

Repercussion of Flood of 2010 on the Mental Health of Pakistani Victims

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The flood of 2010 is considered to be one of the biggest natural disasters in the history of Pakistan. The present qualitative study was conducted to investigate the repercussions of flood in the form of psychosocial effects on the mental health of victims. Data were collected from the news about this flood published in 492 issues of the three leading English newspapers: The Nation, The Dawn, and The News (from 21.07.10 to 31.12.10). Text based content analysis was employed for data analysis and interpretation. Results revealed that flood adversely affected 78 out of 141 districts of Pakistan. Infinite number of flood victims lost their family members, loved ones, homes, crops, animals, valuable possessions, property, jobs, and thus experienced extreme social and mental trauma that adversely affected their mental health. They were suffering from several psychological symptoms as anxiety, stress, helplessness, depression, aggression, phobia, inability to concentrate, and many psychosomatic problems etc. Although it was noted that Government, army, citizens, international community and media had played a vital role in the rehabilitation of flood victims. The results of this study revealed that much has to be done to adequately deal with such a devastating humanitarian crisis. It is important to improve their reliance and self efficacy. Especially, there is a dire need to implement psychological interventions to minimize the intensity of the psychosocial effects which have adversely affected the mental health of the victims.

Keywords: Psychosocial effects, disasters, floods, victims, mental health, coping.

Disasters in the world occur on regular basis and affect millions of people in the world. The term disaster is defined as a stress situation that happens unexpectedly in any geographic area, results in a great loss and interferes with the routine social life of the community (Bolin, 1989; Gist & Lubin, 1999). Generally, disasters are classified into two major categories. Man-made disasters, also known as the technological disasters involving events with no natural causation are provoked by humans, for example, technological catastrophes, terrorism, and crimes. Natural disasters refer to the damaging effects caused by natural events e.g., the loss of life, economy, infrastructure etc. Both these disasters result into large number of deaths, huge social disruption, outbreaks of epidemic disease, food crisis, leaving survivors entirely dependent on outside relief (McPherson & Badu, 2009).

Natural disasters are basically of two types. The climate disasters involve atmospheric phenomena and effect people and resources through forces of wind and water. Floods, hurricanes and droughts are major climate disasters that effect countries on a large scale. The second type of disasters occur as a result of geologic changes, e.g., earthquakes, volcanoes and others caused by changes deep inside the earth and its surface (Abbott, 2004). In addition, there are also 'Slow-onset disasters' that involve droughts and food crisis. Slow-onset disasters develop slowly, can be predicted, and last longer

than rapid-onset events. On the other hand, the 'Rapid-onset disasters' involve earthquakes, hurricanes, landslides, volcanic eruptions and the most commonly the floods. Such disasters are severe and usually difficult to forecast, and are thus very devastating. The psychological impact of natural disasters is much more severe and destructive in nature than the man-made disasters (Baum & Flamming, 1999).

Woods and Woods (2007) revealed that floods happen more often, last longer and strike more places than many other kinds of disasters. Throughout history, floods have caused terrible disasters and effected infinite number of people. Water is the main ingredient for floods. Earth has about 236 million cubic miles of water in oceans, lakes, rivers and icebergs. Some water, however, is invisible as it is under the ground or in the air. Water moves from place to place, known as the water cycle. Sidewalks dry off after rain because the liquid water evaporates. It changes into water vapor, a gas that goes into the air. The water vapor then condenses (changes) into tiny droplets of liquid water. Water from clouds, then, fall back to the ground in the form of rain, snow, or ice. In this way, earth recycles its water. The ground can soak up just some of water from rain or melted snow and ice. The total amount of water on earth does not change very much. Extra water then runs off into streams, rivers and lakes. Too much water will make the overflow their banks, causing flood in surrounding areas. Bolton et al (2000) described four types of floods. 'Flash floods' occur due to abrupt and excessive rainfall for continuous period of time. They can also occur due to dam failure. 'Riverine floods' occur when water flow of rivers exceeds local flow capacities. 'Rainfall floods' occur due to heavy rain fall for long periods. Fourth, Coastal floods occur due to coastal rainfall. Coastal flooding typically results from a

combination of the biophysical factors as storm surge, heavy surf, tidal piling, tidal cycles, persistence storm situation that generate flooding, topography, river stage or stream runoff and presence or absence of offshore reefs or other barrier. Goyet (2004) divided the effects of floods into two categories. The primary/long term effects are massive and involve broken bridges, damaged vehicles, broken buildings, broken drain systems, out of order or cracked roads, and destructions to canals and other type of infrastructures. Secondary/short term effects typically involve water contamination. These impairments cause shortage of water supply to the affected areas. If there is no proper system to waste contaminated water after the floods, it can lead to outbreak of different diseases such as colds, cough, pneumonia, bronchitis and dengue.

Just like other countries of the world, Pakistan has suffered many times from destructive and horrible effects of flood. First major flood occurred in 1947, the second in 1954 and the third in 1970 in East Pakistan. Fourth flood came in Punjab in 1984, fifth flood in 1992, sixth in 2001 in northern areas, seventh in 2005 in Azad Jammu and Kashmir and eighth in 2007. All these resulted in loss of thousands of lives and thousands of people became homeless. The eighth flood came in 2010. It is considered to be the most destructive flood in the history of Pakistan. Pakistani government data revealed that flood directly affected about 20 million people, mostly by destruction of property, livelihood and infrastructure. It has been concluded that the said flood has affected much more people in Pakistan as compared to the people affected by Tsunami in 2004 (Jetly, 2010). Kronstadt, Sheikhand and Vaughn (2010) explained that more than 20000 people are believed to be dead. Country's one fifth part is inundated, and about eight million Pakistanis are said to become homeless. The nationwide livestock population and poultry losses have been expected in the millions. A considerable amount of empirical work had been done, especially in the West to study the effects of flood on the victims. Solomon (1985) found that the most harming aspect of disaster is social disruption. Norris and Murrell (1988) revealed that people who faced flood situations show more vulnerability to distress than those

who faced other crises situation. In another study, many emotional symptoms were found to be the result of flood that was threats to self security and personal growth (Katz &Thrope, 1995). Armah, Yawson, Yengoh, Odoi and Afrifa (2010) examined the impacts of floods in the communities in Northern Ghana who depend on natural resources and presented a theoretical framework. They assessed coping skills to accomplish human needs. They revealed that agriculture is the most sensitive area that is affected by natural disasters. The vulnerability can be reduced if practices and efforts are made at the governmental and public level.

Perry & Lindell (1978) also formulated a conceptual framework of interrelations among the important factors to understand the psychological effects of natural disasters *Figure 1*: Diagram showing important factors in understanding initial, later and long term psychological consequences of natural disasters (Strong lines representing positive relationship, while broken lines are representing inverse relationship). Adapted from Perry & Lindell (1978).

The framework in Figure 1 represents three main psychological consequences with twelve main factors. Firstly, the initial psychological consequences involve immediate post disaster to approximately one week. Second the later psychological consequences involve the period from one week to six months. Thirdly, the long-term consequences cover the period from six months after the disaster and continue till death of the victims.

Gruntfest (1995) pointed out that floods result into anxiety, depression, grief, cognitive and social dysfunctioning. Bland et- al. (1996) found association of natural disasters and psychiatric symptoms. Warheit, Zimmerman, Khoury, Vega, and Gil (1996) found post disaster depressive symptoms and suicidal thoughts among the flood victims. Brock (1998) asserted that natural calamities such as floods have extremely negative physical and emotional effects. In another study Krug, Peddicord, Dahlberg, Powel, Crosby, & Annett (1999) revealed the increased ratio of suicide after natural disasters. People may commit suicide due to

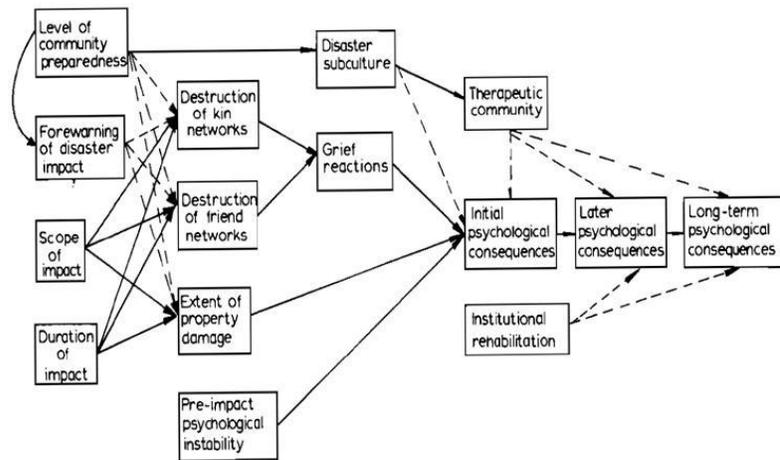


Figure 1: Factors important in understanding initial, later, and long-term psychological consequences of natural disasters (Adapted from Perry & Linden, 1978).

loss of job, friends, family members and property and the risk factors are issues related to mental health, depression, hopelessness and disruption in social contacts. Fullerton, Ursano and Wang (2004) found that the 14 % of rescuers experience symptoms of

PTSD, anxiety and severity of depression was seen in 40%.Ayub (2005) analyzed that occurrence of similar calamities results in several mental health problems as victims show inability to learn, remember, and modify behavior. Similarly, Amin and Gadit (2006)

highlighted the relationship between disaster and mental health. Similarly, Ceobanu & Grozavu (2009) investigated the side effects of floods on the basis of focus groups with flood victims and highlighted several psychosocial effects.

Rationale

Literature regarding the effects of floods the huge devastation on large scale, affecting millions of people, in many ways (Freedy, et al, ; 1994). Recent flood of 2010 not only caused destruction to the infrastructure, agriculture and industries, but also severely affected the physical, social and mental health. In short, keeping in view the significance of this humanitarian issue, there is a dire need to conduct an in-depth research in Pakistan. Accordingly, the present qualitative research was planned to investigate the psychosocial effects of floods on the mental health of the victims.

The objective of the present study is to investigate psychosocial effects of flood on the mental health of victims.

Method

Sample

It consisted of flood related news in 492 issues of three leading and widely circulated English newspapers of Pakistan; The Nation, The News and The Dawn (from July19, 2010 –to- December 31, 2010).

Procedure

After fulfilling the formalities, three leading English Newspapers from 19 July 2010 to 31 January, 2011 were collected from the library of GCU, Lahore. After reviewing the newspapers (The Nation, The Dawn and The News), news related to the floods were marked according to the heading, date and source Text based content analysis was employed for interpretation of results from the texts of newspapers. Content indicates what is contained and content analysis is the analysis of what is contained in a message. Shaugnessy and Zeichmeister (2010) defined “content analysis as a technique to make inferences by objectively identifying specific characteristics of messages, from not only written communications but also of any type of messages, for instance analysis of archival data” (p. 120).

After manually reviewing the newspapers the study aimed at exploring the major effects of floods and related situations. Content analysis was performed in this study.

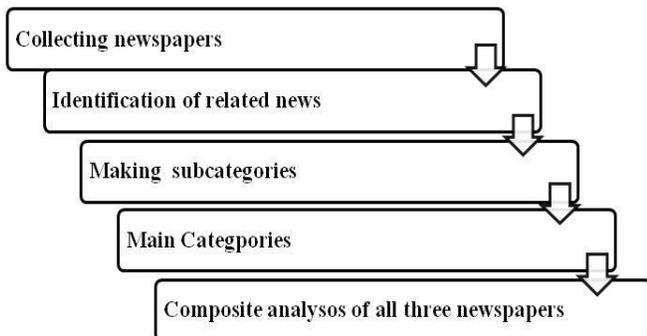


Figure 2: Showing the process of drawing results from the data

Firstly, the news was reduced to a single descriptive phrase or sentence that described the core of the ideas being expressed. Subsequently, similar news was placed together and was then assigned a category. The core of qualitative content analysis is creating categories. A category is a group of contents that shares a commonality (Krippendorff, 1980). Initially, 3335 categories (1308 from DAWN, 864 from The NEWS and 1163 from The Nation) were developed to describe important aspects and effects of floods. In the second review, many categories were eliminated as they looked quite similar to each other and many were overlapping. News of editions of one newspaper was arranged into a list of categories. Although, some minor discrepancies regarding facts and figures were found in the reports of these newspapers, there was uniformity in majority of the reports of these newspapers. After reviewing and evaluation, similar and overlapping categories were emerged together. The composite analysis highlighted the main psychosocial effects of floods on the mental health of the victims (see Appendix).

Results and Discussion

Results of the study revealed that flood of 2010 have affected 78 out of 141 districts of Pakistan. It severely damaged infrastructure of the country and has long term physiological, social and psychological impacts such as; disrupting health care facilities, educational activities, communications, transport and social life in several ways. It caused anxiety, panic and fear among people because of losing their family members, houses, livelihoods, jobs, crops and possessions. Although the types of effects are varied, it is important to note that the present study is only focused on the psychosocial effects on flood on the mental health of victims, and the summary of which is highlighted in the following two figures.

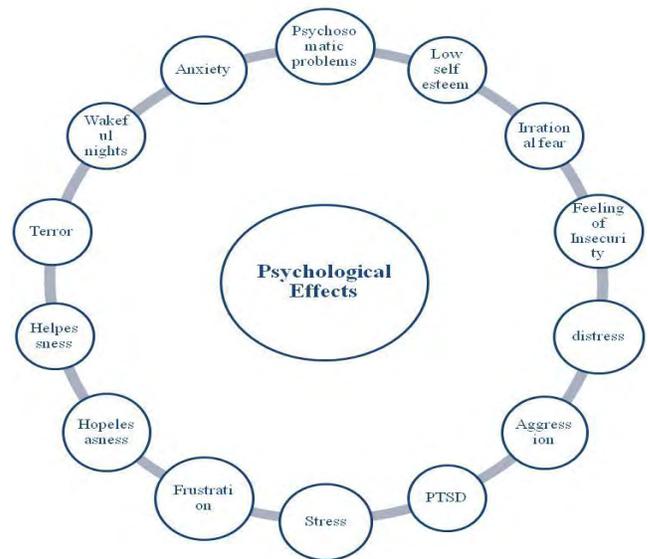


Figure 3: Showing the major psychological effects reported in three newspapers

The present research indicated that majority of the victims were not capable to cope with this disaster and thus experienced severe social and mental trauma. They had experienced great stress, panic, anxiety, and were in the state of hopelessness. Every victim has a

miserable story to tell. During the content analysis of the text based data, large number of verbatim of the victims was noted, out of which few of them are mentioned below as an illustration.

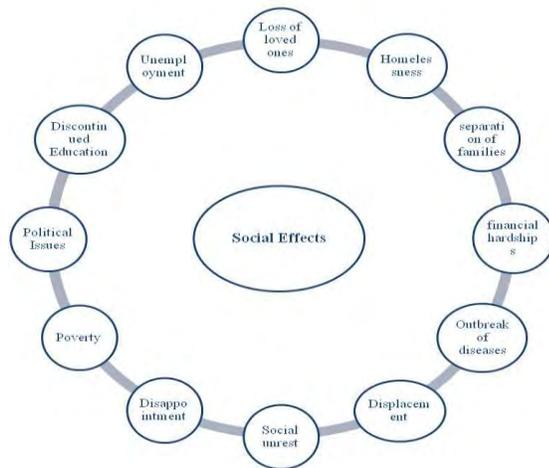


Figure 4: Showing the major social effects reported in three newspapers

Bushra Begum, 40 years old said: *“The water started entering our house late on Thursday night and by 06:00 am it was all under water which made us afraid and we climbed on the roof to save ourselves, my two children went missing in the flooding and so far there is no trace of them”* (The Nation 03, August, p. 03).

Zabun Nisa who said: *“I have left everything. All our belongings have been swept away our cattle have been lost. My husband is still there. My daughter was to be married ones we had the money from our sugarcane harvest but the crop is destroyed. Now we are battling for our survival. I don’t know what our future holds”* (The Nation, 08 August, p. 02).

Shams ud Din 35 years old said: *“We were working in the fields we were told that flood is coming so we have to run, leaving behind our possessions in order left to save our lives”* (The Nation, 09 August, p. 02).

Naseem Khatun said: *“There is havoc and panic in our village as everybody is leaving”* (The Nation, 09 August, p. 02).

Farzanabibi 30 years old, said: *“The flood also took away my two sons 07 and 10. I do not know where they are now my husband worked at a spare parts shop in town which was also damaged. We have lost everything”* (The Nation, 13 August, p. 03).

Abdul Krim, said: *“It is the worst tragedy... we are leaving our homes in miserable condition. I leave behind a house, which is more than a century old... my heart bleeds when I think of this house inundating in floodwaters”*(The Nation, 28 August, p. 09).

Malik Mehmood 80 years old said: *“I am just worried about the coming wheat season. Where will we get wheat for our own use? And how will I buy seed for another season if have no wheat to sell?”*(The Nation 31, August p. 02).

From these excerpts, it is clearly noted that the floods had destroyed their belongings and they were apprehensive about their future and because of feelings of insecurity and uncertainty, it was causing social and emotional crises among victims. Many people had lost their loved ones during the outbursts of flood and few had died because of the lack of food and medicine and fatal waterborne

diseases. Floods have claimed a number of deaths, flood victims who faced deaths of their family members and friends faced severe social unrest as they have lost social support, neighbours, communities, friends, children and family members. During evacuation, a number of victims were injured due to wall collapse, electric shocks, and accidents during shifting to safer places and struggling to save their lives. In this situation, it was too difficult for them to cope with the disaster, they experienced feelings of anxiety depression, frustration, helplessness and hopelessness.. These findings are similar to the findings of North, Smith, McColl, Lightcap (1989).

It was further noted that after the floods the prices of edibles like fruits and vegetables increased and the poor were unable to purchase edibles. The increasing inflation resulted into more anxiety, stress, frustration, conflicts and aggression towards authorities. Further results have pointed out that 6 million victims have become jobless which has severe social implications. These results correspond with the western results. For example, Gallie (1999) investigated the effects of floods and regarded it as devastating. Artazcoz, Benach, Borrell, Cortès (2004) argued that unemployment due to natural disasters results in low social status and self-esteem which is associated with poor mental health. The present results revealed that the said flood caused huge economical loss by destroying crops, livestock, industries and infrastructure. These destructions have provoked anxiety, dissatisfaction, frustration, anger and prejudice against authorities.

Furthermore, continuous rains and floods blocked a number of areas and it was difficult for people to reach other areas as massive traffic jams and broken roads, bridges and railway tracks made it impossible to transfer to other areas. All the graveyards in affected areas were inundated and it was very difficult for families to bury their dead relatives.

Iqbal Ahmad of Khandar said; *“It was so sad the bodies of two young boys floated in the water outside the village. People took them out and were unable to find place to bury them after offering funeral prayer”* (The Nation, 03 August, p. 03).

According to UN report of 2010, approximately 5000000 pregnant women are among the total victims of the said flood who have become homeless. A number of pregnant women faced complications during delivery due to emotional and psychological discontent. In addition lack of lady health doctors and health services, some pregnant women caught in the flood are at risk because of pregnancy-related problems. Evacuated Pregnant women faced great crisis as women in such condition need emotional and social support but in flood satiations they lost these support which caused emotional problems in these women. Reports of the news also indicated that 506 children were born in relief camps.

Mrs. Perveen mother of twin newborns said; *“I was so happy. When I saw they were boys, but I was also weeping as I did not know, that was their father alive”*(The Dawn, 08 August)

Results of the current study also indicated physical health effects on victims. These seasonal floods have caused communicable water borne diseases. Cases of malnutrition, gastro, diarrhea, skin infections, cholera, malaria and hepatitis have been reported. The health problems are also increased due to unhygienic conditions. A number of cases of snake and dog bites have been observed in affected areas. A number of snakes appeared on the ground in floodwater. Victims were frightened by snakes wandering in affected areas. Deaths and health problems has arisen from cold weather, heavy rain falls, stagnant water and these survivors need urgent health care. These results correlate with findings of (Menni

& Ebbs, 2006), who noted similar effects in the western community. There were many examples of the victims struggling for survival as stranded people climbed on the trees and sheltered on the rooftops of their houses and small hills to avoid approaching floodwater.

Allah Wasaya said: *"In hurry, my wife could only manage to collect few clothes, although she wanted to take along furniture, crockery, kitchen items and jewelry. I went out to see if any transport was available, but there was a sea of people with bags on their heads and walking towards the hills nearby"* (The Dawn, 08 August).

Results also highlighted some incidents of violence against children and women and thus large number of children and women experience many emotional problems complaints (e.g., anxiety and depression.). This correlates with the findings of Austin (1992), Garrison et al (1995) and of Carr, et.al; (1997) who also found that children and female gender was associated with higher post-disaster psychological distress. Similarly, Ursano, Fullerton, and Weisaeth (2007) also found that females experience more psychological symptoms than men after similar disasters. In our results it was noted that, large number of children died, many were drawn and infinite number of children became homeless. There were cases of child abuse, and even kidnapping of young beautiful boys and girls. This finding is similar to the findings of Aptekar & Boore (1990); Bahrick and Parker, (1998) reported similar cases of child abuse among the victims during the earthquake of Athens.

The present findings pointed out that the emotional reactions of the victims include hopelessness, irritability, anger, vigilance and depression and these are similar to the findings of Murphy (1984) who studied the relationship between symptoms and stressful life events in bereaved, property loss, and control groups. Some cases of suicide were also reported due to extreme depression and the reasons were, depression and helplessness, and this is what also had been depicted in the West. For example, Stroebe, Stroebe and Abakoumkin (2005) found that persons who faced trauma, especially those who experienced severe emotional loneliness and severe depressive symptoms are at higher risk for suicidal ideation. Similar results were also reported by earlier study by Durkin, Khan, Davidson, Zaman and Stein (1993). From the present results it was also noted that psychological effects tend to be much longer lasting and are worse than the physical effects of being flooded. This finding is supported in verbatim of

Sher Muhammad said; *"It was dark and did not know where we were heading but it seemed as if the water was chasing us. It was a nightmare. I was not a rich man but I had everything to live a responsible life now I have nothing. I am a destitute like all these others"* (Dawn, 19 August).

Najma Bibi 30 years said *" I did not want to leave but the water levels got high and we were hungry and could not cook anything my brother told me we should leave and promised to come later"* (The Dawn, 08 August).

The present findings are similar to the many western finding. For example: Studies have shown that after natural disasters, between 15% and 20% of victims have reported symptoms of depression and Post Traumatic Stress Disorder (Kiser, Heston, & Hickerson, 1993; Beck & Franke, 1996). In another study, Tapsell (2001) revealed that many flood victims reported serious deficit associated with stress. Similarly, Tunstall, Tapsell, Green, Floyd, George (2006) noted that flood as a possible source of PTSD among large number of victims. A study conducted by Basuglo, Kilic, Salcioglu and Livanou (2004) revealed that depression was the main outcome in the earthquake survivors in Turkey, which showed that the disaster

has long-term effects. Hussain, Weisaeth and Heir (2011) found that phobia and its types was the main side effect of the disastrous event. To sum up, in our study it was found that that victims were frightened by the sudden red alerts warnings. Immediately seeing waves of approaching water, they became so confused, upset and frightened that they even were unable to think and behave rationally. In a state of mental shock, they started running in an haphazard way, leaving behind whatever they had.

Before conclusion it is important to submit one more verbatim of the flood victim:

Badam Bibi, 44 years old mother said; *"Before the deadly flood, I was living a happy life in my small home with my husband and three children in our beautiful village. And now, nothing is left, flood has taken everything from me. Now, I don't see any purpose of living longer"* (Dawn, 28 August 2010).

Another aspect of the findings needs to be mentioned here. Besides Government, the army, the nation, the philanthropists, NGO's and international community and the media as a whole has played a vital role in providing relief to the flood victims and for their rehabilitation in number of ways. Along with physiological interventions, psychological rehabilitation programs were also launched by mental health professionals to provide relief to the victims from their mental trauma. But keeping in view the intensity of the disaster, much more is still to be done in order to reduce the intensity of the psychosocial effects of this flood.

This qualitative study is the first study of its kind that highlighted the psychosocial effects of flood victims in Pakistan. The theoretical and practical implication of this study rests in highlighting the long lasting psychosocial effects of the said flood on the mental health of the victims. And keeping in view that such sort of natural calamities can may occur again, there is a dire need to take precautionary and preventive measures, so that such huge destruction may not happen again. The most important is to finalize the pending projects and start building the dams. Second, this is the time to re-organize and give up-to date training to the employees the relevant agencies, e.g., Flood Forecasting Division (FFD); Provincial Irrigation and Drainage Authority (PIDA); Water and Power Development Authority (WAPDA; and Emergency Relief Cell (ERC); Federal Flood Commission (FFC). Third, it is also important to adopt the number of prevention strategies to reduce diseases after a natural disaster proposed by (WHO, 2006). And fourth, an implication of the model 'Cost Benefit Analysis (CBA) is also suggested for such circumstances known in which number of sophisticated technologies are employed to reduce the loss and effects of floods (Flay, 2000; Akbar, 2006).

Conclusion

The present study identified that flood of 2010 in Pakistan has severely damaged the infrastructure of our country and it has left many inefaceable imprints at different levels, not only on the individuals, but also on groups, local communities, and the Government. The findings revealed that victims of the floods had faced loss of family members and loved ones, homes, crops, valuable possessions, animals, property, community and jobs. In addition, lack of emotional and social support had adversely affected their livelihood and made them more vulnerable to experience social and psychological trauma. It was clearly noted that victims suffered from separation anxiety, anxiety disorder, phobias, depression, stress, shock, helplessness, hopelessness, inability to think and behave rationally, hyperactivity,

psychosomatic problems, and social crisis etc. Although, Pakistani Government, army, public, NGOs and international community had helped these victims in several ways, but measures taken seem inadequate. Still much is yet to be done to restore the mental health of the victims of flood of 2010, which seems to be long way.

Limitations & Suggestions

The data was collected from the newspaper and we did not interact directly with the victims so the psychosocial effects on the mental health of the victims were not directly observed. The data was collected from a large number (492 newspapers) and thus some more important information may have been skipped unintentionally during analysis of huge data. It is recommended that the effects of flood should be studied directly by the concerned agencies and a quantitative procedure may also be adopted.

References

- Abbott, P. (2004). *Natural Disasters*. (4thed.). New York: McGraw-Hill.
- Akbar, A.B.(2006). *Flood damage assessment model using cost-benefit analysis*: Faculty of Civil Engineering University Technology Malaysia. Retrieved January 25, 2011, from <http://eprints.utm.my/5498/1/NorAzlizaAkbarMFKA2006TTT.pdf>
- Amin, A., & Gadit, M. (2006). *Mental health in Pakistan: Where do we stand?*. Retrieved January, 27, 2011, from <http://www.jpma.org.pk/PdfDownload/675.pdf>
- Armah, F.A., Yawson, D.O., Yengoh, G.T., Odoi, J.O., & Afrifa, E.K. (2010). *Impact of floods on livelihoods and vulnerability of natural resource dependent communities in Northern Ghana*. ISSN 2073-4441. Retrieved March, 27, 2011 from www.mdpi.com/journal/water.
- Aptekar, L. & Boore, J. A. (1990). The emotional effects of disaster.: A review of the literature. *International Journal of Mental Health*, 19(2): 77-90. <http://dx.doi.org/10.1080/00207411.1990.11449164>
- Artazcoz, L., Benach, J., Borrell, C. & Cortes I. (2004). Unemployment and mental health: Understanding the interactions among gender, family roles, and social class. *American Journal of Public Health* 94, 82-88. doi: 10.2105/AJPH.94.1.82
- Austin, L.S. (Eds.) (1992) *Responding to disaster*. A guide for mental health professionals. USA: American Psychiatric Press.
- Ayub, J. (2005). Disaster, mental health and rescuing medical professionals. *Editorial Medical College, Abbottabad*.17(4).Retrieved January 26, 2011, from <http://www.ayubmed.edu.pk/JAMC/PAST/17-4/01Amineditorial.pdf>.
- Bahrlick, L. E., & Parker, F. (1998). The effects of stress on young children's memory for a natural disaster. *Journal of Experimental Psychology: Applied*, 4(4), 308-331. doi.org/10.1037/1076-898X.4.4.308
- Basoglu, M., Kilic, C., Salcioglu, E., & Libanou, M. (2004). Prevalence of PTSD and comorbid depression in earthquake survivors in Turkey: An epidemiological study. *Journal of Traumatic Stress*, 17 (2), 133-144. doi : 10.1023/B:JOTS.0000022619.31615.e8
- Baum, A., & Fleming, I. (1999). Implications of psychological research on stress and technological accidents. *American psychologists*, 48, 665-672.
- Beck, R. J. & Franke, D. I. (1996). Rehabilitation of victims of natural disasters. *Rehabilitation* 62(4), 28-32.
- Bland, S. H., Leary, E. S., Farinano, E., Jossa, F. & Trevisan, M. (1996). Long-term psychological effects of natural disasters. *Psychosomatic Medicine*, 58, 18-24
- Bolin, R. (1989). Natural disasters, In R., Gist, & B., Libin, (Eds.), *Psychosocial aspects of disasters* (pp. 61-85). New York: Johns Wiley & Sons.
- Bolton, D., O' Ryan, D., Udwin, O., Boyle, S., & Yule, W. (2000). *The long-term psychological effects of a disaster experienced in adolescence*. New York: Johns Wiley & Sons.
- Brock, S.E. (1998). Crisis theory and research: keys to formulating the school crisis response (Unpublished manuscript). Lodi (CA) Unified School District.
- Carr, D.J., Lewin, T.W., Kenerdy, J.K., Webstrer, R.A., Hazeel, P.L., Carter, G.L., & Williamson, M. (1997). Psychosocial sequel of the 1989 Newcastle earthquake III: Role of vulnerability factors in post-disaster morbidity. *Psychological Medicine*, 27(179-190).
- Ceobanu, C., & Grozavu, A. (2009). Psychosocial effects of the floods: Perception and attitude. *Carpathian Journal of Earth and Environmental Sciences*, 4, p. 25 -38.
- Durkin, M.S., Khan, N., Davidson, L.L., Zaman, S.S., & Stein, Z.A. (1993). The effects of a natural disaster on child behavior: Evidence for posttraumatic stress. *American Journal of Public Health*, 83(11) 1549-1553. doi: [10.7717/peerj.536](https://doi.org/10.7717/peerj.536)
- Flay, B.R. (2000). Efficacy and effectiveness trials in the development of health promotion programs. *Preventive Medicine*, 15, 451-474. doi.org/10.1016/0091-7435(86)90024-1
- Freedy, J. R., Saladin, M. E., Kilpartik, D. G., Resnick, H. S., & Saunmders, B. E. (1994). Understanding acute psychological distress following natural disaster. *Journal of Traumatic Disasters*, 7, 257-273. doi.org/10.1007/BF02102947
- Fullerton, C. S., Ursano, R. J., Wang, L. (2004). Acute stress disorder, PTSD, depression in disaster/rescue worker. *American Journal of Psychiatry*; 161:1370-6. doi.org/10.1176/appi.ajp.161.8.1370
- Gallie, D. (1999). Unemployment and social exclusion in the european union. *European Societies*, 2, 139-168.
- Garrison, C. Z., Bryant, E., Addy, C. L., Spurrier, P.G., Freedy, J. R. & Kilpatrick, D. (1995). Posttraumatic stress disorder in adolescents after hurricane Andrew. *Journal of American Child and Adolescent Psychiatry* 34: 1193-201. doi.org/10.1007/978-1-4614-9608-3_38
- Gist, R., & Lubin, B., (Eds.) (1999). *Response to disaster: Psychological, community and ecological approaches*. Taylor & Francis : Philadelphia, USA.
- de Goyet, C. D. V. (2004). Epidemics caused by dead bodies: A disaster myth that does not want to die. *Pan American Journal of Public Health*, 15, 297-299.
- Gruntfest, E. (1995). *Long term social and economic impacts of extreme floods*. Research Workshop on Impacts, and Management of Extreme Floods. Department of Geography and Environmental Studies University of Colorado.
- Hussain, A., Weisaeth, L., & Heir, T. (2011). Psychiatric disorders and functional impairment among disaster victims after exposure to a natural disaster: A population based study.

- Journal of Affective Disorders*, 128 (1-2), 135-141. doi: 10.1016/j.jad.2010.06.018.
- Jetly, R. (2010). Pakistan floods: Coping with disaster. Institute of south Asian studies, National University of Singapore, retrieved November 02, 2011, from www.isas.nus.edu.sg.
- Katz, B., & Thrope, L. P. (1995). *Understanding People in Distress: Emotional and mental disorders their causes, care and cure*. The Ronald Press Company: New York.
- Kiser, L., Heston, J. & Hickerson, S. (1993). Anticipatory stress in children and adolescents, *American Journal of Psychiatry* 150, 87-92. ISSN: 0002-953X
- Krippendorff, K. (1980). *Content analysis: An introduction to its methodology*. Newbury Park, Califz Sage. retrieved from <http://www.cis.gsu.edu/~dtruex/Presentations/tbintppr.pdf>.
- Kronstadt, K. A., Sheikh, P. A., & Vaughn, B. (2010). *Flooding in Pakistan: Overview and issues for congress*. Retrieved on 5 November from www.crs.gov.
- Krug, E.G., Peddicord, J.P., Dahlberg, L.Powel, K.E., Crosby, A.E. & Annest, J. L., (1999). Suicide after natural disasters. *The New England Journal of Medicine* 340(2):148. doi: 10.1056/NEJM199802053380607
- Mcperson, K., & Badu, N. (2009). Displacement by natural disasters in Nepal. *Nepal Institute of Peace (NIP)*, 1 (2).
- Menne, B., & Ebbs, K.L. (Eds.) (2006). *Climate change and adaptation strategies for human health*. Germany: World Health Organization.
- Murphy, S. (1984). Stress levels and health status of victims of a natural disaster. *Res Nurs Health* 7:205-215.
- Norris, F. H., & Murrell, S.A.(1988). Prior experience as a moderator of disaster impact on anxiety symptoms in older adults. *American Journal of Community Psychology* 16:665-68. doi.org/10.1007/BF00930020
- North, C.S., Smith, E. M., McColl, R.E., & Lightcap, P. E. (1989) Acute post disaster coping and adjustment. *Journal of Traumatic Stress*, 2(3) 353-360. doi/10.1002/jts.2490020309/full
- Perry, R. W., & Lindell, M. K. (1978). The psychological consequences of natural disaster. *A Review of Research on American Communities*. 105-115.
- Shaughnessy, J. J., Zechmeister, E. B., and Zechmeister, J. S. (2010). *Research methods in psychology*. Boston: McGraw-Hill.
- Solomon, S. D. (1985). Enhancing social support for disaster victims. In B. J. Sowder (Eds.), *Disaster and mental health: Selected contemporary perspectives* (pp. 107-121). Rockville, MD: National Institute of Mental Health.
- Stroebe, M., Stroebe, W., & Abakoumkin, G. (2005). The broken heart: Suicidal ideation in bereavement. *American Journal of Psychiatry*, 162, 2178-2180. doi.org/10.1176/appi.ajp.162.11.2178
- Tapsel, S. (2001). *The hidden impacts of flooding: Experiences from two English communities*. Flood Hazard Research Centre, Middlesex University, Enfield California. UK.
- Tunstall, S., Tapsell, S., Green, C., Floyd, P., & George, C. (2006). The health effects of flooding: Social research results from England and Wales. *Journal Of Water And Health*, 4(3), 365-380.
- Report of United Nations (2010) based on *Guidelines for Reducing Flood losses: A contribution to the international strategy for disaster reduction*, Retrieved December 11, 2010, from www.unisdr.org
- Ursano, R. J., Fullerton, C.S., & Weisaeth, L.S. (Eds.) (2007). *Textbook of disaster psychiatry*. USA: Cambridge University press.
- Warheit, G., Zimmerman, Khoury, E., Vega, W & Gil, A. (1996). Disaster related stresses, depressive signs and symptom, and suicidal ideation among a multi-racial/ethnic sample of adolescents: A longitudinal analysis. *Journal of Child Psychology And Psychiatry*, 37, 435-444. doi: 10.1111/j.1469-7610.1996.tb01424.x
- World Health Organization. (2006). Department of Gender and Women's Health 20, Avenue Appia Geneva, Switzerland.
- Woods, M. & Woods, M.B. (2007). *Floods*. USA: Lerner Publications Company.

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Appendix

Composite Analysis

Table

Composite Analysis of All Three Newspapers (The Nation, The Dawn, The News) Showing Major Reporting of Three Newspapers Regarding Floods

Categories and Subcategories	Thematic Codes
1. Intensity of floods	<p>Kotri barrage with water outflow of 916000 cusecs a super flood of over 900000 cusecs of water was flowing through Kotri barrage which is more than its capacity which is 875000 cusecs.</p> <p>Guddu-Sukher reach with water discharge of 682000 and 692000 cusecs while in Chashma taunsa reached with 382000 and 390000 cusecs.</p> <p>In Kotri 945536 cusecs of inflow and outflow is 930233 cusecs which was exceptionally high</p> <p>The pressure of Indus, meanwhile, increasing at the Kotri barrage where 252125 cusecs of flow was receded upstream and a discharge of 227920 cusecs.</p>

	At Sukher barrage the flow was 1010857 cusecs upstream and 975088 cusecs downstream.
a) Sources of floods	Many geographical and environmental changes
2. Physical damage	Floods have undermined life quality of human beings (Many markets, shops, educational institutions, hospitals, bridges and houses are destroyed)
a) Area affected	More than 78 districts of country have been affected
b) Houses affected	1060680 houses have been damaged
c) Destruction of infrastructure	550 billion Rs losses have estimated regarding infrastructure damage
d) Damage to police infrastructure	Damaged in 09 districts worth 27.27 millions
e) Damage to schools	9780 Govt schools were damaged and 2780 fully and 7000 partially.
f) Loss of property	UN reported 7.4 million people had been seriously affected who lost everything
g) Loss of livelihoods	People's houses, possessions and belongings washed away.
3. Loss of lives	2000 people have been killed in the country (Massive floods have killed many people of the country and rendered millions homeless)
a) Sources of deaths	Heavy bursts of rain, electric shock, roof collapse, wall collapse, traffic accidents, snake bites and lethal water borne diseases
4. Injuries	2428 people sustained injuries including children and women
5. Economical implications	Losses in asset values (Punjab has suffered 80 to 90 billion Rs losses Baluchistan needs 80 billion Rs to rehab)
a) Effects on industry	Effects on trade and business
b) Agricultural loss	2.1 million hectares agricultural land has been damaged and damage to crops worth Rs 82 billion only in Punjab
c) Loss of livestock	380000 animals are affected by this calamity and 262264 cattle died.
d) Financial loss	ADB and WB estimated that \$10.05 billion damages are caused due to floods 90 billion loss in Baluchistan, Punjab province has suffered 3.27 billion losses \$270000000 lost in the livestock and the agriculture
e) Effects on farmers	Growing crops are badly affected making farmers anxious
f) Shortfall in financial aids	Hindering provision of water, nutrition and reconstruction.
g) Inflation	Prices of many edibles were increased
h) Unemployment	06 million became jobless facing social crisis
i) Poverty	Extreme levels of poverty, 90 percent of the poorest of the poor affected.
j) Effects on educational funds	Universities are predicted to face severe financial crisis
6. Human sufferings/ psychosocial effects	A variety of negative impacts on people have been produced by the flooding. (There were many moderately depressed and chronic mentally disturbed among the patients)
i. Population affected	20 million people of the country have been affected and 7.5 million of them have been displaced
ii.	500000 families affected in Punjab
EFFECTS OF FLOOD ON THE MENTAL HEALTH	
	50
	sky
ii. Approaching winter	Displaced families spent the winter under the open sky
v. Haplessness	Deaths and widespread destruction of Property made people helpless and compelled them to beg rescue for their lives
v. Threatening cold weather	The cold weather especially at night was a serious health threat to the old, sick and children
vi. Traveling plight	Massive traffic jams due to broken bridges, roads and railway tracks and inundation.
ii. Problems of burying dead bodies	There was no place to burry people due to flood water as graveyards have been devastated
ii. Snake bites	A number of victims reported snake bites
x. Newborns in disaster	506 children have been born at the camps and large number of newborn babies were facing measles, gastro, and chest infections
x. Homelessness	Due to warnings and approaching floods people left their houses t save their lives.
ii. Haphazard among people	Victims found little time to collect their livelihoods after warnings
ii. Fatigue	Among victims who migrated to save their lives
ii. Compulsion	Victims were forced to live under open sky without food and water
v. Effects on education	More than 300, 0000 pupils have to discontinue their studies. Students exams, admissions are extended due to floods
v. Physiological effects	polluted environment caused communicable and waterborne diseases

i.	Religious aspects	People who lost everything believed in God and special prayers were offered
ii.	Struggle for survival	People took refuge on roadsides, parks and graveyard and rooftops.
ii.	Threat of Dying	Hunger, thirst, extreme weather and water borne diseases caused a number of deaths
x.	Uncertainty	Victims were uncertain about their future as situation became worse
x.	Tyranny	During relief activities victims suffered cruelty of relief workers
i)	Effect on pregnant women	WHO indicates that 5000000 pregnant women were among flood victims facing crisis (A women gave birth to a child without medical help and bay was tightly bound in a green scarf with three black dots to keep away evil spirits)
ii)	Effects on viewers	Horrible scenes regarding floods were threatening for viewers (Media has done vital role in convincing viewers about the present crisis)
iii)	Effects on Artists	Artists dedicated their performances (Writers, Poets and short story writers have greatly influenced by this disaster)
iv)	Effects on women	severe after crisis situation (Men had strong nerves to vent to their feelings while women could not speak and failed to control their emotions)
a)	Violence against women	Increased after floods
b)	Women vulnerability	Most affected by the floods both psychologically and physiologically
iv)	Effects on children	Floods are traumatic especially for children (According to UN report 10 million children have been affected by the floods among them 2.8 children are under age five)
a)	Arbitrary inferences	Child blamed himself for causing floods
b)	Child abuse	kidnapping, sexual abuse and exploitation is alarming especially for girls
c)	Children vulnerability	over 3.5 million children under age of five were affected and were more vulnerable of deadly water borne diseases
v)	Encroachment upon environment	Environmental degradation caused due to floods
a)	Stagnant water	Producing water borne diseases
b)	Dead bodies under water	caused a number of epidemics
c)	Effects on tourism	damaged to natural infrastructure has affected tourists
d)	Mosquito breeding	Stagnant water is increasing mosquitoes in Parks and grounds
vi)	Lack of services	Increased miseries of victims (Victims complained no food provided to them for the last two days)
e)	Lack of basic necessities	Victims faced acute shortage of food and clean drinking water. Lack of toilets, winter necessities, utensils, medicines and lady doctors have increased their miseries
f)	Awful conditions at relief camps	Victims were overcrowded and lack of facilities and poor sanitary conditions
g)	Victims being trapped	One million people including tourists stranded in affected areas
h)	Malnutrition	26000 women and 72000 children faced severe malnutrition
i)	Shortage of vehicles	Problems in shifting of victims to safer places
j)	51	FATIMA AND RANA
k)	interference of authorities	some authorities did not bothered to visit the relief camps
l)	Nepotism	Relief provided to influential people depriving many victims
m)	Trust deficit in authorities	Resulted in poor national and international rescue and relief aids
vii)	Psychological effects	victims experienced psychological crisis (The number of the people with psychological disorders is growing day by day because of numerous crises, particularly the economic hardships)
a)	Woeful tales of victims	Each victim has faced unfortunate circumstances.
b)	Hopelessness	Feeling of hopelessness and depression expressed by victims living without food, clothes and shelter.
c)	Love for belongings	Some victims are committed to die in their hometowns
d)	Frustration	Due to hunger, diseases and lack of relief, considered themselves beggars
e)	Anxious reactions	Poor relief work caused anxiety and anguish among victims
f)	Stressful reactions	Losing livelihoods and property increased stressful reactions
g)	Post Traumatic Stress Disorder (PTSD)	Intrusive thoughts after facing catastrophe
h)	Mental trauma	Cases of mental illness are reported and greater among those who lost parents and who were well off before floods
i)	Terror	Daily fear, due to approaching flood, snakes and dogs
j)	Reckless attitude of victims	Carelessness of some people caused many problems
k)	Gender wise emotions	Women failed to control their emotions while men have strong nerves
l)	Depression	Depression is prevalent among victims

m)	Regret	Victims regret over losses
n)	Aggressive reactions	Towards authorities for non provision of relief
o)	Protests	Victims who did not receive relief blocked roads and chanted slogans against Govt.
p)	Terrorism	Deprivation of assistance is likely to produce terrorism among victims who lost everything
q)	Denial	Some victims were not willing to accept the crisis
r)	Effects on Self esteem	families have refused to accept charity
s)	Suicide after floods	Due to failure in getting compensation
viii)	Psychological Effects on children	Psychosomatic and separation anxiety disorder. Displaced children are predicted to experience depression in future. (Children who become orphan suffer psychological problems)
ix)	Positive psychological effects	To manage with the disastrous situations (People are determined, and resilient)
a)	Feeling of gratitude	Still thankful to God who saved their lives
b)	Motivation	Women trying to save their children
c)	Optimism	Hope to rebuild and rejoin families
d)	Self help	Victims started to rebuild their houses and strengthening embankments
x)	Social implications	Floods situation produced many significant social impacts
a)	Social crisis	Women suffered
b)	Separation of families	Separation of family and friends
c)	Illiteracy	Unaware about hygienic conditions and refining bank systems
d)	Death of loved ones	Death of family members and friends
e)	Criminal activities	Selling relief goods and dead animal's meat. Armed bandits looted relief tucks and left over goods of displaced persons
f)	Effects on prayer leaders	For Prayer leaders floods came at wrong time of the month of Ramzan
g)	Frantic Eid	Victims shoeless and penniless and are busy in fulfilling basic needs clothes,
7.	Relief activities	Management activities for reducing destructions (People and organizations are trying to reach the flood affectees Reactions of government in crisis
i)	Role of Govt	Provision of food, shelter and medicines
a)	Major challenges	Fresh floods, heavy rains, shortage of vehicles, stagnant water
b)	Relief hurdles	40,0000 people have been evacuated in Sindh
c)	Evacuation	National and international appeals were made to help the victims.
d)	Appeals	Visits to affected areas and announcement of relief
e)	Concerns of Govt	Efforts to save people lives and possessions
f)	Damage assessment	Survey for rehabilitation and reconstruction plan
g)	Festivities of ID	Govt celebrated with victims and nation with simplicity
h)	Forecasts	Information about expected flood areas and rivers
i)	Penalty	Suspension of officials for reckless attitude and corruption
j)	Resettlement	Arrangements for victims to return
k)	Role of army	Provision of relief goods and evacuation
l)	Survey for deprived victims	To provide relief to victims who did not receive compensation
m)	Transparent aid distribution	To assure national and international community to increase funds and equal opportunity for victims
n)	Construction of Model Villages	Residential facilities for victims who lost their homes
o)	Educating victims	Pamphlets of instructions about hygienic conditions
p)	Physiological interventions	6.2 million people suffered from diarrhea, malaria, respiratory infections and skin diseases have been given treatment by govt and humanitarian health teams
q)	Psychological rehabilitation	A number mental health services were provided
r)	Effects of Religious Guidance on psychological Problems	Was given importance for well being of victims
s)	Relief for farmers	US has committed to provide 17 billion and Govt provided compensation
t)	Urgent needs	Provision of basic necessities
a.	Need for maternity homes	Pregnant women suffering great distress
b.	Need for Unity	To rehab and reconstruct
c.	Need of employment	To satisfy victims and to avoid making them terrorists
ii)	Role of citizens	Citizens contributed relief work affectionately
a)	Altruism	A number of people helped their brothers in distress
b)	Empathy	Victims pain made people emotional when they place themselves in their place
c)	Contribution of philanthropists	National and international donors played vital role
d)	Effects of music	Singers organized concerts for victims to reduce stress

e)	Establishment of relief camps	For the victims living under open sky
f)	Factors of aid provision	way to earn swab, to raise social status and to gain political mileage or economic benefits
g)	Financial assistance	Both at national and international level
h)	Patriotism	Sense of devotion for victims
i)	Rehab plans for children	For both physiological and psychological problems
j)	Role of media	Weather updates and collecting funds and approaching inaccessible areas
k)	Students Services	Established relief camps and collected funds
l)	Voluntarism	Volunteer response increased when media is utilized
iii)	International assistance	A number of countries contributed to help Pakistan for rehabilitation and reconstruction. (International community is contributing by cash and kind to help victims in this critical condition,
