62.4 \pm 18.9$ . The highest percentage of scores obtained in various dimensions pertained to "spiritual changes", "appreciation of life", "relationship with others", "personal strength", and "new opportunities", respectively (Table 2). Among the items, item 21 (I realized we need others' help) scored the

highest, which was part of "relationship with others" dimension, and item 14 (I now have opportunities in life I did not have before) scored the lowest, which was part of "new possibilities" dimension.

Among demographic variables, although no significant relationship was observed between the overall score of posttraumatic growth and the mother's education level, the mother's education was directly and significantly related to "the appreciation of life" dimension ( $r=0.23$ ,  $P<0.01$ ) in such a way that the mean score of the appreciation of life

**Table 1:** Demographic characteristics of children and mothers of children with cancer attending oncology clinics and wards of Mofid, Children's Medical Center, and Aliasghar hospitals in 2016 (n=180)

Sociodemographic details		N (%)	Sociodemographic details		N (%)
Mother's age (years)	20-25	6 (3.3%)	Child's age	1-3	22 (12.2%)
	26-30	40 (22.3%)		3-6	77 (42.8%)
	31-35	69 (38.3%)		6-12	60 (33.3%)
	36-40	41 (22.8%)		12-18	21 (11.7%)
	41-45	18 (10.0%)			
	46-50	6 (3.3%)			
Mother's occupation	Housewife	150 (83.3%)	Child's gender	Female	80 (44.4%)
	Self-employed	7 (3.9%)		Male	100 (55.6%)
	Employee	22 (12.2%)			
	Other	1 (0.6%)			
Mother's education	Below high school diploma	51 (28.3%)	Child's age at onset of disease (years)	Less than one	14 (7.8%)
	High school diploma	76 (42.3%)		1-3	49 (27.2%)
	University	53 (29.4%)		3-6	61 (33.9%)
		6-12		47 (26.1%)	
				12-18	9 (5.0%)
Type of cancer	Leukemia	84 (46.7%)	Duration of disease (years)	Less than one	86 (47.7%)
	Gliomas	3 (1.6%)		1-3	66 (36.7%)
	Neuroblastoma	20 (11.1%)		3-6	20 (11.1%)
	Lymphoma	29 (16.1%)		6-12	7 (3.9%)
	Osteosarcoma	7 (3.9%)		12-18	1 (0.6%)
	Nephroblastoma	1 (0.6%)			
	Others	36 (20.0%)			

**Table 2:** Score of posttraumatic growth and its dimensions in mothers of children with cancer

Dimension	Min-Max	Mean±SD	Mean score of items in each dimension
Appreciation of life	0-15	9.13±3.44	3.04
New opportunities	0-25	12.98±5.52	2.59
Relating to others	0-35	21.18±7.13	3.02
Personal strength	0-20	11.94± 4.66	2.98
Spiritual changes	0-10	7.18±2.46	3.59
Total score of posttraumatic growth	0-104	62.44±18.9	3.00

increased with the increase in the mother's level of education. Moreover, a significant relationship was found between the child's gender and "personal strength" ( $r=0.19$ ,  $P<0.05$ ) in such a way that the score of personal strength was significantly higher in the mothers of male children with cancer than in mothers with female children with cancer (Table 3). No significant relationship was observed in the score of posttraumatic growth and its dimensions with other demographic characteristics such as mother's age, mother's marital status, household size, the child's age, the child's birth ranking, and the child's age at the onset of cancer, and the duration and type of cancer.

**DISCUSSION**

The present study was conducted to determine the level and the dimensions of posttraumatic growth in the mothers of children with cancer. The results obtained showed that the experience of having a child with cancer, as a traumatic event, can lead to posttraumatic growth in the mothers of children with cancer. In agreement with the present study, another study has shown that a significant number of the fathers and mothers of children with severe illness reported posttraumatic growth.<sup>15</sup> In the present study, the

absence of posttraumatic growth was observed in one participant; it was also found in some other studies, although unexpected.<sup>10</sup> Posttraumatic growth is a unique phenomenon, experienced in a particular way in every individual. It may be affected by such factors as the severity of the traumatic event and the individual's perception of this severity,<sup>22</sup> their resilience, adaptation, beliefs and other variables. Thus, finding the reason for the absence of growth in some samples requires the assessment of other variables affecting the individual.

In agreement with the present study, previous studies have shown that parents may experience posttraumatic growth following a medical problem in their child<sup>10, 22</sup> because children's severe illness dramatically changes the family life; they find a way to be resilient in dealing with this experience.<sup>22</sup> Moreover, the experience of cancer can entail positive or negative effects in various dimensions of lives of the patients and their families.<sup>26, 27</sup> The enormous stress following the diagnosis of cancer<sup>1</sup> paves the way for posttraumatic growth.<sup>11</sup>

In the present study, "spiritual changes" had the highest level of growth, which is in agreement with the previous studies, in which spirituality was one of the stress-coping strategies adopted by caregivers of

**Table 3:** The result of association between dimensions of posttraumatic growth and sociodemographic characteristics variables

Sociodemographic Details	New opportunities		Personal strength		Appreciation of life		Spiritual changes		Relating to others	
	r	P value	r	P value	r	P value	r	P value	r	P value
Type of cancer*	0.02	0.95*	0.05	0.72*	-0.02	0.57*	0.03	0.97*	0.094	0.36*
Duration of disease**	0.05	0.44**	0.17	0.11**	0.02	0.77**	-0.06	0.35**	-0.00	0.94**
Child birth rank**	-0.08	0.23**	-0.09	0.19**	-0.08	0.25**	-0.00	0.94**	-0.04	0.54**
Child's gender***	0.05	0.36***	-0.19	<0.05***	0.06	0.26***	0.11	0.09***	0.11	0.14***
Child's age**	0.02	0.72 **	0.07	0.31 **	0.04	0.51 **	-0.05	0.43 **	0.02	0.72 **
Mothers marital status*	0.02	0.94*	0.01	0.57*	-0.01	0.20*	-0.01	0.67*	0.02	0.78*
Household size**	-0.13	0.07 **	-0.03	0.68 **	-0.05	0.49 **	0.04	0.59 **	-0.08	0.27 **
Mother's occupation*	0.05	0.44*	-0.01	0.88*	0.11	0.24*	0.05	0.19*	0.07	0.20*
Mother's education****	0.06	0.45****	0.05	0.50****	0.23	<0.01****	0.09	0.27****	0.13	0.09****
Mother's age**	-0.05	0.44 **	-0.04	0.57 **	0.04	0.55 **	-0.02	0.75 **	0.03	0.68 **
Child's age at onset of disease**	-0.00	0.93	0.01	0.88	0.04	0.87	-0.02	0.76	0.03	0.67

\*Spearman's coefficient; \*\*Pearson's coefficient; \*\*\*Spearman's coefficient. Significance at the 0.05 level; \*\*\*\*Spearman's coefficient. Significance at the 0.01 level

cancer patients,<sup>28</sup> and can be considered as an effective adjustment strategy for patients and their families.<sup>29</sup> The spiritual needs of caregivers dramatically increase because the diagnosis of cancer causes a spiritual crisis in mothers.<sup>30</sup> The incidence of this event in children can create a new perspective for parents and enhance their spirituality and strength.<sup>31</sup>

There is a relationship between spirituality and posttraumatic growth in Iranian cancer patients,<sup>21</sup> and this association was observed in the mothers of the children with cancer in the present study. By targeting the mother's beliefs, spirituality helps her evaluate adverse events in her child's illness differently,<sup>30</sup> and can be an important source for people and families dealing with serious and chronic diseases.<sup>32</sup> This result contradicts the studies in which "spiritual changes" had the lowest score of all dimensions.<sup>10, 33</sup> Cultural aspects affect posttraumatic growth, and since spiritual changes perfectly match religious phrases, they are unfamiliar for most people in secular communities<sup>10</sup> and unrelated to their other cultural contexts.<sup>34</sup> Given that 98% of people in Iran are Muslims, spirituality is an essential element in people's lives with strong cultural and historical roots.<sup>35</sup>

The present study results showed that "item 21", the component of "relationship with others" dimension had the highest score. As a previous study showed, relating to others increases in Iranian society at the time of trouble such as illness.<sup>36</sup> At the time of crises, families that have organized social supports can cope better than the families that are left alone.<sup>37</sup> Social support is essential for the parents of the children with cancer.<sup>38</sup> Some studies have reported a correlation between posttraumatic growth and social support,<sup>39, 40</sup> indicating that social support has a positive correlation with posttraumatic growth.<sup>40</sup> Mothers also need social support to improve adjustment with their child's disease.<sup>41</sup> Social support, as one of the most powerful coping forces in cancer and traumatic situations, reduces stress and improves health. Cancer affects the quality

of life of not only the patients, but also every single family member. Hence, families of these patients require a huge amount of social support to better cope with the disease-related threats and problems.<sup>42</sup>

The present study results also showed that the dimension of "new possibilities" had the lowest score. In another study, the effect of good social support on "new possibilities" was shown in fathers' posttraumatic growth.<sup>10</sup>

Although in the above study education showed no relationship with posttraumatic growth, the positive relationship between the mother's education level and the dimension of "appreciation of life", which scored the highest. "Spiritual changes" show that the high level of the mother's education makes her appreciate and value life more than before, and make an effort to preserve it. There was also a relationship between the child's gender and the dimension of "personal strength", in such a way that the mothers of male children with cancer scored higher in this dimension, while other studies showed no relationship between the child's gender and posttraumatic growth. This might be related to the cultural factors in the Iranian society, and it had no specific explanation in this study. Culture can affect the dimensions of posttraumatic growth and has a very important role in determining the perception of an event and shaping the beliefs of individuals. Moreover, cultural differences affect the nature and amount of posttraumatic growth, and the response of people to stressful events is different based on their sociocultural context.<sup>23</sup> Figuring out how cultural and social issues can affect various dimensions of posttraumatic growth in the mothers of the children with cancer in Iran requires further studies. Moreover, no significant relationship was found in the present study between other demographic variables and the total score of posttraumatic growth.

The use of convenient sampling may be a limitation in our study. Given the fact that research areas have been the reference centers throughout the country, this limitation has been partially resolved. Also, because of

the self-reporting nature of the study tools, the participants may not have expressed the reality and responded according to social norms. Besides, the following items were not investigated in the present study: coping strategies with child's illness that can have a major role in posttraumatic growth, and when and how they became aware of the diagnosis of the disease, since the severity of trauma due to the disease may be associated with these factors. Thus, it is recommended that the above issues and other factors affecting posttraumatic growth should be investigated in future studies. Moreover, the study was descriptive, and the relationship between the demographic factors and the dimensions of PTG inventory might be due to the intermediary or confounding factors. Therefore, other studies such as RCT correlation are necessary.

### CONCLUSION

As the present study, the results showed that the diagnosis of the child's cancer, as a traumatic event, can cause posttraumatic growth in mothers. Thus, it is recommended that the factors facilitating posttraumatic growth in the mothers of children with cancer should be further studied; also, efforts can be made to moderate these factors, leading to better adjustment to circumstances and improvement in the mothers' quality of life. The present study results can help clinical experts identify the family's healing aspects and facilitate the path of posttraumatic growth.

### ACKNOWLEDGEMENT

This article is part of Mina Behzadi's MSc nursing thesis of Shahid Beheshti University of Medical Sciences and a project approved by Shahid Beheshti University of Medical Sciences (8380). We wish to thank the personnel of Oncology departments and clinics of Mofid, Children's Medical Center, and Aliasghar hospitals, and also the participating mothers.

**Conflict of Interest:** None declared.

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