

Outcomes of Belief in Just World Among Victims of Natural and Man-Made Disaster: Moderating Role of Resilience

Muhammad N. Riaz

University of Haripur

Raheela Sultana

University of Sargodha

Muhammad A. Riaz

International Islamic University

Said Z. Shah

Islamia College University

Naila Batool

University of Haripur

Muhammad G. Murad

International Islamic University

In the present study the effect of belief in just world on the prediction of well-being, depression, and Post-Traumatic Stress Disorder (PTSD) among victims of natural and man-made disaster was examined. The moderating role of resilience in the relationship between belief in just world and depression among victims of natural and man-made disaster was also studied. Belief in Just World Scale (Dalbert, 1999), Ego Resiliency Scale (Block & Kreman, 1996), Psychological Well-being Scale (Khan, 2008), Impact of Events Scale (Horowitz, Wilner, & Alvarez, 1979), and Depression Anxiety Stress Scale (Lovibond & Lovibond, 1995) were used for data collection from 220 disaster victims including victims of natural disaster and man-made disaster. Linear regression analysis, multiple moderated regression analysis, and independent sample *t*-test were computed to test the hypotheses. Belief in just world positively predicted well-being, whereas negatively predicted depression, and PTSD among victims of natural, man-made disaster and overall disaster victims. Resilience moderated the relationship between belief in just world and depression among the victims of natural and man-made disaster. Results on the gender differences revealed that female disaster

Muhammad N. Riaz and Naila Batool, University of Haripur, Pakistan; Raheela Sultana, University of Sargodha, Pakistan; Muhammad A. Riaz and Muhammad G. Murad, International Islamic University, Islamabad, Pakistan; and Said Z. Shah, Islamia College University, Peshawar, Pakistan.

Correspondence concerning this article should be addressed to Muhammad N. Riaz at Department of Psychology, University of Haripur, Pakistan. E-mail: m_naveed313@yahoo.com

victims exhibited more belief in just world as compared to male victims. Similarly, female victims of man-made disaster also exhibited higher levels of belief in just world as compared to male victims. However, results revealed nonsignificant gender differences among victims of natural disaster.

Keywords. Belief in just world, resilience, well-being, PTSD, depression

Exposure to natural and man-made disasters have severe lifelong consequences for victims (Creamer, Burgess, & McFarlane, 2001; Norris, 2003). Natural disasters like floods result in mass destruction of property and human life (Wisner, Blaikie, Cannon, & Davis, 2004). Man-made disasters like terrorism also have severe and long lasting psychological effects (Norris, Friedman, & Watson, 2002). Although, both natural and man-made disasters have severe psychological effects, but it is worth noticing that psychological after-effects of man-made disasters are more long-lasting than natural disasters (Arata, Picou, Johnson, & McNally, 2000). Foa and Steketee (1989) found that Post-Traumatic Stress Disorder (PTSD) was more persistent when victims considered other human being accountable for their losses. On average, a disaster occurs somewhere in the world each day (Norris et al., 2002). However, developing countries, in general, and Asian countries, in particular, are facing more severe after-effects of disasters. Asia is on the top of the list for disaster casualties (Quarantelli, 1998). Pakistan is a developing Asian state (International Statistical Institute, 2015) that has faced many disasters in the last decade including natural disasters like floods, land sliding, wildfires, earthquakes, hurricanes, avalanche, droughts, cyclones, windstorms (Shah, 2013), and man-made disasters like terrorism, suicide bombing, armed conflicts, etc. (Mujeeb, 2009; Shujaat, 2010).

The psychological consequences of these disasters are even more severe than the disasters itself. Displacement due to these disasters results in drastic transitions in relations, identities, and family structures (Mertus, 2003). Some of the disasters have lifelong consequences for victims in the form of chronic and delayed PTSD, decreased levels of satisfaction with life, and impairment in overall psychological functioning (Morina & Ford, 2008). The outcomes of these disasters are mainly influenced by the beliefs, thoughts, and perceptions of the victims regarding their losses. Disasters' losses develop negative depressive schematas regarding self, world, and the future. Thus the interpretation of losses determines their psychological consequences, in general, and depression, in particular (Beck, 1972).

In this regard, belief in just world helps to justify the losses resulted from disasters. Therefore, in the present study aim was to examine the effects of belief in just world on the prediction of well-being, PTSD, and depression among victims of natural disaster and man-made disaster. The moderating effect of resilience on the relationship between belief in just world and depression among victims of natural and man-made disaster was also studied.

Believing that the world is a place of justice and everything happens with a reason may help people better justify their troubles. Belief in just world facilitates in successful coping with stressors of life (Brown & Grover, 1998). A good deal of research shows that belief in just world is positively associated with well-being (Correia, Kamble, & Dalbert, 2009; Correia, Vala, & Aguiar, 2001; Dalbert, Lipkus, Sallay, & Goch, 2001; Dzuka, Jozef, & Dalbert, 2007; Riaz, 2011; Wu, Wang, Zhou, Wang, & Zhang, 2009; Xie, Liu, & Gan, 2011). People with strong belief in just world are reported to have more positive ratings of well-being on self-report measures. Along with well-being, belief in just world is positively associated with life satisfaction and inversely related to negative affect (Dzuka et al., 2007). Correia et al. (2009) and Dalbert (1999) explained that belief in just world plays a vital role in the development of the sense of well-being among individuals. In sum, belief in just world is a prominent and consistent determinant of well-being.

Besides enhancing well-being, belief in just world also plays a vital role in overcoming depression and PTSD. Depression and PTSD are the prominent consequences of disasters (Arata et al., 2000; Norris et al., 2002; Palinkas, Russel, Downs, & Peterson, 1992) where belief in just world directly affects depression (Lipkus, Dalbert, & Siegler, 1996; Ritter, Benson, & Snyder, 1990). Researchers (Correia et al., 2001) discovered that believers in just world are happier than nonbelievers in just world. These adverse consequences of disasters can be reduced with the help of resilience which is an ability to recover from trauma (American Psychiatric Association, 2013). Thus, depression and PTSD can be reduced by developing resilience (Aslam, 2007; Daniels, 2011). Belief in just world and resilience are associated variables (Wu, Wang, Zhou, Wang, & Zhang, 2009). Besides belief in just world, resilience also plays a vital role in countering the effects of trauma. Resilience affects overall mental health (Wanberg, 1997), especially, depression and PTSD (Aslam, 2007; Kim & Yoo, 2004; Zahradnik et al., 2009). In Pakistan, Mujeeb (2009) found that higher resilience scores predicted lower scores on depression, anxiety, and stress symptoms among disaster victims. Resilience moderates the relationship between exposure to disaster

and its outcomes, especially, in the form of PTSD (Zahradnik et al., 2009).

Belief in just world has great importance in religious societies like Pakistan where most of the human daily life functions are based on strong religious belief system. In the Islamic worldview, justice denotes placing things in their rightful place. It also means giving others equal treatment. Many of the major religions (i.e., Christianity, Islam, Judaism, etc.) appear to endorse belief in a just world (Rubin & Peplau, 1975). The theory of belief in just world has been consistently supported in the individualistic societies for promoting health and well-being (Dalbert, 1998; Dalbert & Dzuka, 2004). Thus, if the similar links are established in the collectivist society of Pakistan, the belief in just world can be used in different interventions for the psychological rehabilitation of disaster victims. The underlying theory of belief in just world—people get what they deserve (Dalbert, 1999), can help disaster victims to justify their losses. Thus, a justified disaster loss would have less adverse psychological impacts than the unjustified disaster loss. The present study has focused on Internally Displaced Persons (IDPs) of two types of disasters including natural and man-made. In the world, there were 51 million internally displaced persons by the end of 2007, 26 million of whom were displaced due to man-made disaster, 25 million were displaced due to natural disaster (United Nation High Commissioner for Refugees, [UNHCR], 2004).

Pakistan has faced many disasters in the last decade. More than 7 million people were displaced in Sindh and the flood of 2010 is considered to cause largest IDPs in the history of Pakistan which affected nearly 10% of the total population of 181 million. About 38 million were affected in the world out of which only in Pakistan, 11 million were affected by floods (Internal Displacement Monitoring Centre, 2011; National Disaster Management Authority, 2010). The camps for flood affected IDPs were steered in Sanghar, Shahdadkot, Badin, Mirpurkhas, and Dadu. Victims of man-made disaster were actually affected by the terrorism when military operations were launched in Federally Administered Tribal Areas (FATA) till 2011 and they were internally displaced from their residential areas. They also faced many damages due to air strikes, drone attacks, and deadly clashes between Pakistan Armed Forces and Tehrik-e-Taliban Pakistan (TTP). About 10% of overall IDPs are residing in camps, remaining have been settled in the host communities of Khyber Pakhtoonkhwa (KPK; UNHCR, 2012) including Peshawar, D. I. Khan, Lower Dir, Hangu, Nowshera, Tank, and inside of Kurram and Mohmand Agencies.

The 2010-flood is considered worst flood in Pakistan history that affected all provinces of Pakistan. However, in the present study, flood affected victims of the province of Sindh were targeted. FATA and province of KPK were mainly affected by armed conflict between Pakistan Armed Forces and TTP. Thus, in the present study, IDPs from FATA and KPK were targeted.

The past researchers either targeted natural disasters (Aslam, 2007; Riaz, Riaz, & Batool, 2012) or solely focused on man-made disasters (Mujeeb, 2009; Shujaat, 2010). Nevertheless, the past research clearly indicates that the adverse effects of man-made disasters are more severe than natural disasters (Arata et al., 2000; Foa & Steketee, 1989). In this regard, the present study is an initiative to jointly investigate the victims of natural and man-made disaster. The current inquiry also investigated gender differences in belief in just world as prior research indicated that men are more likely than women to have strong belief in just world (Dalbert, 2002).

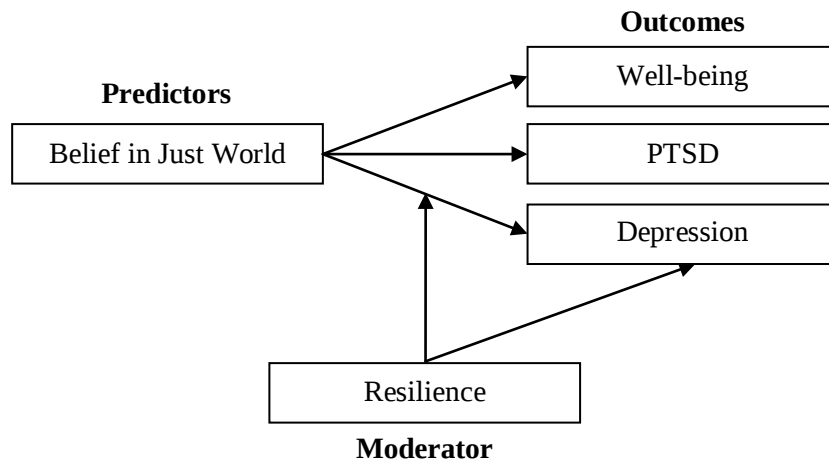


Figure 1. Conceptual framework

Figure 1 represents schematic representation of the moderating effect of resilience in the relationship between belief in just world and depression among victims of natural and man-made disaster; direct effect of belief in just world on the prediction of well-being, PTSD, and depression was investigated in the current study.

Hypotheses

1. Belief in just world positively predicts well-being among disaster victims.

2. Belief in just world negatively predicts depression among disaster victims.
3. Belief in just world negatively predicts post-traumatic stress disorder among disaster victims.
4. Resilience moderates the relationship between belief in just world and depression among disaster victims.
5. Male disaster victims exhibit more belief in just world as compared to female disaster victims.

Method

Participants

A purposive sample of disaster victims ($N = 220$) was included in the present study. Both the victims of natural disaster that is flood affected IDPs from Sindh ($n = 103$, 46.8%) and man-made disaster that is armed conflict affected IDPs from KPK ($n = 117$, 53.2%) were included in the study. Both male ($n = 122$, 55.5%) and female ($n = 98$, 44.5%) disaster victims were part of the sample. According to UNHCR (2012), 46% of KPK-IDPs of man-made disaster comprised of women whereas 49% of Sindh-IDPs of natural disaster were women (Provincial Disaster Management Authority Sindh [PDMAS], 2013). Victims of natural disaster were actually flood affected IDPs who were affected by the mass damages in terms of loss of home, family members, and other significant losses. Victims of man-made disaster were armed conflict affected IDPs who were affected by collateral damages in the form of losses of home, property, job, and death of family members. Data were collected on the basis of a specific pre-defined inclusion-exclusion criterion; only those victims were included who were directly affected by war and flood and were currently living in camps. Among war victims, only those victims were included in the sample who suffered from at least one of the major damages of property, family members, and other important losses, for example, homelessness, death of family member(s), loss of job or work, physical disabilities due to blasts, etc.

Instruments

Personal Belief in Just World Scale developed by Dalbert (1999) and Urdu-translated by Fatima (2004) was used to measure the belief in just world. The scale comprised of 7 items. All the items were positively scored. The scale was based on 4-point Likert-type response pattern. The response categories ranged from 1 = *strongly disagree* to 4 = *strongly agree*. There was no cut off score in the scale, therefore,

high scores indicated high level of personal belief in just world and vice versa. The minimum and maximum scores on the scale were computed as 7 to 28, respectively. The prior use of this scale in the indigenous context indicated that it was reliable and valid scale to measure belief in just world (Riaz, 2011).

Urdu-translated version (Aslam, 2007) of Ego Resilience Scale (Block & Kreman, 1996) was used to measure resilience among disaster victims. It was a 14 items measure in which all items were positively scored. In this scale, responses were rated on 4-point Likert-type rating scale in which response categories ranged from 1 = *strongly disagree* to 4 = *strongly agree*. Scores were interpreted in terms of low and high scores instead of cut off scores. The possible score ranged from 14 as minimum to 56 as maximum scores. This scale has been used with disaster victims of Pakistan and a couple of empirical evidences confirm that it was a reliable and valid measure of resilience among victims of natural and man-made disaster (Aslam, 2007; Mujeeb, 2009).

Psychological Well-being Scale (Khan, 2008) consisted of 10 positivity worded items. It was a 5-point Likert-type scale with response categories ranged from 1 as *strongly disagree* to 5 as *strongly agree*. High and low scores on the scale indicated high and low level of well-being, respectively. Scores of the participants ranged between 10 to 50. Shujaat (2010) used this scale with victims of man-made disaster in Pakistan and reported this to be highly reliable as well as valid instrument for measuring well-being.

Lovibond and Lovibond (1995) developed Depression Anxiety Stress Scale which was translated in Urdu language by Aslam (2007). The scale has three subscales which measures Depression, Anxiety, and Stress. Only Depression subscale was used in the present research. The Depression subscale comprised of 7 items which were positively worded. The scale was devised on a 4-point response pattern with response categories ranging from 0 for *occasionally* to 3 for *all the times*. Scores in this scale could be analyzed either through cut off score or through low-high scores. However, in the present study scores were interpreted in terms of low and high scores instead of cut off scores. Individual scores on the scale ranged from 0 as lowest to 21 highest scores. Consistent research in Pakistan confirmed the reliability and validity of this scale (Mujeeb, 2009; Riaz et al., 2012).

Impact of Events Scale was constructed by Horowitz et al. (1979) to measure symptoms of PTSD after negative life events, more specifically, trauma and disasters. Aslam (2007) translated this scale in Urdu language to administer it on the victims of a natural disaster.

It was a 17 items measure in which all items were positively worded. In this scale, the 4-point Likert-type rating scale comprised of four categories which ranged from 1 = *absolutely wrong* to 4 = *absolutely right*. There was no cut off score in the scale; therefore, high scores indicated high level of PTSD and low scores indicated low level of PTSD. The minimum and maximum scores on the scale were computed as 17 to 68, respectively. This scale was used in Pakistan with the victims of natural and man-made disaster in two distinct investigations. Aslam (2007) used it with victims of natural disaster, whereas, Shujaat (2010) administered this scale on the victims of man-made disaster. Both researchers reported this scale to be reliable and valid measure to study PTSD among disaster victims of Pakistan.

Procedure

The present study was based on cross-sectional survey research design. In the first step, camps' administration was contacted in both provinces which helped in identifying the participants who suffered major damages in terms of loss of home, property, job, death of family members, and other significant losses. Written permission was taken from the camps' administration to collect the data for research purpose. Due to the low literacy levels and language related issues, key informants were identified in both provinces for data collection. Both in Sindh and KPK, one of the researchers was physically present in data collection sites to facilitate the key informants in case of any difficulty faced during the process of collecting information from victims. However, in other cases, the researcher just provided instructions to the key informants. In order to collect the data, the participants were contacted through key informants in the affected areas and they were briefed about the objectives of the study by taking informed consent in the form of signed agreement. A checklist helped in identifying the victims affected by damages, whereas, personal information was taken through demographic sheet. Scales were given to take responses of participants. The participants were ensured about their privacy and confidentiality before the collection of data. Overall, the response was positive and encouraging. However, in some cases, the participants either refused in the beginning of the data collection or they returned incomplete scales. A little fringe of participants did not return the questionnaires. In rare cases, even aggressive refusals were faced. The response rate was 73.33%, as 350 booklets of questionnaires were distributed and 220 were returned. No incentive was given for participation in research. The participants of study were appreciated for their cooperation in the study during high-stress situations.

Results

Linear regression analysis and hierarchical multiple regression analysis were used after addressing the reliability and construct validity related concerns. Finally, independent sample *t*-test demonstrated gender differences in belief in just world and mean differences in belief in just world among victims of natural and man-made disaster.

Table 1

Psychometric Properties and Correlation among Variables (N = 220)

Variables	1	2	3	4	5
Victims of Natural Disaster ^a					
1. BJW	(.85)	.31***	.25*	-.45***	-.42***
2. Resilience		(.73)	.39***	-.39***	-.32***
3. Well-being			(.71)	-.47***	-.54***
4. Depression				(.77)	.51***
5. PTSD					(.81)
<i>M</i>	25.18	51.85	35.47	15.43	51.07
<i>SD</i>	5.29	7.05	6.28	5.40	10.61
Range	12-35	35-70	20-47	7-21	22-77
Skewness	-.39	.02	-.45	.67	-.14
Kurtosis	-.39	-.10	-.29	.34	-.14
Victims of Man-made Disaster ^b					
1. BJW	(.87)	.17	.24**	-.27**	-.29**
2. Resilience		(.70)	-.07	-.05	.18
3. Well-being			(.77)	-.52***	-.51***
4. Depression				(.79)	.33***
5. PTSD					(.83)
<i>M</i>	23.57	52.04	35.21	15.60	53.06
<i>SD</i>	5.86	6.32	7.33	4.99	11.25
Range	9-35	35-69	17-50	7-21	28-81
Skewness	-.25	.15	-.30	.52	.14
Kurtosis	-.59	.27	-.44	.17	-.38
Continued...					

Variables	1	2	3	4	5
Overall Disaster Victims ^c					
1. BJW	(.88)	.23**	.24***	-.34***	-.24***
2. Resilience		(.76)	.21**	-.21**	-.06
3. Well-being			(.76)	-.50***	-.52***
4. Depression				(.72)	.40***
5. PTSD					(.83)
<i>M</i>	24.33	51.95	32.33	15.51	52.13
<i>SD</i>	5.65	6.66	6.85	5.20	10.97
Range	9-35	35-70	17-50	7-20	22-81
Skewness	-.34	.08	-.36	.58	.04
Kurtosis	-.50	.07	-.35	.22	.24

Note. ^a*n* = 103; ^b*n* = 117; ^c*n* = 220. BJW = Belief in Just World; Alpha reliability coefficients are given in diagonals.

p* < .05. *p* < .01. ****p* < .001.

Results in Table 1 show that alpha coefficients among the victims of natural disaster range from .71 to .85 for Psychological Well-being Scale and Personal Belief in Just World Scale, respectively. Alpha coefficients among the victims of man-made disaster range from .70 to .87 for Ego Resilience Scale and Personal Belief in Just World Scale, respectively. Alpha coefficients among overall disaster victims range from .72 to .88 for Depression subscale of Depression Anxiety Stress Scale and Personal Belief in Just World Scale, respectively. Thus, all the scales used in the present study have satisfactory internal consistency, therefore, appropriate for use in the further analyses. The values of skewness and kurtosis are less than +1 and -1 for all variables in victims of natural disaster, victims of man-made disaster, and overall disaster victims.

Results of the Pearson Product Moment correlation indicates that belief in just world has significant positive correlation with resilience and well-being among victims of natural disaster and overall disaster victims, whereas, significant positive correlation with well-being only among victims of man-made disaster. Belief in just world has significant negative correlation with depression and PTSD among victims of natural, man-made disaster, and overall disaster victims. Resilience has significant positive correlation with well-being, whereas, significant negative correlation with depression among victims of natural disaster and overall disaster victims. Resilience has significant negative correlation with PTSD among victims of natural disaster. Well-being has significant negative correlation with depression and PTSD among victims of natural, man-made disaster

and overall disaster victims. Depression has significant positive correlation with PTSD among victims of natural, man-made disaster, and overall disaster victims. Remaining correlation coefficients are nonsignificant.

Linear regression analysis indicate that belief in just world is significant predictor of well-being, depression, and PTSD among victims of natural, man-made disaster, and overall disaster victims. Among victims of natural disaster, the R^2 value of .05, .19, and .17 indicate that belief in just world contributes 5%, 19%, and 17% variance in well-being, depression, and PTSD, respectively. Among victims of man-made disaster, the R^2 value of .05, .15, and .51 indicate that it contributes 5%, 5%, and 51% variance in well-being, depression, and PTSD, respectively. Among overall disaster victims, the R^2 value of .06, .11, and .06 indicate that it contributes 6%, 11%, and 6% variance in well-being, depression and PTSD, respectively.

Table 2

Moderating Effect of Resilience in Relationship between Belief in Just World and Depression among Victims of Natural Disaster and Man-Made Disaster (N = 221)

Predictors	Model 1 <i>B</i>	Model 2 <i>B</i>	95% CI [<i>LL</i> , <i>UL</i>]
Natural Disaster			
(constant)	34.39***	65.28***	[37.69, 92.86]
Belief in just world	-.34***	-1.55**	[-.2.61, -.49]
Resilience	-.20**	-.81**	[-1.35, -.26]
Belief in just world x resilience		-.02*	[-.03, -.04]
R^2	.27	.31	
F	18.47***	14.58***	
ΔR^2		.04	
ΔF		5.23*	
Man-made Disaster			
(constant)	21.36***	-8.23*	[26.97, 22.58]
Belief in just world	-.25**	-.86*	[-.25, -1.84]
Resilience	-.02	-.54*	[-.02, -.93]
Belief in just world x resilience		-.02***	[-.04, -. 02]
R^2	.07	.10	
F	4.48*	4.39**	
ΔR^2		.03	
ΔF		4.00**	

Note. *B* = Unstandardized regression coefficients; CI = Confidence interval; *LL* = Lower limits; *UL* = Upper limits.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 2 shows results of the hierarchical multiple regression analysis. For victims of natural disaster, in Model 1, the R^2 value of .27 explains 27% variance in the outcome variable. In Model 2, the R^2 value of .31 explains 31% variance in the outcome variable with an additional effect of 4% as indicated by the .04 value of ΔR^2 because of interaction. Findings depict that belief in just world and resilience are significant negative predictors of depression among disaster victims. The interaction effect of belief in just world and resilience on depression is also significant ($\beta = -1.76$, $p < .05$) which indicates that resilience moderated the relationship between belief in just world and depression among natural disaster victims (see Figure 2).

Table 2 also shows that resilience moderated the relationship between belief in just world and depression among man-made disaster victims. In Model 1, the R^2 value of .07 explains 7% variance in the outcome variable. In Model 2, the R^2 value of .10 explains 10% variance in the outcome variable with an addition effect of 3% as indicated by the .03 value of ΔR^2 because of interaction effect. Findings depict that belief in just world and resilience are significant negative predictors of depression among man-made disaster victims. The interaction effect of belief in just world and resilience on depression is also significant ($\beta = -1.35$, $p < .01$) which indicates that resilience moderated the relationship between belief in just world and depression among man-made disaster victims (see Figure 3).

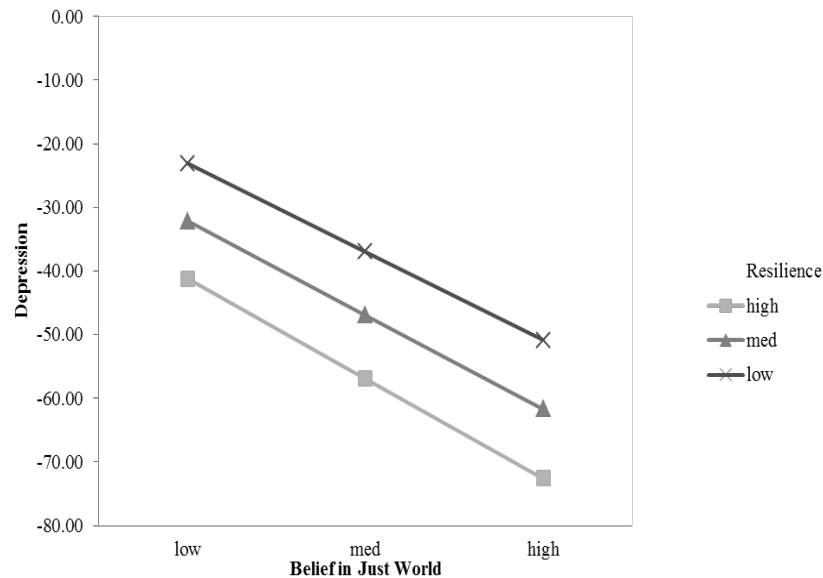


Figure 2. Moderation of resilience between belief in just world and depression among victims of natural disaster.

Figure 2 shows the moderating effect of resilience in the relationship between belief in just world and depression among victims of natural disaster. Modgraph shows that for individuals with high level of resilience, there is negative relationship between belief in just world and depression which indicates that increase in level of belief in just world decreases the symptoms of depression among natural disaster victims. Contrary, if there is medium or low level of resilience, there is slight decrease in the inverse relationship between belief in just world and depression among flood victims (Savas, Dos, & Demirkol, 2013).

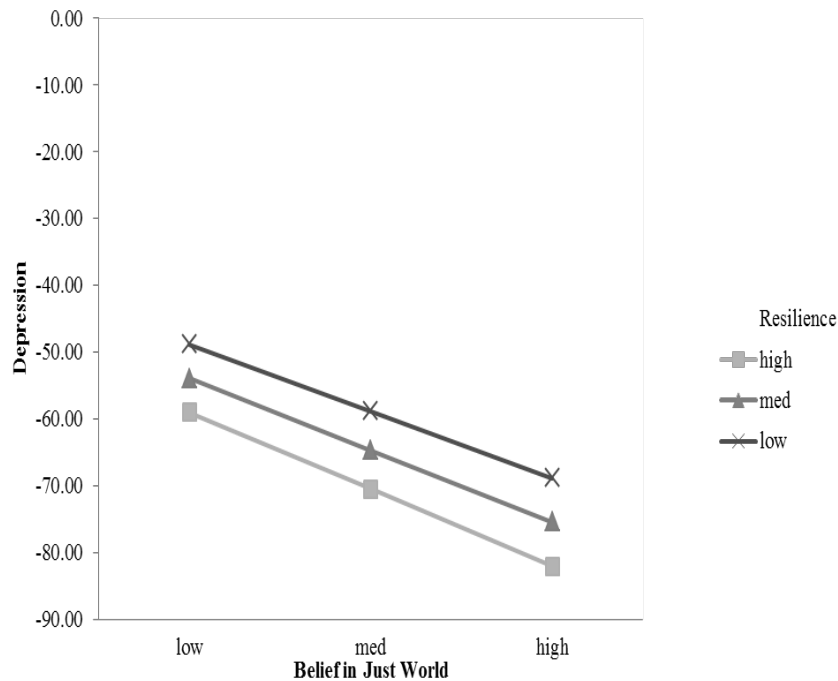


Figure 3. Moderation of resilience between belief in just world and depression among victims of man-made disaster.

Figure 3 shows the moderating effect of resilience on the relationship between belief in just world and depression among victims of man-made disaster. Modgraph shows that individuals with high level of resilience, there is negative relationship between belief in just world and depression which indicates that increase in level of belief in just world decreases the level of depression among victims of man-made disaster. On the other hand, if there is medium or low level of resilience, there is slight decrease in the inverse relationship

between belief in just world and depression among man-made disaster victims (Savas et al., 2013).

In order to examine gender differences in belief in just world, independent sample *t*-test was applied. Mean, standard deviation, and *t*-values were computed for male and female disaster victims on belief in just world. Results indicate significant gender differences among male and female disaster victims on belief in just world with $t(218) = 2.73$, $p < .01$. Findings indicate that female victims ($M = 25.47$, $SD = 5.14$) significantly score higher on belief in just world as compared to male victims ($M = 23.41$, $SD = 5.89$). The .37 value of Cohen's *d* indicate low effect size. Furthermore, gender differences on belief in just world among victims of natural disaster are nonsignificant with $t(218) = 1.45$, $p > .05$, however, significant gender differences are found among victims of man-made disaster with $t(218) = 2.17$, $p < .05$. Female victims of man-made disaster significantly score higher on personal belief in just world ($M = 24.96$, $SD = 5.27$) as compared to male victims ($M = 22.61$, $SD = 6.10$). Due to unavailability of the literature, mean differences in belief in just world among both disaster victims were identified without formulating the hypothesis. Results of the independent sample *t*-test show significant mean difference among victims of natural and man-made disaster on belief in just world with $t(218) = 2.13$, $p < .05$. Findings revealed that victims of natural disaster ($M = 25.18$, $SD = 5.29$) significantly score higher on belief in just world as compared to victims of man-made disaster ($M = 23.57$, $SD = 5.86$). The .34 value of Cohen's *d* indicated low effect size.

Discussion

Believing in a just world helps people to make sense of behavior and events, and serves as an important function in the development of an individual's sense of well-being (Dalbert, 1999). In the present study, the same hypotheses were tested across two groups of disaster victims. The first hypothesis "belief in just world positively predicts well-being among disaster victims" was supported by the results of the present study. Dzuka and Dalbert (2007) found that belief in just world is positively associated with well-being which is even true in Pakistani sample (see Riaz, 2011). Researchers (Fatima, 2008; Xie, Liu, & Gan, 2011) discovered that belief in just world has significant positive correlation with psychological well-being. Kamble and Dalbert (2008) also reported from study in India that participants who were strong in personal belief in just world experienced less distress

and less depressive symptoms. In line with the above mentioned prior evidences from the collectivist contexts of South Asia, the present study share valuable insights for enhancing well-being among the disaster affected people. As the aftermath of a trauma, victims usually form two types of perceptions; they either find a good justification for their loss or they fail to justify it. Individuals with strong belief in just world are quite capable to justify their losses which protect their well-being from the adverse effects of trauma. Promoting belief about self-justice not only contributes to well-being rather it also helps in reducing depression (Ritter et al., 1990).

The second hypothesis “belief in just world negatively predicts depression among disaster victims” was supported in the current investigation. Similar results were found in a study that belief in a just world is negatively correlated with depression (Ritter et al., 1990). Recently, in a study with German flood victims, Otto, Boos, Dalbert, Schops, and Hoyer (2006) investigated the impact of the belief in a just world on important dimensions of mental health and psychopathology including depression. They found that belief in just world was negatively associated with anxiety, depression, and general psychological distress. Consistent research evidence illustrates that belief in just world and depression are closely linked (Lipkus et al., 1996) as belief in a just world is found to be negatively correlated with depression (Ritter et al., 1990). More specifically, Lipkus et al. (1996) found that the belief in just world strongly and consistently predicted decrease in depression. It is worth mentioning that the evaluation of the traumatic life events causes depressive symptoms (Beck, 1972). Consequently, the same trauma for two disaster victims yields different effects. The aftereffects of a trauma are mainly dependent on the evaluation of the trauma by the disaster victims. Thus, if the disaster survivors have belief in just world, they are more likely to have a realistic evaluation of the trauma which would eventually work as a protective factor against the development of the symptoms of depression. Contrary, individuals with weak belief in just world are likely to have more negative perceptions of justice which would make them more vulnerable for depression. Besides depression, trauma affected victims are also likely to be adversely affected by PTSD (Mujeeb, 2009; Shujaat, 2010). Belief in just world not only negatively effects depression, but it also serves as shield against PTSD.

The third hypothesis “belief in just world negatively predicts PTSD among disaster victims” was supported in the present study. The results of the present study are in line with the past research conducted with disaster victims suggesting that victims with weak

belief in just world developed symptoms of PTSD which indicates that belief in just world negatively effects PTSD among disaster victims (McMillen, North, & Smith, 2002). Researchers have studied the consequences of flood disasters in various countries and found that flood victims exhibited depressive symptoms, anxiety, stress, and emotional disturbances (Ehlers & Clark, 2000; McMillen et al., 2002; Powell & Penick, 1983). The above studies confirm that strong belief in just world helps disaster survivors to cope with post-disaster stressors, whereas weak belief in just world leave adverse affects. Consequently, promoting personal belief in just world reduces the development of PTSD symptoms. Pakistan is an Islamic society where important daily life activities of the people are based on belief system. The concept of belief in just world share many similar features with the Islamic concept of "*fate*" which explains that the world is a place of justice and people get what they actually deserve. Most of the disaster victims attribute their losses to "*fate*". Thus, belief in just world can be incorporated in the counseling and rehabilitation programs in the disaster affected areas, as an indigenous approach for rehabilitation.

The fourth hypothesis "resilience moderates the relationship between belief in just world and depression among disaster victims" was supported in the present study. Resilience creates ability among the trauma-exposed individuals to recover, adopt and overcome the threatening situations (Masten, Best, & Garmezy, 1990). It increases the adaptive capacities and positive outcomes among the at risk individuals (Luthar, Cicchetti, & Becker, 2000). Resilience not only provides the immediate recovery from trauma, but also develops the potentials to recover from the long-term effects of the traumatic experiences (Bonanno et al., 2002; Fredrickson, Tugade, Waugh, & Larkin, 2003). Prior researchers solely studied the direct effect of belief in just world and resilience on the prediction of depression (Aslam, 2007; Lipkus et al., 1996). However, the present study makes an addition in the existing literature in terms of the interaction effect of belief in just world and resilience on the prediction of depression among disaster victims. Along with the role of belief in just world in reducing depression, the present study confirmed buffering effect of resilience. Besides the personal belief in just world, having belief in personal ability to recover from trauma lays an additional effect on reducing depression, especially, among the people affected by natural and man-made disasters. Therefore, Robinson (2000) illustrates that inclusion of resilience in the prevention and intervention programs can be more beneficial. In this regard, resilience should be incorporated in the community rehabilitation programs in the affected areas.

Resilience not only moderated the relationship of belief in just world and depression among natural disaster victims, but also moderated among victims of man-made disaster. Pakistan has a long history of deadly disasters. Researchers investigated the association between resilience and depression in most of the disasters including earthquake (Aslam, 2007), flood (Riaz et al., 2012), and internal displacement (Mujeeb, 2009). However, the prior investigators remained limited to a single disaster, either natural or man-made. The present study focused this problem from a broader spectrum and concentrated on the joint investigation of both disasters in a single coherent inquiry. The interaction effect of personal belief in just world and resilience (the ability to recover from trauma) is found to be effective in predicting depression among the victims affected by both disasters. Instead of single disaster investigation, the combined investigation enhances the generalization of the findings on all disaster victims either suffering due to natural devastations or the victims of negative human involvement in disrupting the life and causing mass destruction and damages.

The fifth hypothesis “male disaster victims exhibit more belief in just world as compared to female disaster victims” was not supported in the present study. Overall female victims exhibited more belief in just world as compared to male victims. Similarly, among the victims of man-made disaster, women exhibited more belief in just world, however, no gender differences were found among natural disaster victims. The findings are not consistent with the past evidences (Calhoun, Cann, Tedeschi, & McMillan, 1998; Riaz, 2011) indicating that men exhibit more belief in just world as compared to women. Research evidences exist that gender makes no difference in belief in just world and both are considered unrelated. In a meta-analysis of 33 researches on belief in just world, O’Conner, Morrison, McLeod, and Anderson (1996) discovered that belief in just world and gender are unrelated. However, due to the inconsistent findings of the two studies—study conducted by Riaz (2011) and the present study—conducted in Pakistan illustrate that more research should be conducted to identify the real trends. A possible justification can be based on the difference in the nature of the sample in both studies that is adolescent students in the past research of indigenous context (Riaz, 2011) and victims of natural and man-made disaster as participants of the present study. Besides this, the scale used in the present study that is Personal Belief in Just World Scale is developed in individualist culture of Germany; its validation in the collectivist culture of Pakistan must also be undertaken. Although women comprised near half of the affected population in both disasters (PDMAS, 2013; UNHCR, 2012),

however, the conditions for women in both disasters were different from men. Both in FATA and the rural Sindh, usually men are responsible for earning and managing families. Thus, conditions get worsened for men who were not only deprived from their earning, but also faced the challenges of resettlement of their families.

Finally, mean differences on belief in just world among both type of disaster victims were identified without formulating hypothesis. Victims of natural disaster exhibited more belief in just world as compared to victims of man-made disaster. It is worth describing that victims of man-made disaster exhibited comparatively higher mean scores on depression and PTSD than victims of natural disaster (see Table 1). It contributes to the underlying theory behind the comparison of these two disasters explaining that disaster victims face more adverse psychological consequences as aftermath of man-made disasters than natural disasters. Prior research investigated the effects of belief in just world on mental health outcomes solely among victims of natural disaster (McMillen et al., 2002) instead of taking both disasters into consideration. Therefore, empirical evidences regarding mean differences in belief in just world in two types of disaster victims are lacking. The current findings are not counter-intuitive because people may better justify the natural disasters as “acts of God”. This justification develops perceptions of personal belief in just world. On the other hand, man-made disaster may trigger the feelings of injustice and may lead towards low perceptions of personal belief in just world. Simply, it is easy to justify the problems produced by the creator than those problems which are created by people. In the context of natural disasters, people make justifications like fate, luck, misfortune, and destiny. Contrary, in the case of man-made disasters, people consider others accountable for their dilemma which elicits the feeling of rage, aggression, and injustice. These support the theory that man-made disasters have more severe consequences than natural disasters. Therefore, the low levels of belief in just world—which is an important factor contributing to various mental health outcomes—among man-made disasters victims, may lead them towards more adverse consequences.

Limitations and Suggestions

The cross-sectional survey research design of the present study prevents from making casual inferences. Similarly, cross-sectional design has low internal validity inspite of the fact that it has high external validity. Thus, a mixed-method approach in the future research can be more beneficial in overcoming the inbuilt limitations

of the design of the present study. In the present study, information was collected through self-report measures which are vulnerable for social desirability, single source biasness, and technically common method variance. Thus, in the future research, information should be validated and cross-rated through some other sources. More specifically, mixed-method design and triangulation would be more appropriate. Most of the scales used in the present study were developed in the individualistic context and not validated in the indigenous context. Thus, there is need to culturally validate these instruments. More specifically, confirmatory factor analysis and cross-language validation should be carried out for all scales.

Due to the language related barriers and security issues; it was not feasible for the researcher to personally collect the information from the all sites of the disasters. Therefore, the key informants were contacted to collect the information, the researcher just facilitated key informants by visiting in some of the camps of disaster affected people. Otherwise, uniformed instructions were given to the key informants regarding the entire data collection procedures and possible anticipated problems. In future research, researchers familiar with Pashto and Sindhi language may be in a better position to directly collect information from the disaster affected people. The present study has solely focused on overall resilience. However, the most recent advancement indicates that resilience is multidimensional construct including state and trait resilience. Thus, future research should incorporate both of these dimensions. Similarly, the current inquiry mainly concentrated on personal belief in just world. It would be more appropriate in future research to include general belief in just world and belief in just world about others. It would be more appropriate to conduct research on post-traumatic growth among disaster victims. The present study concentrated on acute PTSD, it would be more appropriate in future research to investigate chronic and delayed PTSD through data triangulation.

Implications

The current study is the first attempt to empirically investigate belief in just world within the context of Pakistan following natural and man-made disasters. The present study is also unique because it examined the moderating role of resilience in the relationship between belief in just world and depression among victims of natural and man-made disaster. In spite of fact that people in Pakistan suffered from numerous disasters, the researchers focused on one disaster victims in an investigation. In the last decade, losses of 80 billion dollars and 50000 casualties were faced by Pakistan in the war against terrorism

due to drone attacks, suicide bombing, armed conflicts, and bomb blasts (Aurangzeb, 2014). People were internally displaced due to the counter-insurgency military operations in FATA. Many people faced losses of homes, family members and property. In the last decade, floods added more trouble in the miseries of the Pakistani people. Due to floods in different provinces of Pakistan, in general, and in the rural areas of Sindh, in particular, deadly consequences were faced by people. Thus, people were internally displaced from rural Sindh and shifted to camps as aftermath of floods because 1.5 million people became homeless (NDMA, 2010).

As the aftermath of these two disasters, the present study focused on the combine investigation of these two disasters in a single comprehensive research. Thus, the findings have more external validity for both types of victims. The study confirmed that promoting justice perception among people can serve as a shield against depression and PTSD. The major assumption behind the just world theory that it enhances well-being, is also supported in the present study. Besides belief in just world, it is noticeable that positive self-beliefs about disaster recovery, usually labeled as resilience, can be helpful for countering the adverse affects of disorders which mainly appear in the form of low levels of well-being, depression, and PTSD. Thus, mental health professionals launching rehabilitation plans for the disaster victims must include belief in just world and resilience as integral part of their interventions. Besides this, the present study has multiple implications in the fields of health, clinical, social, and positive psychology. The present study has theoretical as well as applied significance.

Conclusion

Justice is an important aspect of healthy human life. The just world phenomenon, which deals with the beliefs of justice in life, protects an individual from the negative effects of traumas. The findings of the present research support the theory of belief in just world in terms of its role in reducing negative effects of trauma and enhancing well-being. The underlying assumptions of the present study were supported by the findings. The effect of personal belief in just world and resilience in countering the effects of disasters in terms of low well-being, depression, and post-traumatic stress disorder were also supported in this investigation. The buffering role of resilience is also evident from the findings of the current inquiry. The study has addressed the disasters from a broader perspective by including both type of disasters, natural and man-made, that increases its worth and applicability.

The study confirmed that victims of natural disaster exhibited relatively more strong belief in just world as compared to their counterparts. Thus, due to the lack of personal belief in just world, man-made disaster victims are more vulnerable for psychological problems. The findings shed light on the role of belief in just world as counter-stress mechanism which can be effectively used to ensure mental health of the victims of disasters.

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