

## Resiliency and Religious Orientation: Factors Contributing to Posttraumatic Growth in Iranian Subjects

Jawad Seidmahmoodi, MA<sup>1</sup>  
 Changiz Rahimi, PhD<sup>1</sup>  
 Norolah Mohamadi, PhD<sup>1</sup>

<sup>1</sup> Department of Clinical Psychology, Shiraz University, Shiraz, Iran

### Corresponding author:

Changiz Rahimi, PhD  
 Assistant Professor, Department of Clinical Psychology, Shiraz University, Eram Hill, Shiraz, Iran.  
 Tel: +98 (711) 2334479  
 Fax: +98 (711) 2334479  
 Email: crahimi@hotmail.com

**Objective:** This study investigated the relationship between resilience and religious orientation (internal and external) with posttraumatic growth (PTG). This study also examined the impact of marriage and sex variables on growth.

**Method:** Participants were selected based on prescreening of a larger group of students enrolled in the University of Shiraz. Participants were recruited in two stages. Three hundred fifty students were randomly selected in the first stage, and those students who experienced a minimum of one traumatic event within the last five years were selected in the second stage. They completed the Traumatic Life Event Questionnaire (TLEQ), the Posttraumatic Growth Inventory - Iranian version (PTGI-I), and the Religious Orientation Scale (ROS).

**Results:** According to stepwise regression analysis, two subscales of resiliency, novelty seeking and positive future orientation, and a subscale of religious orientation, intrinsic orientation, were related to PTG. In addition, compared to singles, the married subjects experienced greater degree of growth. Personal extrinsic orientation and emotional regulation factor of resilience had a positive and meaningful relationship with PTG, although they were omitted from the regression analysis model. Sex and Socio-Extrinsic religious orientation were not related to PTG.

**Conclusion:** Some subscales of resiliency and religious orientation could predict posttraumatic growth in Iranian subjects, but there were no gender differences. The intrinsic orientation had the greatest significance in predicting posttraumatic growth. The personal extrinsic orientation had a significant positive correlation with post-traumatic growth, no significant correlation was observed between social extrinsic orientation and post-traumatic growth. The openness to experience was an important feature for proper growth of people facing a trauma. Optimistic subjects showed more flexibility in their coping strategies, and therefore had a tendency to adapt themselves to problematic situations.

**Keywords:** *Psychological resilience, Religion and psychology, Trauma*

*Iran J Psychiatry 2011; 6:145-150*

**I**ncreasing evidence exists on the fact that traumatic events can produce many negative physical and psychological consequences (1). In Iran, different studies have reported PTSD after traumatic events (2, 3, 4). In an epidemiological survey of psychiatric disorders in Iran, the prevalence of psychiatric disorders was 10.18%. About 0.98% of the patients suffered from PTSD (2). Although researchers extensively studied the negative effects of trauma, less attention has been paid to the possibility of positive impact of negative events. However, there is a body of literature suggesting that even those exposed to the most traumatic events may benefit from such unpleasant situations (1). The concept of Posttraumatic growth (PTG) was defined (5) (p. 521) as “the experience of significant positive change arising from

the struggle with a major life crisis”. Examples of positive psychological change are an increased appreciation of life, setting of new life priorities, a sense of increased personal strength, or positive spiritual change. The phenomenon has been recognized for centuries, but it is only in recent years that attempts have been made to study it systematically (6, 7). Determining predictor variables of posttraumatic growth is an interesting area to study.

The connection between religious-spiritual beliefs and practices and the phenomenon of posttraumatic growth has been demonstrated in the literature (8, 9, 5). Calhoun et al. (5) sought to examine the relationship between religious beliefs and posttraumatic growth. Religiousness was measured by The Quest Scale, which “was designed to measure the degree to which an individual’s religion involves a responsive dialogue

with existential questions (10). The scale is made up of 12-items with three factors including Readiness, Doubt, and Openness. Overall, Calhoun et al. (5) found that openness to religious change was the only aspect of religiousness significantly related to posttraumatic growth. Religious participation was not related to reports of posttraumatic growth. The results of this study suggest that individuals who keep less rigid religious beliefs are more likely to experience posttraumatic growth. Nevertheless, some studies (11, 12) found that religious participation is related to posttraumatic growth, suggesting that either persons experiencing posttraumatic growth seek out religious experiences, or that their religious participation primes them for spiritual growth (1). Frazier and Kaler (13) suggested that spirituality and religiousness (prayer, importance of spirituality, seeking religious guidance) are reported greater by individuals with breast cancer than ones without breast cancer. Post hoc follow-up tests showed that the largest difference between groups was on the importance of spirituality measure, with the breast cancer group rating spirituality as more important than the control group. In brief, there is some evidence about relationship between religious participation and posttraumatic growth. However, the relationship between intrinsic/extrinsic religious orientation and PTG is not so clear yet.

A second relevant variable, indicated in previous findings, is resilience as related to posttraumatic growth. Resilience is characterized by coping flexibility and the ability to recover well after a stressful experience (14). Resilience differs from posttraumatic growth in that resilience implies a return to prior levels of functioning following a trauma, whereas posttraumatic growth is a significant, positive change in emotional and cognitive functioning that supersedes previous levels of adaptation, psychological functioning, or life awareness (7).

A series of studies found that resilience moderated the association between stress and negative mood, such that individuals who were more resilient showed less mood reactivity to and faster mood recovery from daily stressors (15). In Schaefer and Moos's model (16), resiliency is one of personal determinants of positive outcomes of crises. It was found that resiliency is the strongest predictor of posttraumatic growth related to childhood parentification; resilience explained 14% of the variance in PTG (17). Some studies (18) investigated the impact of personal resilience (a composite measures of optimism perceived control and self-esteem) on outcome measures in 67 Chinese coronary heart disease patients in response to an 8-week rehabilitation program. Results indicated that coronary heart disease patients high in personal resilience achieved better outcomes than those low in personal resilience, as indicated by higher physical and mental summary measures in SF-36, lower cholesterol levels and better performance on the 6 min walk test. Moreover, personal resilience was demonstrated to be a

significant predictor of the level of posttraumatic growth.

The purpose of the present cross-sectional study was to examine relationship of Intrinsic/Extrinsic religious orientation and resiliency, as predictors to PTG in an Iranian sample.

## Materials and Method

### *Participants and Procedure*

The participants were 201 undergraduate students who experienced a major traumatic event within the past 5 years. The trauma experience of university students is comparable to the general population (19). Participants were selected based on prescreening of a larger group of 350 students enrolled in the University of Shiraz. Inclusion criteria specified that participants must (a) have an experience of at least one traumatic event and (b) experience at least one traumatic event within the past 5 years. A total of 149 students were excluded because they did not meet the study's inclusion criteria: 62 students did not report any traumatic event; 87 reported an event that had occurred more than 5 years ago. Hence, the final study sample consisted of 201 college students. They included 101 women and 100 men, with a mean age of 22.03 years; of whom, 84% were single and 16% married.

The questionnaires were completed by 350 students from Shiraz University. One hundred forty nine students (61 men, 88 women) were excluded from the analyses, because they did not experience any trauma within the past five years. Following the prescreening, 201 participants who had experienced a traumatic event were included in the analysis.

### *Instruments*

*The Traumatic Life Event Questionnaire (TLEQ):* Traumatic Life Events Questionnaire (20) assesses the occurrence of 17 potentially life-threatening events. It is a 23-item self-report measure. Respondent provides the number of times an event occurred (ranging from "never" to "more than 5 times"). He/she is asked whether fear, helplessness or horror was present. Respondents are also asked about their age upon first occurrence, date of last occurrence, and amount of distress the event causes. The measure can be used for both clinical and research purposes. Some studies have reported acceptable validity and reliability for TLEQ (20). In the present study, the Persian version of TLEQ had a high internal consistency (Cronbach's  $\alpha = 0.87$ ).

*The Posttraumatic Growth Inventory - Iranian version (PTGI-I).* The original PTGI (1) is a 21-item scale that measures the degree of reported positive changes experienced in the struggle with major life crises. The inventory has acceptable construct validity, internal consistency (0.90), and test-retest reliability over a 2-month interval (0.71). The PTGI consists of five subscales: Relating to others (seven items), New Possibilities (five items), Personal Strength (four items), Spiritual Change (two items), and Appreciation of Life (three items). In the present study, the

psychometric properties of a Persian-language version of the PTGI-I was examined in an Iranian college-student sample. A process of translation and back translation was conducted to achieve the greatest possible semantic and content equivalence to the PTGI. The inventory had acceptable internal consistency (0.90) and test-retest reliability over a week interval (0.94).

*The Religious Orientation Scale:* Religiosity was measured using the Religious Orientation Scale (21), the most commonly used measure of religious orientations and the Religious Orientation Scale (22). This scale assesses intrinsic and personal and social extrinsic orientations toward religion and consists of 15 items. Nine items measure intrinsic characteristics and eleven items measure personal and social extrinsic characteristics.

Regarding personal-extrinsic orientation, subjects performed religious acts for personal benefits like achieving mental peace, removing worries and having a supporting source as for social-extrinsic orientation, subjects followed religious acts in an attempt to establish relationship with others and to obtain their support (21). Each item asks subjects to rate their opinions about their religious orientation on a scale of 0 (strongly disagree) to 4 (strongly agree) (21). The psychometric properties of Religious Orientation Scale were examined in an Iranian sample (23). Cronbach's coefficient alpha for total score was 0.70. Reliability coefficient using test-retest procedure, with two weeks interval was 0.88. The results of factor analysis, using varimax rotation, yielded three factors that explained 58% variances of the total scale.

*The Adolescent Resilience Scale:* The scale has 21 items in three subscales of novelty seeking, emotional regulation, and positive future orientation. Participants rated items using anchors of 5=definitely yes and

1=definitely no (24). In the present study, we examined psychometric properties of the Adolescent Resilience Scale. Cronbach's coefficients alpha were 0.72 for novelty seeking, 0.56 for the emotional regulation, and 0.91 for the positive future orientation. The overall consistency was 0.81, confirming the internal consistency of the whole scale. The correlations between the total score and each subscale were significant (0.73, 0.75, and 0.76, respectively).

**Results**

Pearson correlations between subscales of religious orientations, subscales of resiliency, gender, and marital status were calculated. Intrinsic orientation, personal extrinsic orientation, new seeking, emotional regulation, positive future orientation, and marital status had a significant relationship to posttraumatic growth. Married subjects experienced PTG more than single ones ( $t = -3.72, P < 0.000$ ). There was not any difference between males and females in PTG. The correlations between total scores of religious orientation, resiliency and PTG were significant ( $r = 0.33$  and  $r = 0.36, P < 0.000$ , respectively). However, relationship between religious orientation and resiliency was not significant. The three subscales of the Religious Orientation Scale (intrinsic orientation,  $M = 22.8; SD = 7.3$ ; personal extrinsic orientation,  $M = 9.3; SD = 2.9$ ; social extrinsic orientation,  $M = 2; SD = 2.3$ ), the three subscales of the Resilience Inventory (new seeking,  $M = 27; SD = 3.7$ ; emotional regulation,  $M = 28.4; SD = 4.2$ ; positive future orientation,  $M = 18.9; SD = 4.6$ ); gender, and marital status were entered at once in a stepwise multiple regression equation, with the total score on the Posttraumatic Growth Inventory ( $M = 56.76; SD = 19.66$ ) serving as the dependent variable.

**Table 1. Correlations Among Scales**

	PTGI	MS	Gen	NS	ER	PFO	IO	PEO	SEO
Posttraumatic Growth Inventory (PTGI)	1.00	0.25*	-0.01	0.29*	0.21*	0.32*	0.33*	0.28*	0.07
Marital Status (MS)		1.00	0.05	0.02	0.05	0.15	0.12	0.17*	0.13
Gender (Gen)			1.00	-0.10	-0.18*	-0.05	0.22*	0.16*	0.23*
New Seeking (NS)				1.00	0.39*	0.32*	0.07	0.09	-0.01
Emotional Regulation (ER)					1.00	0.31*	0.07	0.00	-0.04
Positive Future Orientation (PFO)						1.00	0.21*	0.11	0.08
Intrinsic Orientation (IO)							1.00	0.71*	0.31*
Personal Extrinsic Orientation (PEO)								1.00	0.18*
Social Extrinsic Orientation (SEO)									1.00

\* =  $P < .01$

**Table 2. Regression Models for Posttraumatic Growth**

Model		$\beta$	t	Sig.	F	Sig.	R	Adjusted R <sup>2</sup>
1	Intrinsic Orientation	0.33	5.08	0.001	25.85	0.001	0.33	0.11
2	Intrinsic Orientation	0.32	4.98	0.001	22.82	0.001	0.43	0.17
	New Seeking	0.27	4.19	0.001				
3	Intrinsic Orientation	0.29	4.66	0.001	19.84	0.001	0.48	0.22
	New Seeking	0.26	4.25	0.001				
	Marital Status	0.21	3.38	0.001				
4	Intrinsic Orientation	0.26	4.18	0.001	16.78	0.001	0.50	0.24
	New Seeking	0.21	3.28	0.001				
	Marital Status	0.19	3.05	0.003				
	Positive Future Orientation	0.16	2.46	0.015				

Four of the measures emerged as significantly associated with posttraumatic growth: religious intrinsic orientation ( $\beta=0.26$ ); new seeking ( $\beta=0.21$ ); marital status ( $\beta=0.19$ ); and positive future orientation ( $\beta=0.16$ ). The other variables (gender, emotional regulation, personal extrinsic orientation, and social extrinsic orientation) were omitted at the following steps. Table 1 summarizes the Pearson correlations among this set of variables. The final model yielded a significant Multiple R ( $R = 0.50$ );  $F(4, 196) = 16.78$ ;  $p < 0.001$  and adjusted  $R^2 = 0.24$ . Table 2 presents stepwise regression models. The results showed that intrinsic orientation is the best predictor for PTG.

## Discussion

The present study focused on the prediction of posttraumatic growth by religious orientation and resiliency in a student sample that reported a traumatic event within the 5 past years.

The results showed that the married subjects had experienced greater level of posttraumatic growth. This can probably be due to the close link between such couples and their mutual support from each other against stressful situations. This is in line with the view that social support systems play a key role in the aftermath of trauma (25). Other studies have also shown that individuals demonstrate better adjustment to traumatic events when they perceived greater levels of social support (26).

No gender differences were observed in the sample. Previous results regarding gender differences in PTG have been incompatible (27); however, in studies in which differences have been found, women reported more growth than men (28,1). Women in Western countries may be more religious than men, and this may be one of the potential explanations of the gender differences of PTG (29). If so, the present results can be explained by insignificant differences in religiousness among Iranian than among Americans.

Correlation statistics between the variables suggest that there are a number of significant correlations between religious orientation and posttraumatic growth. Having considered the results obtained from regression analysis, the intrinsic orientation had the greatest significance in predicting posttraumatic growth. According to the results in Allport's theory (30), religious attitudes are divided into two categories: intrinsic orientations and extrinsic orientations. Intrinsic individuals can be described as orthodox, devoted, and motivated towards religion because of personal beliefs. These people continue a life style that is in line with attitudinal and behavioral patterns of their own religions. On the other hand, those with extrinsic attitudes resort to religions as a means of achieving their psychological and financial goals (for example, seeking peace, security or happiness, and removing sorrow and problem behavior. These individuals pursue religion for social reasons and are not considered orthodox (23). The personal and social aspects of the extrinsic orientation were omitted from

the regression model. Nonetheless, as has been shown in the correlation matrix, the personal extrinsic orientation had a significantly positive correlation with post-traumatic growth, whereas there was no significant correlation between social extrinsic orientation and post-traumatic growth.

There has been a focus on the role of religious beliefs in coping with stress (31). It was found that, for Protestants experiencing high levels of stress, intrinsic religiousness was depressing – reducing. Individuals with an intrinsic religious orientation find their master motive in religion, and religion serves as the framework within which they live their lives (30). It seems likely, then, that individuals scoring high on measures of intrinsic religiousness will experience some personal growth after a crisis both because of the potential stress – reducing role of intrinsic religiousness, and because of the higher – order, disconfirming assumptions about the world that these individuals are likely to hold (32). For these individuals, stress may lead to personal growth because of the meaning attached to the occurrence of the event (33). Further, religion can offer an interpretive framework that facilitates finding meaning in the illness experience (11, 34), one form of growth. Alternatively it has been noted that religious beliefs may enable people to reappraise threatening situations as challenging, with the potential for positive outcomes through suffering (35).

Another variable associated with PTG was novelty seeking – a dimension of resilience. Novelty seeking refers to ability to show interest in and concern about a wide variety of events<sup>33</sup>. This relationship can probably be justified by an underlying factor. Novelty seeking correlates with extroversion and openness to experience (36). On the other hand, openness to experience and extroversion tendencies significantly correlated with post-traumatic growth (1). Such links (correlations) indicate that openness to experience is a fundamentally important feature for proper growth of people facing a trauma.

Finally, the correlation between PTG and Positive Future Orientation - another dimension of resilience - was significant and positive. It refers to one's approach to dreams, and goals in the future (37). It is well known that optimistic people typically show more flexibility in their coping strategies which results in their adaptation to problematic situations: They employ more problem focused coping strategies in controllable situations and make more use of reframing and acceptance coping in uncontrollable situations<sup>34</sup>. In many other studies dispositional optimism orientation positively correlated with post-traumatic growth (38).

In summation, some subscales of resiliency and religious orientation could predict posttraumatic growth in Iranian subjects. Marriage had a positive effect on experiencing greater level of posttraumatic growth. It seems social support play an important role in PTG. Although the difference between males and females was not significant, it seems that women

reported more growth than men. Among different subscales of religious orientation, the intrinsic orientation had the greatest significance in predicting posttraumatic growth; and personal extrinsic orientation could support PTG. On the other hand, novelty seeking and positive future orientation, as dimensions of resiliency, were associated with PTG. Openness to experience was a fundamentally important feature for proper growth of people facing a trauma. Optimistic subjects showed more flexibility in their coping strategies, and therefore had a tendency to adapt themselves to problematic situations.

### Limitations

The current study had a number of limitations, of which the following worth mentioning. First, according to the views indicated by Tedeschi and Calhoun's (1, 39), post-traumatic growth happens over time. Bearing in mind that the current study has been cross-sectional, the results should be generalized with caution. Longitudinal replication of the study is also recommended to discover whether similar results are obtained over the passage of time. Second, subjects of the current study have experienced some special types of trauma that may not be applicable to a particular type of trauma. Hence, we suggest that the study be replicated using subjects who have experienced a particular type of trauma. Another suggestion is the longitudinal investigation of the effect of the protective roles that couples adopt when they face a traumatic event.

### References

1. Tedeschi RG, Calhoun LG. The Posttraumatic Growth Inventory: measuring the positive legacy of trauma. *J Trauma Stress* 1996; 9: 455-471.
2. Mohammadi MR, Davidian H, Noorbala AA, Malekafzali H, Naghavi HR, Pouretamad HR, et al. An epidemiological survey of psychiatric disorders in Iran. *Clin Pract Epidemiol Ment Health* 2005; 1: 16.
3. Mirzamani SA, Mohammadi MR. PTSD symptoms of survivors of an airline event in Teheran. *Arc Med Sci* 2007; 3: 173-176.
4. Mirzamani SM, Mohammadi MR, Besharat MA. PTSD symptoms of children following the occurrence of Tehran city park disaster. *J Psychol* 2006; 140: 181-186.
5. Calhoun LG, Cann A, Tedeschi RG, McMillan J. A correlational test of the relationship between posttraumatic growth, religion, and cognitive processing. *J Trauma Stress* 2000; 13: 521-527.
6. Affleck G and Tennen H. Construing benefits from adversity: adaptational significance and dispositional underpinnings. *J Pers* 1996; 64: 899-922.
7. Calhoun LG, Tedeschi RG. Posttraumatic growth: Future directions. In: Tedeschi RG, Park CL, Calhoun LG, eds. *Posttraumatic growth: Positive changes in the aftermath of crisis*. Mahwah, NJ: Erlbaum; 1998.
8. Bade MK. Personal growth in the midst of negative life experiences: The role of religious coping strategies and appraisals. *Dissertation Abstracts International* 2000; 61(7): 3828.
9. Walker L. The relationship of posttraumatic growth to spiritual beliefs in distance education graduate students. *Dissertation Abstracts International* 2001; 39: 939.
10. Batson CD, Schoenrade P, Ventis WL. *Religion and the individual: A socialpsychological perspective*. New York: Oxford University Press; 1993.
11. Pargament K. *The psychology of religion and coping: Theory, research and practice*. London: Guildford Press; 1997.
12. Tedeschi R, Calhoun L. *Trauma and transformation: Growing in the aftermath of suffering*. Thousand Oaks, CA: Sage Publications; 1995.
13. Affleck G, Tennen H. Construing benefits from adversity: adaptational significance and dispositional underpinnings. *J Pers* 1996; 64: 899-922.
14. Tugade MM, Fredrickson BL. Resilient individuals use positive emotions to bounce back from negative emotional experiences. *J Pers Soc Psychol* 2004; 86: 320-333.
15. Ong AD, Bergeman CS, Bisconti TL, Wallace KA. Psychological resilience, positive emotions, and successful adaptation to stress in later life. *J Pers Soc Psychol* 2006; 91: 730-749.
16. Schaefer J, Moos R. Life crises and personal growth. In: Carpenter BN, ed. *Personal coping: Theory, research, and application*. Westport, CT: Praeger; 1992.
17. Hooper LM, Marrota SA, Lanthier RP. Predictors of Growth and Distress Following Childhood Parentification: A Retrospective Exploratory Study. *Journal of Child and Family Studies* 2008; 17: 693-705.
18. Chan IWS, Lai JCL, Wong KWN. Resilience is associated with better recovery in Chinese people diagnosed with coronary heart disease. *Psychology and Health* 2006; 21: 335-349.
19. Bernat JA, Ronfeldt HM, Calhoun KS, Arias I. Prevalence of traumatic events and peritraumatic predictors of posttraumatic stress symptoms in a nonclinical sample of college students. *J Trauma Stress* 1998; 11: 645-664.
20. Kubany ES, Haynes SN, Leisen MB, Owens JA, Kaplan AS, Watson SB, et al. Development and preliminary validation of a brief broad-spectrum measure of trauma exposure: the Traumatic Life Events Questionnaire. *Psychol Assess* 2000; 12: 210-224.
21. Maltby J, Lewis C, Day L. Religious orientation and psychological well-being: The role of the frequency of personal prayer. *British Journal of Health Psychology* 1999; 4: 363-378.
22. Allport GW, Ross JM. Personal religious orientation and prejudice. *J Pers Soc Psychol* 1967; 5: 432-443.
23. Nassabeh H. The role of religious beliefs and religious observance in mental health. M.S Thesis, Shiraz University; 2005.

24. Oshio A, Kaneko H, Nagamine S, Nakaya M. Construct validity of the Adolescent Resilience Scale. *Psychol Rep* 2003; 93: 1217-1222.
25. Calhoun LG, Tedeschi RG. The foundations of posttraumatic growth: An expanded framework. In: Calhoun LG, Tedeschi RG, Eds. *Handbook of posttraumatic growth*. Mahwah, NJ: Erlbaum; 2006.
26. McIntosh DN, Silver RC, Wortman CB. Religion's role in adjustment to a negative life event: coping with the loss of a child. *J Pers Soc Psychol* 1993; 65: 812-821.
27. Linley PA and Joseph S. Positive change following trauma and adversity: a review. *J Trauma Stress* 2004; 17: 11-21.
28. Sheikh AI, Marotta SA. A cross-validation study of the Posttraumatic Growth Inventory. *Measurement and Evaluation in Counseling and Development* 2005; 38: 66-77.
29. Rayburn CA. Religion, spirituality, and health. *American Psychologist* 2004; 59: 52-53.
30. Allport G. Religious context of prejudice. *Journal for the Scientific Study of Religion* 1966; 5: 447-457.
31. Park C, Cohen L. Religious beliefs and practices and the coping process. In: B. Carpenter Ed. *Personal coping: Theory, research, and applications*. New York: Preager; 1992.
32. Janoff-Bulman R. Assumptive worlds and the stress of traumatic events: Applications of the schema construct. *Social cognition* 1989; 7: 113-136.
33. Park CL, Cohen LH. Religious and non religious coping with the death of a friend. *Cognitive. Therapy and Research* 1993; 17: 561-577.
34. Siegel K, Anderman SJ, Schrimshaw EW. Religion and coping with health-related stress. *Psychol Health* 2001; 16: 631-653.
35. Park C. Implications of posttraumatic growth for individuals In RG. Tedeschi, CL. Park, LG. Calhoun, Eds. *Posttraumatic growth: Positive changes in the aftermath of crisis*. Mahwah, NJ: Erlbaum; 1998.
36. Nakaya M, Oshio A, Kaneko H. Correlations for Adolescent Resilience Scale with big five personality traits. *Psychol Rep* 2006; 98: 927-930.
37. Scheier MF, Carver CS, Bridges MW. Optimism, pessimism, and psychological well-being. In: Chang EC, ed. *Optimism and pessimism: Implications for theory, research, and practice*. Washington, DC: American Psychological Association; 2001.
38. Linley PA, Joseph S. Positive change following trauma and adversity: a review. *J Trauma Stress* 2004; 17: 11-21.
39. Tedeschi RG, Calhoun LG. Posttraumatic Growth: Conceptual Foundations and Empirical Evidence. *Psychological Inquiry* 2004; 15: 1-18.