

Mediating Role of Coping Styles in Personality, Social Support and Post-Traumatic Growth Relationships in Women with Breast Cancer

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An emerging area of empirical study in the stress and health literature is the concept of positive consequences arising as a result of coping with traumatic experiences such as life-threatening illness. The present study investigated three specific psychosocial variables (coping styles, personality and social support) in relation to post-traumatic growth in breast cancer patients. The study was conducted with 176 women with breast cancer undergoing chemotherapy and coming to the hospital for their routine check-up. Brief COPE, NEO-FFI, Multidimensional scale of perceived social support (MSPSS), Post-Traumatic Growth Inventory-Short Form and Baseline Form were used. The results indicated that conscientiousness, social support from significant other and total social support emerged as a significant predictor of post-traumatic growth in breast cancer patients. There was also evidence that active-adaptive coping partially mediated the conscientiousness-post-traumatic growth relationship and fully mediated the relationship of social support and post-traumatic growth relationship. The significance of personal and social variables in psychological interventions aimed at improving the adjustment and post-traumatic growth of breast cancer patients.

Keywords: Post-traumatic Growth, Cancer, Personality, Coping, Social Support.

Ever since the beginning of the man's existence human beings have been exposed to accidents, wars, terrorist attacks, losses and natural disasters. Such traumatic experiences may cause some psychological disorders like posttraumatic stress disorder in people who experience them. In addition, chronic illnesses have also been defined as traumatic for the patients and for their families in terms of the effects they have on these people. Much of the research on the experience of struggle with life-threatening illness has focused on negative psychological sequelae, such as anxiety and depression (Lane, Carroll, Ring, Beevers & Lip, 2002; Ziegelsstein, 2001).

There has been a shift in literature on post-trauma outcomes and recent researches have given more emphasis on the notion that struggle with trauma can produce positive psychological effects (Affleck & Tennen, 1996). To have a better understanding of trauma outcomes and to arrive at better conclusions Tedeschi, Park and Calhoun in their study examining the

changes resulting from trauma, reported that it is important to consider both negative and positive psychological results of trauma.

Several factors have been examined in relation to post-traumatic growth, personality being one of them. Personality is an important factor because it will determine how individuals will adapt to stressful events and how they will recover. Research has found a link between several personality factors and post-traumatic growth (Yola, 2011 & Znoj, 1999). Tedeschi and Calhoun (1996) in their study found a link between post-traumatic growth and big five factors of personality.

A comprehensive categorization of higher order trait characteristics is Costa and McCrae's Five-Factor Model of personality (FFM), comprised of Neuroticism, Extraversion, Openness, Agreeableness and Conscientiousness dimensions (Costa & McCrae, 1992). Research has shown that there is a significant contribution of each of

these factors in both positive and negative outcomes following the traumatic event (Hyer et al. 1994; Tedeschi & Calhoun, 1996) which contrasts emotional stability with maladjustment or instability.

Neuroticism is the most pervasive dimension of personality in terms of a pathogenic post-trauma outcome that correlates to and has been found to be a predictor of adjustment difficulties in dealing with a traumatic or stressful situation (Casella & Motta, 1990; Watson & Hubbard, 1996). There is an evidence of positive relationship between extraversion and positive affect (Affleck & Tennen, 1996; Tedeschi & Calhoun, 1996). Openness is related to a predilection to employ cognitive strategies. Individuals scoring high on openness enjoy thinking and seek out situations that require creativity of thought (Edwards, Weary, & Reich, 1998). There is an evidence of significant, positive relationship between individuals, scoring highly in openness and measures of PTG (Tedeschi & Calhoun, 1996) and benefit finding (Affleck & Tennen, 1996) in trauma survivors. Individuals high on agreeableness show such characteristics as empathy, courtesy, trustworthiness and helpfulness (Edwards, Weary, & Reich, 1998) and expect others to behave in a similar manner. So, it appears that the agreeable individual is more likely to perceive positive changes as a result of experiencing a traumatic event. The last dimension comprising the FFM is conscientiousness. Individuals who score high on conscientiousness are characterized by the tendency to be reliable, organized and persistent in the pursuit of goals, despite the attractiveness or otherwise of the task at hand. Research evidence has shown that higher levels of conscientiousness is significantly related to positive changes in the wake of a traumatic event (Tedeschi & Calhoun, 1996) and in the perception of objective, positive life events (Magnus, Diener, Fujita, & Pavot, 1993).

There is a difference between coping and the automatic habitual responses that are perhaps measured more appropriately by the FFM dimensions. Coping is a process by which an individual manages the demands and emotions generated by that which is appraised to be stressful (Lazarus, 1999; McCammon,

et al., 1988). Strategies include appraisals of a stressful event and bestowing the situation with meaning, as opposed to the global meaning assessed when measuring levels of PTG (Folkman & Tedlie Moskowitz, 2000). The process involves appraisals as to whether a situation is a threat, a challenge, or a loss, and perceptions of what can be done to alter the situation or minimize the threat. Following the initial appraisal of the situation, coping strategies are implemented (Lazarus & Folkman, 1984). As a mediating variable, coping can be considered a transactional process between individuals, the context, and post-trauma outcome.

During coping with a disease, a role is ascribed to support from close relatives, mostly family members. It has been confirmed that post-traumatic growth is influenced by support from friends and significant others, with support from family members proving to be strong reinforcement (Tanriverd, Savas & Can, 2012). Women who obtain greater support from their husbands benefited more than those who received less help (Weiss, 2004). Moreover, the participants staying in touch with other women, who successfully coped with and benefited from their disease, were documented to display greater amounts of positive posttraumatic changes. This would point to a significant role of posttraumatic growth modeling. Perceived social support i.e. the awareness of having persons who could offer support in a crisis seems a more important determinant of efficient coping with trauma and resultant positive changes, than the availability of the support itself. Being convinced of having support promotes choosing more efficient coping strategies.

Current Study:

The variables reviewed above provide evidence that personality dimensions have a relationship with individual post-trauma outcomes. Coping resources have also received considerable support because of the idea that they reflect stable personality characteristics (Lazarus & Folkman, 1984; Park & Folkman, 1997). Social support has also been found to influence the post-traumatic growth indirectly via coping. Therefore, although direct effects appear to exist between personality variables, social

support and PTG, it is likely that personality and social support relates to PTG indirectly, and is mediated through various coping processes (Tedeschi, Park & Calhoun, 1998).

It was hypothesized that personality and coping variables will be significantly related to posttraumatic growth; i.e. higher levels of extraversion, openness, agreeableness, conscientiousness, and coping will be significantly and positively correlated with higher levels of PTG. There has also been a proposal that personality factors relate indirectly to PTG through coping resources (Tedeschi, Park & Calhoun, 1998). Hence, it was hypothesized in this that personality dimensions and social support (predictor variables) will significantly relate to posttraumatic growth (outcome variable) indirectly, through the frequency of use of adaptive coping resources (mediating variable).

Method

Participants:

176 women with breast cancer (Mean age: 46.6, SD: 10.9, Range 25-70) undergoing treatment and coming to the hospital for their routine check-up after recovery participated in this study. The participants were recruited from the oncology centers of three major hospitals of Kashmir. The participants had a history of breast cancer for a minimum of six months and a maximum of 60 months. While 11 of the participants (6.25%) were employed 165 (93.75%) were non-working. Inclusion criteria of the sample were being at least 18 years of age, definite diagnosis of breast cancer and having a history of breast cancer for a minimum of six months.

Measures:

Brief COPE: This scale was originally developed by Carver (1997) has been designed to assess a broad range of coping responses among adults for all diseases. The scale consists of 28 items rated on a 4-point Likert scale. These items are divided into fourteen sub-scales. Higher scores indicate increased utilization of that specific coping strategy. This scale was converted into Urdu by the researcher. Empirical evidence exists indicating the sound

psychometric properties of the scale. Though COPE sub-scales are intended to be used independently, research has suggested that sub-scales of denial, substance abuse, self-blame, behavioural disengagement, self-distraction capture avoidant coping and the sub-scales of active-coping, use of emotional support, use of instrumental support, positive reframing, planning, humour, acceptance and religion best capture approach or adaptive coping (Kershaw, Northouse, Kritpracha, Schafenacker & Mood, 2004; Oxman, Hegel, Hull & Dietrich, 2008; Schnider, Ilhai & Gray 2007). To have a more practical measure one original sub-scale of substance abuse was discarded due to cultural issues. The score of active-adaptive coping was computed by adding the sub-scales of Active Coping, Use of Emotional Support, Use of Instrumental Support, Positive Reframing, Planning, Humour, Acceptance, Religion, Venting and Self-distraction. The score of avoidance coping was computed by adding the sub-scales of Denial, Self-blame and Behavioural Disengagement (Carver, Scheier & Weintraub, 1989; Danheer, Crawford, Farmer & Avis, 2013). In the present study, the internal consistency measured by Cronbach Alpha for Adaptive Coping was 0.74 and for Avoidance Coping it was 0.69.

Multi-Dimensional Scale of Perceived Social Support (MSPSS): This scale was originally developed by the Zimet, Dahlem, Zimet & Farley (1988) and was used in the present study. The scale was translated by the researcher into Urdu. It consists of 12 items rated on a 7-point Likert scale. The items question the respondent about the source and the level of social support provided by family, friends and the significant other. Higher scores represent higher levels of perceived social support. In the present study, the internal consistency measured by Cronbach Alpha of the whole scale was (0.80), family (0.72), friends (0.89) and significant other (0.91).

NEO-FFI: This scale developed by Costa and McCrae (1992) consisting of 60 items which are rated on a five-point Likert scale from "Strongly Disagree" to "Strongly Agree". The 60 items of the scale are divided into five dimensions: Neuroticism, Extraversion, Openness, Agreeableness and Conscientiousness; each

consisting of 12 items. The researcher translated this scale into Urdu. The internal consistency measured by Cronbach Alpha for the present study was Neuroticism (0.82), Extraversion (0.73), Openness (0.64), Agreeableness (0.72) and Conscientiousness (0.69).

Post-traumatic Growth Inventory-Short Form (PTGI-SF): This scale has been developed by Cann et. al. (2010) for measuring positive changes after trauma. PTGI-SF has 10 items assessing five dimensions of growth with two items assessing one dimension. In the present study, the total score was used as an indicator of post-traumatic growth with higher scores indicating higher post-traumatic growth. For the present study, the researcher translated the scale into Urdu language. Internal consistency measured by Cronbach alpha for the whole scale was 0.72.

Procedure:

The data was collected from three major hospitals of Srinagar city of Jammu & Kashmir between December 2014 and June 2015. Before data collection, necessary approvals were obtained by the researcher. After the consent for the study was obtained from the participants and the confidentiality was ensured the scales were applied by the researcher in a face-to-face format. Application of the questionnaire took approximately 60 minutes.

Before statistical analysis data was screened in terms of the missing values and outliers. Since there were no cases with missing values there was no need to apply any statistical procedure for missing data.

Statistical Analysis

Pearson's product moment correlations (Pearson's r) were applied to examine the bivariate relationship between the variables. In order to examine the mediating role of coping, path analysis was applied utilizing AMOS software package. For testing mediation Baron and Kenny guidelines (Baron & Kenny, 1986) were used.

Results

Pearson's correlation coefficient was used to study the relationship between study variables (See Table 1). The results of the correlational

analysis showed that personality traits were found to be significantly correlated with post-traumatic growth. The results revealed that neuroticism ($r = -.24, p < .01$), extraversion ($r = .17, p < .05$), openness ($r = .19, p < .01$) and conscientiousness ($r = .42, p < .01$) are significantly correlated with post-traumatic growth in breast cancer patients, but the relationship between agreeableness and post-traumatic growth was found to be insignificant. It was found that active-adaptive coping strategies ($r = .38, p < .01$), were significantly and positively correlated with post-traumatic growth whereas there was an insignificant, negative correlation between avoidance coping strategies and post-traumatic growth ($r = -.05, p = 0.06$). Support from family ($r = .29, p < .01$), support from friends ($r = .15, p < .05$), support from the significant other ($r = .31, p < .01$), as well as total social support ($r = .34, p < .01$), were significantly and positively associated with post-traumatic growth.

Table 1. Summary of Pearson Correlations between Study Variables

Variables	Post-traumatic Growth
Neuroticism	-.24**
Extraversion	.17*
Openness	.19**
Agreeableness	.06NS
Conscientiousness	.42**
Active-adaptive Coping	.38**
Avoidance Coping	-.05NS
Family	.29**
Friends	.15*
Significant Other	.31**
Total	.34**

* $p \leq 0.05$, ** $p \leq 0.01$, NS Insignificant

Regression Analysis: Further, the multiple regression analysis was conducted to investigate the degree to which the coping styles predict post-traumatic growth. The regression coefficients for this analysis are presented in Table 2. Only active-adaptive coping emerged as a significant predictor of post-traumatic growth. The R^2 of this regression equation was 0.14 indicating that the active-adaptive coping explained 14%

of variance in post-traumatic growth. The model was significant in the prediction of post-traumatic growth scores ($F=15.15$; $p<0.001$).

Table 2: Summary of the final model of multiple regression analysis for coping strategies predicting post-traumatic growth

Outcome	Predictors	B	SE B	B	T
Post-traumatic growth	Constant	15.93	4.39	-	3.67**
	Active-adaptive Coping	.33	.60	.39	5.46**
	Avoidance coping	.06	.14	.03	0.42

Note: $R^2 = .14$ ($p \leq .001$); ** $p \leq .01$.

The five-factors of the NEO-FFI were simultaneously taken for regression equation to test for their direct predictive power of the total post-traumatic growth scores. The summary of the regression analysis is presented in Table 3. Among the personality factors only conscientiousness emerged as a significant predictor of post-traumatic growth. The R^2 of this equation was 0.20 indicating that conscientiousness explained 20% of the variance in post-traumatic growth. The model was significant in the prediction of post-traumatic growth scores. ($F= 8.81$, $p< .001$).

Table 3: Summary of the final model of multiple regression analysis of the personality traits predicting post-traumatic growth

Out-come	Predictors	B	SE B	B	T
Post-traumatic growth	Constant	32.68	5.48	-	5.95**
	Neuroticism	.10	.06	.16	1.59
	Extraversion	.06	.08	.07	0.68
	Openness	.05	.10	.04	0.49
	Agreeableness	.16	.08	.16	1.88
Conscientiousness	.46	.09	.44	4.78**	

Note: $R^2 = .20$ ($p \leq .001$); ** $p \leq .01$.

Multiple regression analysis was also conducted to investigate the degree to which

perceived social support predicted post-traumatic growth. The results of the regression analysis are shown in Table 4. Support from the significant other and the total social support emerged as a significant predictor of post-traumatic growth explaining 13% of the variance. The model was established as significant ($F= 19.04$, $p< .001$).

Table 4: Summary of the final model of multiple regression analysis of the social support predicting post-traumatic growth

Out-come	Predictors	B	SE B	β	T
Post-traumatic growth	Constant	18.92	3.72	-	5.08**
	Support from Family	.36	.16	.18	2.23**
	Support from Friends	.08	.09	.06	0.83
	Support from Sig. Other	.33	.11	.24	3.17**

Note: $R^2 = .13$ ($p \leq .001$); ** $p \leq .01$.

Mediation

In order to examine the mediating role of coping, path analysis was applied utilizing AMOS software package. For testing mediation Baron and Kenny guidelines (Baron & Kenny, 1986) were used. The mediation model was analysed to investigate the extent to which Active-adaptive coping mediate the relationship of Conscientiousness and Social Support to the Post-traumatic growth. The model explained 25% of variance in Post-traumatic growth (see Fig. 1).

The path coefficient from Conscientiousness to Active-adaptive coping ($\beta= .18$, $p=0.01$, BC 95% CI .07 - .29) and from Active-adaptive coping to Post-Traumatic Growth ($\beta= .20$, $p=0.01$, BC 95% CI, .01-.37) were both statistically significant indicating that more Conscientiousness was related to more Active-adaptive coping and more Active-adaptive coping was related to more Post-traumatic growth (see Figure 1).

The path coefficient from Social Support to Active-adaptive coping ($\beta= .48$, $p>.001$, BC 95%

Table 5: Showing the direct effect of Conscientiousness and Social Support on Post-Traumatic Growth

Predictor	Outcome	B	SE	p value	BC 95% CI
Conscientiousness	Post-traumatic Growth	.42	.07	.002	.29-.55
Social Support		.36	.07	.003	.23-.46
Active-Adaptive Coping		.39	.09	.002	.17-.54

Based on 1000 random bootstrap sample

Table 6: Showing the Mediation Summary

Predictor	Mediator	Outcome	β	SE	p value	BC 95% CI
Conscientiousness	Active Adaptive Coping	Post-traumatic Growth	.30	.07	.002	.16-.44
Social Support			.14	.08	.000	-.01-.31

Based on 1000 random bootstrap samples

Table 7: Showing the indirect effect of Conscientiousness and Social Support on Post-Traumatic Growth

Predictor	Mediator	Outcome	B	SE	p value	BC 95% CI
Conscientiousness	Active Adaptive Coping	Post-traumatic Growth	.04	.02	.02	.006-.09
Social Support			.10	.04	.01	.03-.18

Based on 1000 random bootstrap samples

the full mediation (Baron & Kenny, 1986).

CI .36-.59) and from Active-adaptive coping to Post-Traumatic Growth ($\beta = .20$, $p = 0.01$, BC 95% CI, .01-.37) were both statistically significant indicating that more Social Support was related to more Active-adaptive coping and more Active-adaptive coping was related to more Post-traumatic growth (see Figure 1).

The direct path coefficient from Conscientiousness to Post-traumatic growth ($\beta = .42$, $p > 0.01$, BC 95% CI .29-.55) (see Table 5) was reduced ($\beta = .30$, $p > 0.01$, BC 95% CI .16-.44) (see Table 6) after including the mediator in the model indicating the partial mediation. Further, the direct path coefficient from Social Support to Post-traumatic growth ($\beta = .36$, $p > 0.01$, BC 95% CI .23-.46) (see Table 5) was reduced ($\beta = .14$, $p = 0.07$, BC 95% CI -.01-.31) and was found to be insignificant (see Table 6) after including the mediator variable indicating

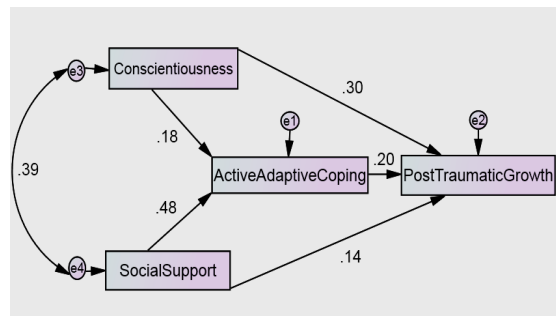


Figure 1: Mediation Model

To further validate the mediating role of active-adaptive coping, the model was further analyzed for indirect effects. The indirect effect of conscientiousness on post-traumatic growth ($\beta = .04$, $p = 0.02$, BC 95% CI = .006-.09) and the indirect effect of Social support on

Post-Traumatic Growth ($\beta=.10$, $p=0.01$, BC 95% CI=.03-.18) were found both significant. Further, the bootstrap confidence intervals for the indirect effects also supported the mediation (see Table 7). A small effect size of indirect effect of conscientiousness on post-traumatic growth was found. The moderate effect size of indirect effect of social support on post-traumatic growth was found (see Table 7).

Discussion

The current study was conducted to examine the relationship of coping styles, personality, social support and post-traumatic growth. The mediating role of coping styles in the personality, social support and post-traumatic growth relationship was also investigated. The results indicated that conscientiousness emerged as the only personality factor predicting post-traumatic growth. Further, among two coping styles only Active-adaptive coping emerged as the significant predictor of post-traumatic growth. Among the sources of social support, the perceived social support from the significant other and the total social support were found to be significantly predicting post-traumatic growth.

Active-adaptive coping partially mediated the relationship between conscientiousness and post-traumatic growth. Breast cancer patients are high on conscientiousness reported higher levels of post-traumatic growth through higher use of active-adaptive coping. This result is supported by the literature where it was found that adaptive or problem focused coping mediates the relationship between personality traits and post-traumatic growth (Shakespeare-Finch, Gow, Smith, 2005; Sheikh, 2008).

It was also found that active-adaptive coping fully mediates the relationship between social support and post-traumatic growth. One possible explanation may be that one of the important aspects of social support in relation to post-traumatic growth may be the opportunity that the social support provides for the cognitive processing of the traumatic event. Another possible explanation may be that social support is more facilitative of post-traumatic growth via active-adaptive coping as if offers an opportunity to an individual to reappraise the traumatic events in terms of benefits and purpose. There

is also an empirical support to this finding where it has been demonstrated that coping mediates the relationship between social support and post-traumatic growth. He, Xu and Vu (2013) found that coping strategies played a mediating role between social support and post-traumatic growth.

Conclusion

Results from this study indicated that post-traumatic is significantly correlated with personality traits (viz. Neuroticism, Extraversion, Openness to experience and Conscientiousness), active-adaptive coping strategies and Social Support (Friends, Family and the Significant Other). Using multiple regression analysis, it was found that only one personality trait i.e. Conscientiousness was significantly influencing post-traumatic growth accounting for 20% of variance in post-traumatic growth scores. Of the coping strategies active-adaptive coping strategies were found to be significantly influencing post-traumatic growth accounting for 14% of variance in post-traumatic growth scores. Of the three different sources of social support (support from friends, family and significant other) it was found that support from family and significant other significantly influences post-traumatic growth explaining 13% of variance in post-traumatic growth. Active-adaptive coping was found to mediate the relationship of conscientiousness and social support with post-traumatic growth. An understanding of the link between psychosocial variables and post-traumatic growth can have important implications for clinical practice. Health and clinical psychologists are in an ideal position to promote the overall health and well-being of women suffering from breast cancer by prescribing behavioural and life style interventions that will help them to manage the disease and help in promoting the psychological growth. The findings of the current study can have important implications on the interventions to promote post-traumatic growth by targeting personal resources such as personality characteristics. The finding of this study that support from family and significant other influences post-traumatic growth can have implications for organizing and facilitating activities involving family that provide support for

the development of autonomy, skills and sense of belonging to the community in women with breast cancer. Patients may also be assisted in their adaptation to breast cancer by combining the strategies to decrease patient's avoidant tendencies with the strategies that stimulate active approach of difficult situations.

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