

Flood Experience And Victims' Perceptions About Community Cohesion

Muhammad Siddique Akbar¹, Mazhar Hussain Bhutta², Naimatullah Hashmi³, Asim Muneeb Khan⁴,
Amna Afzaal⁵

Assistant Professor of Sociology, Govt. Postgraduate College, Muzaffargarh¹

Department of Sociology, PMAS-Arid Agriculture University, Rawalpindi^{2, 3, 5}

Department of Humanities & Social Sciences, Bahria University Islamabad⁴

Abstract

The study was conducted to understand the extent to which flood experience correlated with the respondents' views about their community bonding. The data were taken from the flood victims by using a semi-structured interview schedule. Multiple regression analysis was run to know the impact of material loss and psychological trauma on flood victims' perceived community bonding, controlling for other factors such as annual income, evacuation experience, home-stability and perceived fairness in aid distribution. Spearman's rho was employed to see the direct relationship between demographic characteristics of the respondents, flood experience, home-stability, fairness in aid distribution, period of return to home, and post-flood community cohesion. Results of both the analysis revealed that material loss and psychological trauma experience came out as strong predictors of victims' views about their community cohesion. The other predictors were perceived fairness in the distribution of disaster aid, period of return to home, educational level and annual income of the respondents. The study showed that material loss, psychological trauma experience and period of return to home have negatively impacted the victims' views about their community bonding. Our study confirms the past research that disasters like flood cause the loss of communality and affect the communal bonds.

Keywords: *Floods, flood experience, flood victims' perceptions, community cohesion, Pakistan*

1. INTRODUCTION

Hazard researchers and governments have always been eager to understand the social impacts of disasters on the communities. Scientists believe that disasters have measureable impacts on the communities and individual behavior (Lindell & Prater, 2003). Furthermore, social experiences during the disasters affect the victims' views about the people around them and norms governing these communities (Chowdhury, 2011). Disasters upset and change the social and moral fabric of the communities and alter the nature of social networks (World Bank, 2011c). Natural disasters like flood force the people to relocate and significantly impact the victims' sense of communality (Erikson, 1976). Community bonding is crucial for the survival and development of the communities after a calamitous situation (Gilchrist, 2009). Strong social bonding among community members enables them to stay united and achieve their shared goals and objectives (McMillan & Chavis, 1986). Cohesive communities are more capable to withstand the disasters and recover at greater pace (Chowdhury, 2011; Abramson & Culp, 2013).

Pakistan was washed by a monstrous flood in 2010. It was one of the worst natural calamities in the history (Imam, 2010; National Disaster Management Authority [NDMA], 2011; World Bank [World Bank], 2011a). According to Bhatti et al., (2011) the severity and intensity of the flood was so enormous that it affected more than twenty million people. The flood caused a loss of fort three billion dollars (Oxley, 2011). More than two thousand people sustained injuries and seventeen hundred people lost their lives (NDMA, 2011; FFC, 2010). The floods inundated an area bigger than of England (United Nations Office for Human Assistance [UNOCHA], 2011).

Disasters not only damage the physical infrastructure but also destroy social infrastructure (World Bank, 2011c). Disasters alter the inter-communal relations and create social frictions. The

social impacts incurred by disasters have greater implications for recovery and rehabilitation phase (Abramson & Culp, 2013). Besides material damages incurred by disasters, some of the social impacts of disasters are not easily visible but are critical to understand the communities' path to recovery and rehabilitation (Chowdhury, 2011). Disasters alter the communal relations by deepening the differences among different sections of societies. (World Bank, 2011b). Identifying such invisible impacts of the disasters enables the stakeholders to speed up the victims' process of recovery and rehabilitation.

During catastrophic situations, strong community bonds are eroded away by the factors such as personal interests (Chang, 2010), evacuation and relocation experience (Erikson, 1976), and deep rooted socioeconomic inequities (Arai, 2012). An interplay of disaster experience and societal factors creates a new social reality for the affected communities. Given that, this study aims at investigating the association between victims' flood experience and their perceptions about community bonding. More specifically, this study investigates the relationship among victims' flood experience, their socio-demographic attributes and their views about community bonding.

In this study the term community cohesion means the connectedness and social bondings among community members. In addition, we use demographic variables e.g gender of the respondents, annual income, education, occupation, pre-flood home ownership and family size, home stability and period of return to home. We measured flood experience through psychological trauma and material damage suffered by the flood victims. We also asked about perceived fairness in the distribution of disaster aid to get the broader picture of the phenomenon. The data were gathered through a face to face interview with 2010 flood hit communities in Pakistan based on the dataset of District Disaster Management Authority (DDMA). We interviewed 450 household heads in Muzaffargarh district of Punjab Province. The major limitation in this study is that pre-flood baseline data on community cohesion were not available. Secondly, there are some chances of information lapse because data were collected in January 2013, approximately two and half years after flood disaster.

2. DISASTERS AND COMMUNITY COHESION

Theoretically, we use individual interest perspectives and social dilemma theory. According to this perspective, disasters create sense of insecurity. During crisis situations, individual interests predominate the community interests (Chang, 2010). Our study does not focus on the social forces that bind the community during normal situation but it delves into specific circumstances that lead to enhancement or degrading of community cohesion after a natural disaster. Pakistani society has specific circumstances like poverty. Due to fertile lands, the rural poor who are forced to live in the flood prone areas are more prone to disasters like floods (Bhatti et al., 2011). Despite perennial risks of flood disasters, rural people like to live in the flood plains because of its fertile land and availability of water for agricultural activities. As large scale disasters overwhelm the coping capacity of people, they are more concerned about their self-survival, and in such circumstances individual interests become more salient over group interests. Such situation leads to emergence or reinforcement of the norms of self-interest and new social cleavages raise their head (Dynes & Quarantelli, 1971).

Norris et al., (2008) have termed that cohesive communities are socially embedded with each other. According to them cohesiveness is an important aspect of the communities characterized with profound level of social capital. Kaniasty, (2012) refers to community cohesion bonds of attachment and feelings of togetherness among people. This sense of communal feeling helps the people to unite. Community cohesion has been defined by Chang (2010) as level of integration among people. Kaniasty (2012) defined community cohesions as the sense of community among its members. He further elaborated that community sense cannot be enhanced without social solidarity among its members. Catastrophes tear apart the social structure and tend to divide the communities. Deep community schisms badly affect the process of recovery, while healthy communities bounce back rapidly (Abramson & Culp, 2013).

Natural disasters not only affect the built environment of the communities but also social fabric as well. Disasters lead to fatalities, mental sickness and physical injury. Societies hit by such disasters face social, political and psychological consequences. Coninx (2010) states that floods have lasting impacts on the communities and can alter the social structure for a long time. Floods affect the communities at different level and create poverty and sense of bereavement (Coninx & Bachus, 2008). Crises create new norms of behaviour and social values. Adeola & Picou, (2012) argue that normal social lives are disrupted by such disasters which lead to breakdown of social structure of the communities.

There are different theories regarding the effects of disasters on the configuration of the societies. Social effects of the disasters largely depend upon the types of disaster (Sweet,1998). Catastrophes, whether natural or technological, are characterised by their origin and magnitude and differ in their effects on the social life of the communities (Kaniasty & Norris, 2004). Disasters also increase the community bonding among the victims. A study conducted by Sweet (1998) reveals mixed findings. He found that soon after a windstorm disaster, the victims reported an upturn in the level of community cohesion. However after one month a steady decline was observed in the level of social cohesion and it reverted to pre-disaster period. This study also revealed that disaster experience also created social bitterness among community members. Some of the respondents reported a steady decline in their community bonding. The residents also reported that after disaster, their feelings about community have altered. A decline in the social solidarity was observed among the victims who sustained a heavy loss.

Disasters are characterized by their disastrous consequences. Due to evacuation, relocation and dislocation, disasters create social hollowness. It leads to loss of community sense and community life as well. The social impoverishment caused by the disaster affects the process of recovery and rehabilitation (Tapsell and Tunstall, 2008; Coninx, 2010). Nevertheless, Coninx (2010) argues that disasters do not potentially affect the social bonds among community members but they create such conditions that create hollow communities. A study by Arai (2012) with the flood victims of Pakistan revealed that patronized aid distribution has weakened communal bonding among flooded communities. The study revealed that it is not the flood disaster but socio-political processes have deepened the social divisions (Ibid).

Long term impacts of disasters tend to vary spatially and temporally. Crises create specific social norms that are specific to the situation. Emergent norms theory explains this position very well. A study conducted by Kaniasty and Norris (2004) reveals that catastrophes create a strong community sense among the victims. Initially disasters tend to enhance their sense of solidarity and as a result new norms of social cohesion emerge. Nevertheless, this honey moon period fades away with the passage of time. As the time passes, individuals become more concerned about their own self-interest and it leads to fragmentation of the disaster hit communities. However the researchers claim that this decline in social solidarity and communal altruism is time based. After a brief period of time, disaster victims revealed that initial mobilization of community solidarity tends to sustain for a longer period of time that has positive trajectory for well-being and long term recovery and rehabilitation.

The contending theoretical stances and research findings lead to sizzling questions regarding the impacts of disaster on the communities. Researchers argue that social characteristics of a society are deeply intertwined with the effects of disasters. Toya and Skidmore (2012) state that level of social cohesion and trust among disaster inflicted communities depend upon their response to crisis situation. Catastrophes deepen the social cleavage and polarize communal relations (Arai, 2012). Such a skewed treatment with disaster victims sow the seeds of social bitterness that lead to emergence of “corrosive” (P. 214) communities (Kaniasty & Norris, 2004).

A community's response to disaster depends upon many factors irrespective of severity and extent of disaster. More specifically, community cohesion is also shaped by larger social processes and activities by the members of the community. A study conducted by Chang (2010) revealed that flood victims' perceptions about community cohesion were found to be positively correlated with

participation in group activities, group membership and group identity. The study found the flood victims' level of community cohesion increased after disaster experience. However, it was found to be negatively associated with severity of the disaster.

Disasters serve as triggering agent of social bitterness. Gross social inequalities mar the equitable prospects of recovery of the disaster victims. A study conducted by Arai (2012) revealed that 2010 floods had damaging impacts on the communal relations and communality. During qualitative interviews with the flood victims, he found that social conflicts emerged among the residents. The respondents attributed such conflicts to deep rooted power based structure of Pakistani society. The distribution of relief goods was paternalised by local feudal and political elites who diverted the aid to their political favorites and ignored the needs of the people. Preferential distribution of relief goods and unequal relationship between flood victims and local elites sowed the seeds of social antagonism among disaster hit people. A study conducted by Kaniasty (2012) on flood victims revealed that those who suffered high material loss reported low level of social cohesions. The flood victims who believed that distribution of relief assistance was preferential and skewed reported lower level of social cohesion.

According to Perkins et al., (2002) the community cohesion refers to sense of mutual trust and social bonding which encompasses shared responsibility and mutual concerns. Social cohesion impacts the recovery of the disaster victims. However as high level of disaster affects the cohesion and this loss in communal solidarity also affects the recovery. Chowdhury (2011) found that villages where all the people have been affected by the disasters, disruption in social cohesion has seriously impacted the disaster recovery.

Evacuation is an important tool for the decision makers in order to mitigate the impacts of disasters and an effective source of disaster adaptation (Perry, 1979). Evacuation experiences also shape the perceptions of flood victims about their communities. Evacuations disrupt the social networks and damage community bonding. Social response to disasters like evacuation leads to collapse of routine and established patterns of social interaction (Salzer & Bickman, 1999). Additionally, evacuation experience impacts the psychological well-being of the disaster victims (LaJoie, Sprang & McKinney, 2010).

Provision of disaster assistance to impoverished people is a significant disaster response strategy. Disaster lead to emergence of new norms, and emergency situations lead to activation of dormant social networks and social assistance of the disaster victims. Family members and friends come forward to help the disaster affected people (Kaniasty & Norris 1995; Kaniasty & Norris, 2004; Norris & Kaniasty, 1996). Along with informal social support networks, governments and non-government organizations such as NGOs, philanthropists and religious organizations also come forward to help the disaster victims.

As the governments have ample resources on their part, they are more able to help a wide range of communities. For a successful aid effort, it is vital to understand the impacts of disasters and post-disaster aid efforts on the local patterns of the life, social structure and social institutions. Disasters and disaster assistance efforts affect the assets and capabilities of different socioeconomic groups and their ability to recover their livelihood. Disaster aid efforts also impact the community relations and the social institutions (World Bank, 2011b). Preferential treatment during aid distribution and elite capture of disaster aid undermines the relief efforts. Such discriminatory practices not only sow the seeds of ill will among government institutions and common people but also hit the community members. Owing to feudal set up in the rural communities of Pakistan and huge distance between legal rational bureaucracies, the aid efforts were plagued with incompetency. During 2010 floods, preferential aid distribution was observed and disaster aid was used as a tool to further the political agenda and increase the personal vote bank (Arai, 2012).

In a collectivist society like Pakistan, people uphold inter-dependent self. The social characteristics of a community represent the values and norms held by the individuals. We test the

hypothesis that community cohesion is associated with flood experience. Besides the flood experience, we have used a wide range of socio-demographic characteristics to get better understanding of community cohesion after disaster. Floods cause a lot of damage to house. Houses built of mud and straw were demolished by the flood waters. Whether a house has been damaged severely or has been destroyed, it alters the victims' perceptions about disaster. Greater damage caused by the floods leads to greater social impacts (Coninx, 2010).

This paper tests the theory whether the flood experience has affected the victims' perceived sense of community cohesion. We test the hypothesis that community cohesion is predicted by flood experience along with socio-demographic characteristics such as gender, annual income, evacuation experience, home-stability and perceived fairness in the distribution of disaster aid. Nonetheless, contrary to previous studies discussed above, we have expanded the concept of disaster experience. In this study we have not only tested the impact of material damage on the community cohesion, but also tested the impacts of psychological trauma undergone by flood victims.

3. METHODS AND DATA

3.1 Sampling

Sampling frame of disaster affected household was taken from District Disaster Management Authority (DDMA) of Muzaffargarh District. This sampling frame consists of all individuals who received institutional aid in monetary form from the government led relief and rehabilitation agencies. A sample of 493 heads of the household was drawn by using formula devised by Yamane (1967). Fifty heads of the household could not be contacted due to relocation after floods.

3.2 Data Collection

Survey technique was employed for data collection. Data were collected with the help of interview schedule.

3.3 Socio-Demographic variables

A number of socio-demographic factors may impact the flood victims' perceptions about their communities. So we control for gender, occupation, educational level, annual income, family size, period of return to home, home-stability, perceived fairness in the distribution of disaster aid. Details about these variables are provided in Appendix A.

3.4 Flood experience

In this study we used two types of disaster related experiences of the flood victims. We used material damage scale was used to assess the material loss and psychological trauma scale was employed to measure the psychological effects of the floods suffered by flood victims and psychological trauma measure. Before taking the final interviews, the scales were pilot tested and modified according to Pakistani rural context. The details about these scales are given in Appendix B.

3.5 Post-flood Community Cohesion Scale

Kaniasty (2012) developed Post Disaster community Cohesion scale to measure the level of community bonding among disaster hit communities. This scale was adapted after pilot testing. Details about this scale are given in appendix C.

4. DATA ANALYSIS AND INTERPRETATION

4.1 Socio-demographic information

Among 450 respondents 139 (30.9%) respondents were illiterate, 62(13.8%) respondents were five graders, 40 (8.9%) respondents were 8th graders, 98 (21.8%) respondents had passed ten grades were while 111(24.7%) had qualification equivalent or more than intermediate (Table 1).

Table 1 Education of respondents

Education	Number	Percentage
Illiterate	139	30.9
Primary	62	13.8
Middle	40	8.9
Matriculation	98	21.8
Intermediate and above	111	24.7
Total	450	100

Table 2 Annual income, landholding, family size and number of livestock heads owned by the respondents

Variables`	Mean	Median	Mode	Std. Deviation	Percentiles		
					25	50	75
Annual income (PKR)	420095.7	200000.	100000.	24096.40	100000	200000	500000
Family size	4.6993	1.0000	4.00	2.51538	3.00	5.00	6.00

The mean annual income of the respondents was rupees 420,000. Average family size of the respondents was four (Table 2).

Table 3 Home stability

Home stability	Number	Percentage
Yes	283	62.9
No	167	37.1
Total	450	100

Table 4 Respondents' perceptions about fairness in the distribution of disaster aid

Fairness	Number	Percentage
No	347	77.1
Yes	102	22.7
Total	449	99.8

As far as home-stability is concerned, 167 (37.1%) respondents reported satisfaction with post-flood housing condition and 283 (62.9%) respondents reported dissatisfaction with post-flood housing condition (Table 3). Flood affected communities were asked regarding fairness and transparency in disaster aid distribution. Among those, 77.1 per cent (347) respondents reported that distribution of disaster assistance was not fair while 22.9 per cent respondents (22.9) respondents reported that distribution was fair (Table 4). All the respondents who were interviewed evacuated their home due to flood. 96 percent respondents were now living in their own homes and 4 percent were living in rented home. The mean return time to home was 93 days.

Table 5 Level of psychological trauma

Trauma experienced	Number	Percentage
No/low trauma	218	48.4
Moderate trauma	143	31.8
High trauma	55	12.2
Very high trauma	34	7.6
Total	450	100

Table 6 Level of material damage

Level of material loss	Number	Percentage
Low loss	2	4
Medium loss	91	20.2
High loss	281	62.4
Very high loss	71	15.8
Total	445	92.4

The respondents reported low levels of psychological trauma overall. 218 (48.4%) reported no or low trauma, 143 (31.8%) reported moderate trauma, 55 (12.2%) high trauma and 34(7.6%) reported very high trauma (Table 5). However the flood victims underwent immense material loss.91 (20.2%) respondents reported medium loss, 281 (62.4%) high loss, and 71 (15.8%) very high loss (Table 6).

Analysis began by looking at the respondents perceptions about their community after flood experience. Table 1 represents the per cent of response. Overall the majority of the respondents expressed negative views about people around them. For example 72.6 per cent respondents after flood people are no nicer than pre-flood days.71.4 percent respondents reported that people are less sincere and honest as compared to pre-flood days. It is noteworthy that when people were asked harsher question like people are fighting like cat and dogs after the flood, majority of them 52.9 percent answered neutral category i.e. don't know. 72 percent respondent reported that people are less united now a days as compared to pre-flood days. 74.4 percent reported that people have less sense of community now a days and more than 70 percent respondents reported that people have lost trust in each other after flood disaster (Table 7).

Table 7 Respondents' perceptions about post-flood community cohesion

SA		SD	D	N	A	
1.	Now, almost 2 years after the flood, on a day-to-day basis people are nicer towards each other than they were before flood disaster.	12.6	60.4	3.8	13.8	9.3
2.	I believe that now, almost 2 years after the flood, people are more sincere, honest, and open toward each other.	27.6	43.8	8.2	14.7	5.7
3.	The saying that "people are fighting like cats and dogs with one another" is today more accurate than before the flood. (R)	8.7	29.1	52.9	7.6	1.8
4.	I believe that in result of the flood people here are more integrated and united.	12.0	60.0	12.4	11.8	3.8
5.	It seems that since the flood people became less tolerant and less forgiving. (R)	9.8	28.4	42.6	11.6	8.0
6.	The flood taught people to have greater respect for the feelings and opinions of other people.	15.6	52.0	15.8	14.0	2.7
7.	The flood is the reason why nobody trusts anybody.(R)	7.8	32.0	50.9	7.3	2.0
8.	I think that because of the flood people understood how important it is to live in	17.1	51.8	9.6	18.2	3.3

	peace and with kindness toward each other.					
9.	After experiencing flood, I believe that today people have a stronger sense that we are all part of one community. In other words, people now have a greater sense of solidarity with others.	43.3	31.1	7.3	13.6	4.4
10.	Nowadays, people have a stronger sense of trust toward one another than before the flood.	37.8	36.2	7.3	16.9	1.8

Note: N = 450; SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree (Adapted: Kaniasty 2012).

Table 8

Relationship between flood experience, annual income, home-stability, fairness in aid distribution, education, occupation, period of return to home, family size and post-flood community cohesion

Variables	Post-flood community cohesion
Psychological trauma	-0.219**
Material loss	-0.341**
Fairness in aid distribution	0.581**
Annual income	0.556**
Home stability	0.320**
Education	0.03
Period of return to home	-0.21**
Family size	0.06

Note: * $p < 0.001$ $p < 0.05$ **

Spearman's rho was run to see the initial relationship among different variables. Psychological trauma, material loss and period of return to home are negatively associated with the post-flood community cohesion. While fairness in the distribution of disaster aid, annual income and home-stability of flood victims were positively correlated with post-flood community cohesion (Table 8).

4.2 Regression analysis

Multiple regressions revealed that perceived community cohesion was predicted by a number of variables (Table 9). The prediction efficacy is ($R^2 = .53$). The overall model accounts for 53 per cent of the variation in community cohesion. Statistical figures show that period of return to home ($B = -.065$, $p < .001$), psychological trauma experience ($B = -.096$, $p < .001$) and material loss ($B = -.059$, $p < .001$) negatively predicted the perceived community cohesion ($F(12, 447) = 41.22$, $p < .001$). While annual income ($B = 2.179$, $p < .001$), perceived fairness in aid distribution ($B = .889$, $p < .001$) educational level of the flood victims positively predicted the perceived ($B = .036$, $p = .057$) the community cohesion.

In addition, nonsignificant predictors included gender ($B = -.052$, $p = .518$), education ($B = .036$, $p = .057$), occupation ($B = 6.43$, $p = .997$), family size ($B = -.010$, $p = .319$), home-stability ($B = -.018$, $p = .765$).

Table 9

Multiple regression analysis: Views about community cohesion

	B	Std. Error	Beta (β)	R	R ²	F-statistics
Constant	1.376	.653		.729	.519	41.22
Annual income	2.179*	.000	.150			
Education	.036*	.019	.090			
Period of return	-.065*	.041	-.118			
Perceived fairness	.889*	.059	.574			
Psychological trauma	-.096*	.026	-.138			
Material damage	-.059*	.019	-.098			
N	447					

Note: * $p < 0.001$ $p < 0.05$ **

5. FINDINGS AND DISCUSSIONS

The study was conducted to investigate the perceptions of flood affected population about their community bonding. As we draw theories about social world based on our presuppositions and personal observations of the fact, and then test them empirically, this study has provided very important findings regarding impact of a natural hazard on the perceived community cohesion after flood disaster. Statistical analysis revealed that annual income, period of return to home; perceived fairness in aid distribution and material loss and psychological trauma experience significantly predicted the flood victims' perceived community cohesion level. While the educational level of the flood victims mildly predicted the perceived community cohesion. Natural disasters can unite a community or can sow the seeds of bitterness among its members. Nonetheless, the impacts of natural disasters occur at the interplay of natural and social factors. Both the material loss and psychological trauma induced by flood disaster and social processes like unfairness in the distribution of disaster assistance and period of return to home are significantly associated with the level of community cohesion.

Results revealed that flood induced material damage and psychological trauma contains serious implications for the affected communities. Disasters invoke physical injuries and threat to the victims' lives. Such impacts set the emotional and psychological scars on the victims. The death and injury caused by the flood disaster or risk posed by it seriously affects the attitude and behavior of the victims. Our study shows that the victims with high psychological trauma have evaluated their community negatively. The study confirms the findings of Norris and Phifer (1995). According to them, the material loss and psychological shocks experienced by the disaster victims e.g the loss of immediate family member, injury of family member, alter the perspective about self-vulnerability and also about the community (Norris & Phifer, 1995).

Period of return to home has emerged as another significant predictor of community cohesion and is negatively associated with flood victims' opinion regarding their communities. This finding has important implications regarding the impacts of flood disaster on the communities. The extreme 2010 floods forced the people to evacuate to safer places that resulted in loss of community and communal space. The villagers could not return to their home until flood waters receded. Average time of return was reported as one month. The flood disaster scattered the communities to different places that led to erosion of their communal bonds. Disasters damage both the physical and social infrastructure of the societies. They not only destroy the concrete structure but also the soft structure like communal feelings and mutual trust. Flood evacuations considerably affect the community feelings and the victims feel disconnected and demoralized (Erikson, 1976).

Results of the study indicate that period of return to home has negative impact on perceived community cohesion. A delay in the restoration of community life has potentially created the

indifference and apathy among flood victims. Period of return to home is also linked with evacuation experience. At the time of evacuation, people tried to move to safer places without any concern for the other fellow beings (Aguirre, Wenger & Vigo,1998; Drabek & McEntire, 2003). Crisis leads to emergence of new norms and self-interests predominate the collective interest (Aguirre, Wenger & Vigo,1998; Drabek & McEntire, 2003). A long period of disconnection from one another probably affects their communal bonds. Such findings are in consonance with Kaniasty and Norris (2004). They contend that disasters lead to emergence “corrosive communities” (p. 214) and sow the seeds of social bitterness.

Greater annual income, higher education and perceived fairness in the distribution of disaster assistance have positive effects on the perceived community cohesion. These findings confirm that people with greater resources live in more secure places and are less impacted by the disasters as compared to those who have less education and lower social standing. These findings remain concurrent with the theory that disasters impact the communities have differentially. Disaster research in social vulnerability paradigm demonstrated that poor and less educated pay heavier costs during catastrophic situations as compared well-off. Our study vindicate the theory that poor are by default at risk (Alexander, 2003).

Regression analysis revealed that fairness in the distribution of disaster aid is positively associated with flood victims’ opinion about their communities and vice versa. Transparency and equality lead to emergence of social goodness and trust among the community members. Our findings can be reconciled with those Coninx and Bachus (2009) who found that negative experiences during disasters foster a sense of alienation and cause social distrust among victims. Disaster aid interventions entail deeper social implications. At one side disaster assistance leads to social inclusion of all the community members, while at the same time disaster aid programs create social exclusion by catering the needs of certain groups and ignoring all others. Absence of wider community involvement leads to social cleavage and divisions among community members (WB, 2011c).

The findings of our quantitative study also confirm the lessons learned by Arai (2012) during his qualitative study of 2010 flood disaster victims in Pakistan. He conducted in-depth interviews with villagers, philanthropists, local leaders and representative of NGOs. He also interviewed with flood victims. Arai unearthed that the social cleavages present in Pakistani society raised their heads at the time of crisis. Local feudal elites manipulated this situation. In order to widen their vote bank and to influence the opinion of people in next elections, they ensured a preferential treatment during disaster aid distribution. This politicized distribution of food items, tents, medicines and other necessities created an atmosphere of ill will and hatred among the people. During aid distribution, the local political elites preferred their own political constituencies at the cost of flood victims who belonged to other constituencies.

During relief and rehabilitation phase, the process of distribution of disaster aid created a sense of disenfranchisement among flood victims. The flood victims raised their doubts about the authenticity of distribution process. Many of them reported that local elites patronized and influenced the relief process for their political gains. Previous studies e.g (Akbar & Aldrich, 2017) confirmed that politically motivated relief and rehabilitation policies badly affect the resilience level of disaster hit communities. Preferential and discriminatory treatment during disaster aid distribution weakens the social fabric of the society and affects their community bonding. (Kaniasty & Norris, 2004; Cox & Perry, 2011). Paternalistic role played by the relief organizations created a sense of alienation among local people (Arai, 2012).

6. CONCLUSIONS

Our study confirms the past research that to some extent disasters impact the social fabric of the communities (e.g. Sweet, 1998; Chang, 2010). Our study shows that 2010 floods have deeply affected victims’ opinion regarding their communities. Annual income of the respondents, level of education, fairness in the distribution of disaster aid, psychological trauma and period of return to

home came out as strong predictors of peoples' opinion about their communities. Material loss, psychological trauma and period of return to home negatively impacted the flood victims' opinion regarding their communities. Annual income of the respondents, level of education and fairness in the distribution of disaster aid are positively associated with perceived community cohesion.

The study revealed that material loss and level of trauma incurred by the flood disaster have significantly affected victims' opinion about people around him. Such damages have diminished the flood victims' confidence in their communities. Correlational analysis showed that period of return to home is negatively associated with flood victims' views about community cohesion. The flood victims who were unable to return earlier to their home expressed negative opinions about their communities. The study also showed that annual income, education level of the respondents and perceived fairness in the distribution of disaster aid were positively associated with the flood victims' perceptions about their community. Such results are not counterintuitive and also align with earlier results discussed. For example a study conducted by Abramson et al., (2010) proved that people having high income and high level of education are less prone to disasters. Our study confirms that transparent socio-political processes e.g fairness in the distribution of disaster aid positively affect the disaster victims' opinion about their communities. The overarching conclusion of the study is that disastrous impacts of the disasters become manifold in the presence of prevalent socio-economic inequities and polarized socio-political environment.

The flood disaster cannot be exclusively blamed for the erosion of community bonding among disaster victims. In fact, the flood disaster has exposed the deep rooted socio-political fault lines in Pakistani society. For example, swathes of flood victims reported unfairness in the distribution of disaster aid. After the floods, many foreign funded NGOs arrived for relief and rehabilitation operation in the flood hit areas. These organizations were unaware of specific socio-political realities of the local area. Furthermore, such organizations were utterly alien to local social reality and local power dynamics. As a result they are more prone to be succumbed to political pressure and patronization.

Deep rooted social fault lines rise to surface during catastrophic situation like floods. Pakistan is prone to many man-made and natural disasters. A responsive leadership and transparent aid distribution and affirmative actions diminish the impacts of disasters upon the communities. Otherwise the disaster further weakens the social fabric that can affect the recovery and rehabilitation process (Chowdhury, 2013). Such a loss of social resilience leads to "second disaster". Non resilient communities are unable to bounce back in the wake of disasters (Cox & Perry, 2011). The study leads to conclusion that natural catastrophes such as floods not only potentially damage the physical infrastructure of the communities but also their social infrastructure like social capital, communal bindings and trust in their communities.

This empirical investigation has offered many crucial policy lessons. The disaster responders e.g. governments, bureaucracies and other agencies must ensure transparency in the matters of disaster assistance and rehabilitation effort. The disaster aid should not be a source of competition and conflict. Secondly, the communities should be re-united as soon as possible. Effective disaster mitigation measures can ensure the minimum loss of life and physical injuries. Highly traumatized disaster victims should be provided psychological therapy and group therapy. Disasters impact the social and moral fabric of the communities along with their physical infrastructure. Hazard mitigation and preparedness practices should also focus on the social impacts of the disaster. Governments should take measures to restore the community life as soon as possible. Otherwise disasters would lead to another disaster in the form of loss of community life.

REFERENCES

1. Abramson, D. M., Stehling-Ariza, T., Park, Y. S., Walsh, L., & Culp, D. (2010). Measuring Individual Disaster Recovery: A Socioecological Framework. *Disaster Medicine and Public Health Preparedness*, 4 (S1), S56-S54.

2. Abramson, D. M., & Culp, D. (2013). At the Crossroads of Long-Term Recovery: Joplin, Missouri Six Months after the May 22, 2011 Tornado. <https://academiccommons.columbia.edu/catalog/ac:166312> (Last accessed on 19 October 2017).
3. Adeola, F. O., & Picou, J. S. (2012). Race, social capital and health impacts of Katrina: Evidence from Louisiana and Mississippi Gulf Coast. *Human Ecology Review*, 19 (1).
4. Aguirre, B. E., Wenger, D., & Vigo, G. (1998, June). A test of the emergent norm theory of collective behavior. In *Sociological Forum* (Vol. 13, No. 2, pp. 301-320). Kluwer Academic Publishers-Plenum Publishers.
5. Akbar, M. S., & Aldrich, D. P. (2017). Determinants of Post-flood Social and Institutional Trust Among Disaster Victims. *Journal of Contingencies and Crisis Management*.
6. Akram, S., & Aijazi, O. (2010). *Rapid assessment report of flood-affected communities in Muzaffargarh District, Punjab, Pakistan*. Retrieved April 12, 2012, from http://reliefweb.int/sites/reliefweb.int/files/resources/24E2D643A00C38E34925778600836155-Full_Report.pdf
7. Alexander, D. (2003). Towards the development of standards in emergency management training and education. *Disaster Prevention and Management: An International Journal*, 12(2), 113-123.
8. Arai, T. (2012). Rebuilding Pakistan in the Aftermath of the Floods: Disaster Relief as Conflict Prevention. *Journal of Peacebuilding and Development*, 7 (1).
9. Bhatti, N., Jamali, M. B., Ghumro, I. A., & Shaikh, F. M. (2011). Supreme Flood and its Impact on Poverty in Rural Sindh. *Australian Journal of Business and Management Research*, 1 (5), 50-62.
10. Chang, K. (2010). Community cohesion after a natural disaster: insights from a Carlisle flood. *Disasters*, 34 (2), 289-302.
11. Chowdhury, M. J. A. (2011). Social Cohesion and Natural Disaster Loss Recovery of Households: Experience from Bangladesh. Retrieved March 2, 2016, from <http://www.oecd.org/dev/pgd/46880436.pdf>
12. Coninx I., & Bachus K. (2008). Social risk assessment methodology. HIVA-KULeuven (Unpublished paper)
13. Coninx, I. (2010). *WWW questions on social flood impacts answered: what, why and who?* Katholieke Universiteit, Leuven
14. Coninx, I., & Bachus, K. (2009). *Exploring the social flood impacts. Delphi study results*. Retrieved July, 14, 2014, from https://lirias.kuleuven.be/bitstream/123456789/286265/2/R1362_Delphi_results_2009.pdf
15. Cox, R. S., & Perry, K.-M. E. (2011). Like a Fish Out of Water: Reconsidering Disaster Recovery and the Role of Place and Social Capital in Community Disaster Resilience. *Am J Community Psychology*, 48, 395-411.
16. Drabek, T. E., & McEntire, D. A. (2003). Emergent phenomena and the sociology of disaster: lessons, trends and opportunities from the research literature. *Disaster Prevention and Management: An International Journal*, 12(2), 97-112.

17. Dynes, R. R., & Quarantelli, E. L. (1971). Community Conflict: Its Absence and its Presence in Natural Disasters.
18. Erikson, K. T. (1976). Loss of communality at Buffalo Creek. *American Journal of Psychiatry*, 133(3), 302-305.
19. FFC. (2010). *Annual flood report 2010*. Retrieved March 23, 2012, from www.ffc.gov.pk/download/flood/archieve/Annual.report2010.pdf
20. Gilchrist, A. (2009). *The well-connected community: a networking approach to community development*. Policy Press.
21. Imam, T. M. (2010). Flood in Pakistan: was it unpredicted? *Health Beat*, IV (3). Kelman, I. (2011). *Natural disaster do not exist*. Retrieved July 9, 2010, from <http://www.ilankelman.org/miscellany/NaturalDisasters.rtf?>
22. Erikson, K. T. (1976). Loss of communality at Buffalo Creek. *American Journal of Psychiatry*, 133(3), 302-305.
23. Kaniasty, K., & Norris, F. H. (1995). Mobilization and deterioration of social support following natural disasters. *Current Directions in Psychological Science*, 4(3), 94-98.
24. Kaniasty, K., & Norris, F. H. (2004). Social support in the aftermath of disasters, catastrophes, and acts of terrorism: Altruistic, overwhelmed, uncertain, antagonistic, and patriotic communities. *Bioterrorism: Psychological and public health interventions*, 3, 200-229.
25. Kaniasty, K. (2012). Predicting social psychological well-being following trauma: The role of postdisaster social support. *Psychological Trauma: Theory, Research, Practice and Policy*, 4, 22-33.
26. LaJoie, A. S., Sprang, G., & McKinney, W. P. (2010). Long-term effects of Hurricane Katrina on the psychological well-being of evacuees. *Disasters*, 34(4), 1031-1044.
27. Lindell, M. K., & Prater, C. S. (2003). Assessing community impacts of natural disasters. *Natural hazards review*, 4(4), 176-185.
28. McMillan, D. W., & Chavis, D. M. (1986). Sense of community: A definition and theory. *Journal of community psychology*, 14(1), 6-23.
29. NDMA. (2011). National Disaster Management Authority Annual Report 2010. Retrieved March 13, 2012, from http://ndma.gov.pk/Documents/flood_2010/Map_Flood_Affected_Districts_2010.pdf
30. Norris, F. H., & Phifer, J. F. (1995). Individual and community reactions to the Kentucky floods: findings from a longitudinal. *Individual and community responses to trauma and disaster: The structure of human chaos*, 378.
31. Norris, F. H., & Kaniasty, K. (1996). Received and perceived social support in times of stress: a test of the social support deterioration deterrence model. *Journal of personality and social psychology*, 71(3), 498.
32. Norris, F. H., Stevens, S. P., Pfefferbaum, B., Wyche, K. F., & Pfefferbaum, R. L. (2008). Community Resilience as a Metaphor, Theory, Set of Capacities, and Strategy for Disaster Readiness. *Am J Community Psychol*, 41, 127-150.

33. Onstad, P. A., S. M. Danes, A. M. Hardman, P. D. Olson, R. K. Marczak, S. R. Heins, S. R. Croymans, and K. A. Coffee. 2012. "The Road to Recovery from a Natural Disaster: Voices From the Community." *Community Development* 1–5
34. Oxley, M. (2011). Field note from Pakistan floods: Preventing future flood disasters. *JAMBA: Journal of Disaster Risk Studies*, 3 (2), 453-461.
35. Perkins, D. D., Hughey, J., & Speer, P. W. (2002). Community psychology perspectives on social capital theory and community development practice. *Community Development*, 33(1), 33-52.
36. Perry, R. W. (1979). Evacuation decision-making in natural disasters. *Mass emergencies*, 4(1), 25-38.
37. Salzer, M. S., & Bickman, L. (1999). The short-and long-term psychological impact of disasters: Implications for mental health interventions and policy. *Response to disaster: Psychosocial, community, and ecological approaches*, 63-82.
38. Sweet, S. (1998). The Effect of a Natural Disaster on Social Cohesion: A Longitudinal Study. *International Journal of Mass emergencies and disaster*, 16 (3), 321-331.
39. Tapsell, S. M., & Tunstall, S. M. (2008). 'I wish I'd never heard of Banbury': the relationship between "place" and the health impacts from flooding. *Health and Place*, 14, 133-154.
40. Toya, H., & Skidmore, M. (2012). *Do natural disasters enhance social trust?* Retrieved July 6, 2013, from <http://hdl.handle.net/10419/62319>
41. UNOCHA. (2011). *Humanitarian response Pakistan 2010*. Retrieved March 12, 2011, from <http://www.pakresponse.info/Home.aspx>
42. World Bank. (2011a). *Disaster risk management programs for priority countries*. Retrieved March 4, 2013, from [https://www.gfdrr.org/sites/gfdrr.org/files/publication/DRM_CountryPrograms_2011\[1\]\[1\].pdf](https://www.gfdrr.org/sites/gfdrr.org/files/publication/DRM_CountryPrograms_2011[1][1].pdf)
43. World Bank. (2011b). *Analyzing the Social Impacts of Disasters Volume I: Methodology*. Retrieved March 2, 2016, from <http://siteresources.worldbank.org/INTEAPREGTOPSOCDEV/Resources/PostDisasterSocialAnalysisToolsVolumeI.pdf>
44. World Bank. (2011c). *Analyzing the Social Impacts of Disasters Volume II: Tools*. Retrieved March 2, 2016, from <http://siteresources.worldbank.org/INTEAPREGTOPSOCDEV/Resources/PostDisasterSocialAnalysisToolsVolumeII.pdf>