

# Coping Strategies as a Predictors of Psychological Distress and Post Traumatic Growth among Flood Affected Individuals

Naeem Aslam\* and Anila Kamal

National Institute of Psychology, Quaid-i-Azam University, Islamabad, Pakistan

## Abstract

The aim of the present study was to see the predictive role of coping strategies in psychological distress and Post Traumatic Growth among 1862 individuals exposed to floods 2010 in Pakistan. The age range of the participants was 15 to 66 years ( $M = 28.25$ ,  $SD = 9.59$ ), with participation of both men and women. Data was collected during mid-march 2013 to May 2013. Brief Cope inventory, Depression, Anxiety, Stress Scale (DASS) Scale and Post Traumatic Growth Inventory were used to measure the Coping Strategies, Psychological Distress and Post Traumatic Growth (PTG), respectively. Hierarchical multiple regression demonstrated that after controlling the effect of gender, age, education, and marital status; coping strategies such as, self-distraction, denial, substance use coping, behavioural disengagement, venting, humour and self-blame coping accounted for 33 % of the variance in psychological distress. While, active coping, use instrumental support coping, positive reframing, planning, religious coping, and acceptance coping accounted for 31% of the variance in PTG. Moreover, psychological distress and Post Traumatic Growth were marginally correlated. Findings have implications for clinical interventions. Interventions for flood affected individuals ought to be planned while keeping in mind coping strategies. Cross sectional nature of the study, use of self-report measures and non-probability sampling are the limitations of the study.

**Keywords:** Psychological distress; Posttraumatic growth; Substance use coping; Religious coping; Flood in Pakistan

## Introduction

There is considerable variation in psychological reactions to natural disasters, with responses ranging from relatively mild and transitory symptoms to severe and persistent psychological distress [1]. After confronting with a stressful situation, individuals would develop some behaviour patterns that are intended to diminish the impact of stressors. [2]. Such reactions to stressors are referred to as coping, which has been the subject of extensive examination in psychological research during the past few decades [3]. Coping strategies refers to the specific conscious efforts, both behavioral and mental, that individuals utilize to master, endure, decrease, or minimize stressful events, to deal with personal and interpersonal issues [4]. To cope with the situation, individual may use different coping methods. For instance, in case of religious coping, individuals attempt to find comfort in religion or in spiritual beliefs. In humour coping, individuals make jokes about the situation or make fun of the situation and in substance abuse coping one may use alcohol or other drugs to make one self-feel better or to get through the situation [5].

Trauma researchers showed that individuals who had a higher level of exposure to a disaster reported higher levels of psychological distress [6,7]. Psychological distress may include behavioral problems, feelings of worthlessness, chronic sadness, and lack of interest to interact with other people. Levels of distress are measured based on the severity of the symptoms and its impact on the person's daily life [8]. Generally, empirical research on unpleasant and traumatic events has focused on the negative outcomes of these experiences as well as interventions for posttraumatic psychopathology. Post Traumatic Growth (PTG), the experience of positive change in oneself or one's life following trauma, has gained much consideration in empirical research for last two decades. PTG is conceptualized as a positive transformation coming about because of coping with and processing traumatic life events [9]. The PTG is thought to occur in five domains, including, new possibilities, identifying with others, personal strength, valuation of life, and spiritual change [10]. And the process of PTG may be catalyzed

by the trauma [11].

In a systematic review of 39 studies, Linley and Joseph [12] demonstrated that PTG is positively associated with coping strategies such as problem focused, acceptance, positive reinterpretation coping. Furthermore, negative religious coping was associated with distress and positive religious coping was associated with PTG [13] besides, emotion-focused coping strategies of denial, self-blame, disengagement and venting were positively related to psychological distress [14] while substance use was related to less PTG [15]. In another review [16], it was demonstrated that growth was associated with depression, positive reappraisal, spirituality, and religious coping. In a cross-sectional study of high school students [17], it was found that religiosity was positively associated with growth whereas substance use was negatively associated with growth. Greater PTG scores were associated with lower frequencies of alcohol use, marijuana use and less substance abuse [18]. There are mixed findings regarding the relationship between the PTG and psychological distress. Some researchers demonstrated no significant relationship between PTG and distress [19] while, others [20] suggested that co-existence of distress and PTG.

A significant part of the studies about coping have been conducted in western countries, little is known about the relationship between coping, distress, and post adverse growth in developing countries, specifically, in Pakistan. The aim of the present study was to see the predictive role of coping strategies in psychological distress and Post

\*Corresponding author: Naeem Aslam, National Institute of Psychology, Quaid-i-Azam University, Islamabad, Pakistan, Tel: +92 (51) 9064 (4047); Fax: +92 (51) 2896012; E-mail: [psy\\_naeem@yahoo.com](mailto:psy_naeem@yahoo.com)

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Traumatic Growth among individuals affected in floods 2010 in Pakistan. Pakistan's vulnerability to natural and technological disasters is characterized by floods, earthquakes, droughts, and a range of complex emergencies. The floods in Pakistan started on July 27<sup>th</sup>, 2010, after overwhelming rainfall. It brought on extraordinary damage to Pakistan's infrastructure, houses and roads. According to the National Disaster Management Authority (NDMA) [21] report 2011, the floods have claimed nearly 2000 lives, 1.8 million houses have been damaged and more than 20 million people have been affected. This traumatic event drastically affected the lives of a large number of individuals, not only physically but also emotionally. Based on the past literature, we hypothesized that active coping, planning, positive reframing, acceptance and religious coping would be the predictors of PTG and self-distraction coping, denial, self-blaming, behaviour disengagement, humour coping, venting and substance use coping would be the predictor of psychological distress. Moreover, there would be the positive relationship between the PTG and psychological distress.

## Method

### Sample

Sample included 1862 individuals, including the genders, men (70 %) and women (29 %) respectively. The data was collected almost two and half years after the flood. Age range was from 15 to 66 ( $M = 28.25$ ,  $SD = 9.59$ ). On 11.7 % of the total sample has 10 years of education, 32.9 % has 11 years of education, < 1 % has 13 year of education, 35.6 % has 14 years of education, and 19.7 has 16 years of education. 55.4 % were married, 44.2 % were unmarried and 5 % was widowed. 18.7 % has the government job, 20.5 % has the private job and 8.6 % have the private business. Source of income was 39.1 % has the self, 40.7 % has some family member and 20.2 had the both sources. Average median income of self in Pakistani rupees (Median = 12000  $SD = 12.44$ ) 78.9 % of the sample has some sort of property loss during the flood. Purposive sampling technique was used.

### Measures

**Brief Scope:** Carver [5] developed this questionnaire based on a community sample of 168 participants who had been affected by a hurricane. This questionnaire asks 28 questions on a four-point Likert scale ("I haven't been doing this at all", "I've been doing this a little bit", "I've been doing this a medium amount", and "I've been doing this a lot"), where two items each form the following 14 sub-scales: *active coping, planning, positive reframing, acceptance, humor, turning to religion, using emotional support, using instrumental support, self-distraction, denial, venting, substance use, behavioral disengagement, and self-blame*. The scale has satisfactory reliability and is widely used across diverse situations. For the present study, the Urdu translated version of this scale was used. The alpha reliability of the scale for the

current sample is 84. Detail description of the scale is seen in Table 1.

*Depression, Anxiety, Stress Scale (DASS)*. DASS, a 21-item self-report measure was used to assess the psychological distress. [22] For the current study, Urdu translated version of this scale is used. It is 4-point rating scale with response category ranging from 0 (Did not apply to me at all) to 3 (Applies to me most of the time). All items of the scale are positively scored. Higher the score on scale would indicate higher the level of distress and vice versa. The alpha reliability of the scale for the current sample is 93.

**Short Form of the Post Traumatic Growth Inventory (PTGI-SF):** A short form of the Post Traumatic Growth Inventory (PTGI-SF) [23] was used to measure posttraumatic growth. For the current study, Urdu translated version of this scale was used. The alpha reliability of the scale for the current sample is 85. This scale has 10 items with five subscales. Participants rated the degree of change they experienced after trauma on a 6-point likert scale ranging from 0 ("I did not experience this change as a result of this disaster") to 5 (I experienced this change to a very great degree as a result of this disaster"). Sample item are like ("I established a new path for my life" or "I know I can handle difficulties"). All items are positively scored. Higher the score on scale would indicate higher the level of PTG and vice versa. Table 1 depicted the psychometric properties of the scale.

### Procedure

Before data collection, informed consent from the participants was taken. Respondents were approached individually. They were informed about the purpose of the study and were briefed that the data they would provide would be kept confidential and would be used for research purpose only. They were instructed to respond on each item of the questionnaire booklet. They were asked to respond to the items by selecting an option, which resembles closely to their situation, feeling or behaviours and that there were no right or wrong answers. At the end, participants were thanked for their cooperation.

### Results

Data was analysed by using PASW 18. Bivariate correlation and hierarchal regression was applied to see the relationship and difference across the gender. Missing data (7.4) percent in this study was handled using the standard method.

Table 1 shows the correlations of different coping strategies with posttraumatic growth and psychological distress. Results showed that Posttraumatic growth is strongly positively associated with the self-distraction, active coping, instrumental support, positive reframing, planning, religious coping and emotional support coping, while PTG is marginally negatively associated with the substance abuse coping. Moreover, psychological distress is positively associated with the

Scales	n	Item	M	SD	α	Range		
						Potential	Actual	Skew
Depression, Anxiety, Stress Scale	1803	21	21.08	12.60	0.93	0 - 63	0.0 - 62	0.52
Posttraumatic Growth Inventory	1812	10	30.15	9.71	0.85	0 - 50	0.0 - 50	- 0.59
Brief COPE	1792	28	71.56	12.18	0.84	0 - 112	28 - 109	- 0.47

**Table 1:** Alpha values and other Descriptive of the Scales Used in the Study.

It shows the Alpha reliability, Mean, and Skewness of the Scales used in the Study. The values of α range from 0.84 to 0.93. The reliabilities are in satisfactory ranges. The values of skewness show that the data is normally distributed. The values of skewness are in acceptable ranges

self-distraction, denial coping, substance abuse coping, behavior disengagement, venting, humor, self-blaming while marginally negatively associated with the religious coping. Besides, PTG and psychological distress are marginally positively correlated ( $r=0.08$ ,  $p<0.01$ ).

A two stage hierarchical multiple regression was conducted with Psychological Distress as the dependent variable. Demographic variables (i.e., age, gender, education, and marital status) were entered at stage one of the regression to control for their effect. Then, predictors (coping strategies) of psychological distress (i.e., self-distraction, denial, substance use coping, behavioural disengagement, venting, humour and self-blame) were entered at stage two. Inter-correlations between the multiple regression variables were reported in Table 2.

The hierarchical multiple regression revealed that at stage one, from demographic variables the age, year of education and marital status contributed significantly to the Psychological distress to the regression model,  $F(4,1628) = 18.63$ ,  $p<0.01$  and accounted for 0.04 % of the variation in psychological distress. When all seven independent variables were included in stage two of the regression model, age was no longer significant predictor of distress. Together the eleven independent variables accounted for 33 % of the variance in psychological distress.

A two stage hierarchical multiple regressions were conducted with self-reported Post Traumatic Growth as the dependent variable. Demographic variables (i.e., age, gender, education, and marital status) were entered at stage one of the regression model to control for their effect. Then, the predictors (coping strategies) of Post Traumatic Growth such as active coping, use instrumental support coping, positive reframing, planning, religious coping, and acceptance coping were entered at stage two. Inter-correlations between the multiple regression variables were reported in Table 2.

The hierarchical multiple regression revealed that at stage one, from demographic variables the age, year of education and marital status contributed significantly to the Post Traumatic Growth to the regression model,  $F(4,1618) = 3.33$ ,  $p<0.01$  and accounted for 0.01

% of the variation in Posttraumatic Growth. Adding the predictors to the regression model explained an additional 30 % of the variation in PTG and this change in  $R^2$  was significant,  $F(6, 1612) = 71.94$ ,  $p 0.001$ . Together the ten independent variables accounted for 31 % of the variance in PTG.

## Discussion

The present study aimed to investigate the relationship of coping strategies with psychological distress and posttraumatic growth. Moreover, it aimed to see the predictive role of coping for distress and posttraumatic growth. As noted earlier, coping is the conscious effort to solve personal and interpersonal problems, and seeking to master, minimize or tolerate stress. On the basis of previous literature, we hypothesized that coping strategies such as self-distraction, denial, behavioural disengagement, venting, humour, self-blame and substance abuse coping would be the predictors of psychological distress. While, active coping, planning, positive reframing, use instrumental support coping, acceptance and religious coping would predict PTG. The data was taken from the individuals who had experience the flood 2010 in Pakistan.

Bivariate correlation analysis and hierarchal regression analysis was computed to test the hypothesis. Our results showed that PTG is positively associated with the self-distraction, active coping, instrumental support, positive reframing, planning, religious coping and emotional support coping, while PTG is marginally negatively associated with the substance abuse coping. Moreover, psychological distress is positively associated with the denial coping, substance abuse coping, behaviour disengagement, venting, humour, self-blaming while marginally negatively associated with the religious coping. Besides, PTG and psychological distress is positively correlated see Table 3 for detail. Moreover, active coping, use instrumental support coping, positive reframing, planning, religious coping, and acceptance coping were the predictors of PTG and explained the 31 % variance in PTG. Self-distraction coping, denial, substance use coping, behavioural disengagement, venting, humour and self-blame accounted 33 %

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Self-Distraction	-	.43**	.32**	.08**	.32**	.16**	.39**	.35**	.40**	.17**	.30**	.29**	.35**	.22**	.33**	.31**
2 Active coping		-	.19**	-.07**	.42**	.02	.26**	.50**	.52**	-.02	.33**	.44**	.19**	.13**	.43**	.11**
3 Denial			-	.25**	.16**	.40**	.34**	.16**	.15**	.29**	.15**	-.02	.32**	.33**	.22**	.39**
4 Substance use				-	-.05*	.36**	.23**	-.10**	-.08**	.35**	-.01	-.25**	.25**	.30**	-.06*	.32**
5 Instrumental support					-	.07**	.26**	.42**	.47**	.06*	.31**	.37**	.35**	.16**	.38**	.10**
6 Beh. disengagement						-	.33**	.04	.03	.38**	.14**	-.06**	.28**	.36**	.12**	.44**
7 Venting							-	.25**	.28**	.32**	.29**	.08**	.39**	.39**	.24**	.41**
8 Positive reframing								-	.52**	.08**	.37**	.37**	.24**	.17**	.40**	.09**
9 planning									-	.06*	.44**	.52**	.21**	.15**	.44**	.11**
10 Humour										-	.16**	-.13**	.31**	.40**	.12**	.33**
11 Acceptance											-	.39**	.23**	.20**	.31**	.19**
12 Religion												-	.06**	-.03	.39**	-.06*
13 Emotional support													-	.30**	.28**	.34**
14 Self-blaming														-	.09**	.38**
15 Posttraumatic growth															-	.08**
16 Psychological Distress																-

Note: \*\* $p<0.01$

Table 2: Relationship of Coping strategies, Psychological Distress, and Posttraumatic Growth among Adults

		Self-Reported Psychological Distress	
		Model 2	
Variable	Model 1B	2B	95 % CI
(Constant)	36.87**	2.73*	[31.79, 41.94]
Gender	0.18	0.71	[-1.17, 1.52]
Age	-0.14**	-0.06	[-.23, -0.05]
Year of Education	0.68**	-0.67**	[-1.01, -0.34]
Marital status	-0.2.14**	-1.46*	[-3.69, 0.59]
Self-distraction		0.90	[0.55, 1.26]
Denial		0.97	[0.63, .131]
Substance use coping		0.89	[0.56, 0.123]
Behavioural disengagement		1.50	[1.17, 1.84]
Venting		1.14	[0.76, 1.52]
Humour		0.52	[0.17, 0.87]
Self-Blame		0.85	[0.52, 1.17]
R2	0.04	0.37	
F	18.63**	88.60**	
ΔR <sup>2</sup>		0.33	
ΔF		122.99	

Note: N = 1633, CI= confidence interval. \*p<0.05, \*\*p<0.01

**Table 3:** Summary of Hierarchical Regression Analysis for Variables Predicting Psychological Distress

		Self-Reported Post Traumatic Growth	
		Model 2	
Variable	Model 1B	2B	95 % CI
(Constant)	32.70**	1.35	[28, 0.68, 36.71]
Gender	0.82	0.11	[-0.24, 1.89]
Age	-0.07*	-0.08*	[-0.15, -0.01]
Year of Education	-0.13	0.22*	[-0.40, 0.12]
Marital status	0.27	0.16	[-0.94, 1.49]
Active Coping		0.98**	[0.66, 1.30]
Use instrumental Support		99**	[0.72, 1.34]
Positive reframing		71**	[0.38, 1.04]
Planning		0.83**	[0.50, 1.16]
Religious coping		0.81**	[0.47, 1.14]
Acceptance coping		0.34*	[0.06, 0.64]
R <sup>2</sup>	0.01	0.31	
F	3.33*	71.94**	
ΔR <sup>2</sup>		0.30	
ΔF		116.73	

CI= confidence interval: \*p<0.05, \*\*p<0.01

**Table 4:** Summary of Hierarchical Regression Analysis for Variables Predicting Posttraumatic Growth

variance in psychological distress, see Table 4 for detail.

Our results are in accordance with the previous literature [12,14,15]. Past research suggest that denial, self-blame, disengagement and venting were positively related to psychological distress while planning, acceptance, positive reframing and religious coping are associated with growth. Likewise, in a study [13] that investigated the positive and negative religious coping strategies and their relation with psychological distress and PTG in the context of Hurricane Katrina. Results from structural regression modelling indicated that negative religious coping was associated with psychological distress and positive religious coping was associated with PTG. Moreover, in a systematic review [16], authors demonstrated that positive changes after the

disaster were associated with psychological distress, depression, positive reappraisal, spirituality, and religious coping. Moreover, religiosity was positively associated with growth whereas substance use coping was negatively associated with growth [17].

We also found that distress and PTG are positively correlated ( $r = 0.8, p < 0.01$ ). Our findings are in line with those studies that suggested the co-existence of distress and growth [19]. As few researchers suggested no significant relationship between PTG and distress and other studies suggest distress and PTG can co-exist [15]. It can be inferred from this findings that distress and growth can be understood in an integrative psychosocial framework. Moreover, that Post Traumatic Growth may buffer against the negative effects of psychological distress [24].

The limitations of the study are the cross sectional nature of the study, utilization of self-report measures, and utilization of convenient sampling technique. With longitudinal study design and use of random sampling we will be better qualified to generalize the findings. Furthermore, these findings may be generalized with the disaster affected population only, not with the other survivors of other adversities [25]. Findings have implications for clinical interventions.

## Conclusion

The results demonstrate that more consideration ought to be given to the enhancement of adaptive coping strategies that subsequently may foster Post Traumatic Growth and target maladaptive coping to reduce the distress [20]. Advancing adaptive coping strategies facilitates psychological adjustment and quality of life in flood survivors. Health care professionals encourage survivors to use fewer avoidant coping strategies; they can also encourage survivors to use more acceptance coping strategies.

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