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ORIGINAL ARTICLE

Prevalence and distribution of post-traumatic stress disorder (PTSD) in flood victims of Dera Ismail Khan, KPK Pakistan.

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ABSTRACT… Objective: To assess the prevalence and distribution of PTSD in flood victims. **Study Design:** Cross-sectional. **Setting:** Department of Community Medicine, Gomal Medical College. **Period:** April 1, 2023 to May 30, 2023. **Methods:** Data was collected from those people who belonged to flood affected areas of D I Khan and fulfilled our criteria of flood victims, using a consecutive non-probability sampling technique through a questionnaire and analyzed through SPSS. Our sample size was 163 and our research variable was PTSD. Data was analyzed descriptively and inferentially. Chi-square test was used to see any statistically significant association between demographic variables and PTSD. **Results:** The results showed that the prevalence of PTSD in flood victims was 28.2%. The prevalence of PTSD was higher in males, adults in the age range of 31-45, illiterate people and those with low socioeconomic status. But there was no statistically significant association between any demographic variables and PTSD. **Conclusion:** According to the findings of the current study, PTSD was common among flood victims regardless of their sociodemographic profile.

Key words: Floods, Mental Health, Natural Disaster, PTSD, Prevalence.

INTRODUCTION

Disasters routinely occur and have an impact on billions of people globally. Disasters are described as terrible events that strike suddenly in any location, create extensive damage, and interfere with people's every day and social lives.[1] Disasters are typically divided into two categories: man-made disasters and natural disasters. The most frequent natural disaster brought on by climate changes and excessive rainfall is flooding.[2] In addition to the obvious repercussions on a person's life, it has negative short, medium, and long-term effects on the victim's welfare, relationships, and physical and mental health.[3,4] A total of 116 districts (or 75% of the 154 districts in Pakistan) were hit by the severe monsoon rains that began in the middle of July 2022. Sindh was the province most impacted; 33 million people were affected as of August 25, 2022. 421, 000 refugees were among the 6.4 million people who urgently needed humanitarian aid. Nearly 15000 people were hurt, and over a thousand individuals died.[5]

In addition to causing significant damage in the afflicted parts of Pakistan, the flood also left survivors with mental health issues including, post-traumatic stress disorder (PTSD).[6] According to DSM-5, post-traumatic stress disorder (PTSD) is a syndrome that arises after exposure to real or threatened death, major injury, or sexual assault.[7]

There are two criteria for the diagnosis of PTSD. DSM-5 is one such tool to diagnose this. Cognitive behavioral therapy and drugs like Selective serotonin reuptake inhibitors and Alpha 1 blockers are the major treatment for PTSD.[8]

Evidence of moderate quality indicates that 3.9% of people globally have experienced PTSD in their lives. The rate is 5.6% for cases who had delayed-onset PTSD where diagnosis is made

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more than six months after the trauma. Veterans and other professionals with earlier sub clinical symptoms tended to exhibit a delayed onset. Point prevalence of PTSD decreases over time, going from 28.8% at one month to 17% at one year after the trauma. As opposed to those exposed to non-intentional traumas like accidents and natural disasters, this trend reverses in those exposed to intentional traumas like war and assault, with rates rising from 11.8% at one month after the trauma to 23.3% at one year after the trauma.[9] According to the findings of a study conducted in Indonesia, 98.3% of flood victims also developed PTSD afterward.[8] According to a research from China, 9.2% of flood victims developed PTSD.[9] Following the 2007 floods in the UK, 39.5% of people have Post-traumatic stress disorder.[10] A 2004 study that examined the psychological effects of the Orissa floods in India in 1999 discovered a greater prevalence of PTSD 44.3%.[11] According to a study conducted in 2015 in Bangladesh, the prevalence of PTSD before flood was 4.9%.PTSD cases climbed to 12.3% after the flood.[12] According to a poll done in 2016 in Pakistan, 30% of flood victims reported PTSD, and women were more likely than men to experience it.[13]

According to reports, the flood physically destroyed the homes and infrastructure in one-fifth of Pakistan.[14] However, there is a lack of study on the psychological and emotional disorders that haunt the thousands of floods affectees.[15]

Same is case here where we have no knowledge of emotional and psychological plight of flood victims. Our research objective was to check the frequency and distribution of PTSD among flood victims of flood affected areas of D.I. Khan.

METHODS

This descriptive cross-sectional study was carried out in the Department of Community Medicine at Gomal Medical College D.I. Khan, Pakistan. Time frame for this research project was from April 1, 2023, to May 30, 2023. All of the flood affected areas of Dera Ismail khan were included in our study. With an expected prevalence of 12.3% of PTSD among the affected population, 95% confidence interval and 5% margin of error, a sample size of 163 was calculated using Rao soft online sample size calculator.[16] Sampling technique was non-probability consecutive sampling. Ethical approval was granted by institutional research ethical review committee (01-a/GJMS/ER, Dated: January 27, 2023) Confidentiality of participants was maintained.

Study population included all those people whose health, belongings, cultural heritage and ecological system were affected by flooding. Inclusion Criteria was all those individuals who were physical residents of the area that was directly hit by the flood and suffered damage to their buildings, economic goods, loss of standing crops and livestock in agriculture, death of closed ones, immediate health impacts, and contamination of ecological systems. Exclusion Criteria was individuals with a history of psychiatric illness and who didn't give consent.

Research variable was presence of Post Traumatic Stress Disorder (PTSD), a dichotomous variable with response of yes or no. Demographic variables included; Age, Level of education and Socioeconomic status which were ordinal variable and Gender which was nominal.

Data collection tool used to check the prevalence of PTSD was a questionnaire having two portions. One for sociodemographic variables and other portion had DSM-5 (PCL-5) checklist to assist in making a provisional diagnosis of PTSD. This measure assesses the respondent's post-traumatic stress symptoms. The PTSD checklist for DSM-5 (PCL-5) questionnaire contains 20 items on a Likert-scale with a five-point range (0–4) that evaluate the symptoms of PTSD.

On this checklist, score ranges from 0-80.

A PCL-5 cutoff point of 33 appears to be a reasonable value to use for PTSD diagnosis. People who received 33 or higher score were diagnosed as having PTSD, while those less than 33 were considered normal.

Descriptively all the categorical variables were

analyzed by the frequency and percentage. Estimation of parameter for the population was given as a 95% confidence interval.

Chi-square test of association was used to find any statistically significant association between research and sociodemographic variables at P value ≤ .05 and 95% confidence level.

RESULTS

Our sample size was 163 flood victims and out of 163 flood victims, 88 (54%) were male and 75 (46%) were female. Regarding age, out of 163 flood victims, 72 (44.2%) were in the range of 15-30 years, 56 (34.4%) were in the range of 31-45 years, 23(14.1%) in the range of 46-60 years and 12 (7.4%) were 61 years and above. Regarding education, out of 163 flood victims, 81 (49.7%) were illiterate, 30 (18.4%) were primary passed, 21 (12.9%) were matric passed and 31 (19%) were intermediate passed and above. Regarding socioeconomic status of respondents, out of 163, 90 (55.2%) were poor, 54 (33.1%) belong to lower middle class, 18 (11%) belong to upper middle class and 1 (0.6%) was from upper class.

Out of 163 flood victims, 46 (28.2%) had PTSD while 117 (71.8%) did not have symptoms of PTSD. (Table-I)

PTSD		Frequency	Percent	Cumulative Percent	95% Confidence Interval
Valid	Yes	46	28.2	28.2	21.5-35.8%
	No	117	71.8	100.0	64.2-78.5%
	Total	163	100.0		

Table-I. Prevalence of PTSD in sample

Chi-square tests with cross tabulation was conducted to explore the statistically significant association between demographic variables and research variables at p value of .05 or less and 95% confidence level.

Gender of Respondents		Prevalence in Respondents		Total	Chi square Value	Degree of Freedom	P-Value
		Yes	No				
	male	29	59	88	2.116	1	0.146
	female	17	58	75			
Total		46	117	163			

Table-II. Association between gender and PTSD in sample

There is no statistically significant association between PTSD and gender.

Age Categories of Respondent	Prevalence in Respondent		Total	Chi Square Value	Degree of Freedom	P-Value
	Yes	No				
15-30	14	58	72			
31-45	20	36	56			
46-60	6	17	23	7.152	3	0.067
61 and above	6	6	12			
Total	46	117	163			

Table-III. Association between age categories and PTSD in sample.

There is no statistically significant association between age and PTSD.

Education of Respondents	Prevalence of PTSD		Total	Chi Square Value	Degree of Freedom	P-Value
	Yes	No				
Illiterate	18	63	81			
Primary	8	22	30			
Matric	8	13	21	4.169	3	0.244
intermediate and above	12	19	31			
Total	46	117	163			

Table-IV. Associations between education categories and PTSD in sample.

There is no statistically significant association between education and PTSD in flood victims.

Socioeconoimc Status of Respondents	Prevalence of PTSD		Total	Chi square Value	Degree of Freedom	P-Value
	Yes	No				
Poor	25	65	90			
lower middleclass	16	38	54			
upper middleclass	5	13	18	0.457	3	0.928
upper class	0	1	1			
	46	117	163			

Table-V. Association between socioeconomic status and PTSD in sample.

There is no statistically significant association between socioeconomic status and PTSD.

DISCUSSION

In 2022 a large area of district D.I.Khan was hit by disastrous floods affecting and changing lives of victims of flood affected area. In our study we found a high prevalence pf PTSD in flood victims.

it was 28.2% in people who were directly affected by flood. And our findings agree with findings of other studies done nationally and internationally.

A previous study consistent with these findings carried out in Punjab, Pakistan in 2022 suggests the prevalence of PTSD as 43 percent which is more than our study.[16] Another study with similar findings in Bangladesh in 2015 mentioned it as 12.3 percent which is less than our study.[17]

In our study we collected data from 163 flood affected individuals with almost equal males and females. All were adults, majority between the ages of 15 to 45. Almost half of our respondents were uneducated and more than half belonged to poor and lower middle class families. This study does not suggest any association between prevalence of PTSD and gender, age, education or socioeconomic status. Although compared to females, older age groups, the males and unemployed expressed a higher prevalence of PTSD symptoms however the difference was not significant. Other studies have shown that these demographic variables act as risk factors and are associated with increased vulnerability of survivors' mental health in natural disasters.

A study carried out in Sindh, Pakistan in 2013 reported greater mental health impact among females, older age and lower educational status flood victims.[18] Similarly another study suggests negative correlation between monthly income and PTSD.[19] Another study also suggests that females and those who are uneducated and unemployed suffered more from PTSD than males ,educated and employed people.[20] Since the sample size for our study was rather small, it's possible that it didn't find the difference that other studies have documented. However, a previous study carried out at Fort McMurray suggests that none of the demographic variables showed an association with likely PTSD after flooding.[19] This coincide with our findings.

The results of this study are important as this is the first study conducted D.I.Khan, KPK, Pakistan. Our study also suggests that irrespective of the gender age, education or socioeconomic status people who suffers a devastation have equal chances of having PTSD.

Limitations: The limitations of the present study is that assessment of affected population was done 08 months after the floods therefore it might have missed many cases as PTSD can be diagnosed after one month of the disaster. Moreover, none of the symptom related responses were based on clinical evaluation and were completely self-reported which may call into question the validity of the study's conclusions.

CONCLUSION

It can be concluded from the study that the prevalence of PTSD in the flood victims is relatively high. The results also show that males were affected more than females.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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REFERENCES

1. Fernandez A, Black J, Jones M, Wilson L, Salvador-Carulla L, Astell-Burt T, et al. **Flooding and mental health: A systematic mapping review.** PloS One. 2015; 10(4):e0119929.

2. Golitaleb M, Mazaheri E, Bonyadi M, Sahebi A. **Prevalence of post-traumatic stress disorder after flood: A systematic review and meta-analysis.** Front psychiatry. 2022; 23(13):890671:1-8.

3. Bisson JI, Cosgrove S, Lewis C, Roberts NP. **Post-traumatic stress disorder.** Bmj. 2015 Nov 26; 351:h6161.

4. Fontalba-Navas A, Lucas-Borja ME, Gil-Aguilar V, Arrebola JP, Pena-Andreu JM, Perez J. **Incidence and risk factors for post-traumatic stress disorder in a population affected by a severe flood.** Public Health. 2017; 1:(144):96-102.

5. **WHO Pakistan floods situation report issue 1: 30 August 2022.** Reliefweb. Aug 2022 [cited 2023,June 24] available from[https://reliefweb.int/report/pakistan/who-pakistan-floods-situation-report-issue-1-30-]

6. **National disaster Management Authority Report 2010.** (Accessed on 7th March, 2016) Available from URL:[http://ndma.gov.pk/Documents/Annual%20Report/NDMA%20Annual%20Report%202010.pdf]

7. American Psychiatric Association. **Diagnostic and Statistical Manual of Mental Disorders** (5th edn) (DSM-5). Washington, DC: American Psychiatric Association; 2

8. Nasri RI, Seniwati T, Erfina E. **Screening of post-traumatic stress disorder (PTSD) among flood victims in Indonesia.** Enferm Clín. 2020; 30:345-9.

9. Huang P, Tan H, Liu A, Feng S, Chen M. **Prediction of posttraumatic stress disorder among adults in flood district.** BMC Public Health. 2010 Dec; 10:1-8.

10. Paranjothy S, Gallacher J, Amlôt R, Rubin GJ, Page L, Baxter T, et al. **Psychosocial impact of the summer 2007 floods in England.** BMC Public Health. 2011 Dec; 11:1-8.

11. Kar N, Sharma PS, Murali N, Mehrotra S. **Mental health consequences of the trauma of super-cyclone 1999 in Orissa.** Indian J Psychiatry. 2004 Jul; 46(3):228.

12. Jahan S. **Assessment of flood-related mental illness in Bangladesh (Doctoral dissertation, Queensland University of Technology).** 2015; 1-164.

13. Aslam N, Kamal A. **Stress, anxiety, depression, and posttraumatic stress disorder among general population affected by floods in Pakistan.** Pak J of Med Res. 2016; 55(1):29.

14. **National disaster Management Authority Report 2010.** (Accessed on 7th March, 2023) Available from URL:[http://ndma.gov.pk/Documents/Annual%20Report/NDMA

15. %20Annual%20Report%202010.pdf]

16. Kessler RC. **Posttraumatic stress disorder: The burden to the individual and to society.** J Clin Psychiat. 2000 Jan 1; 61:4-14.

17. Abid M, Riaz M, Husain N. **Mental health problems in flood-hit people in Punjab Pakistan: Mediating role of social support.** 2023. DOI: 10.21203/rs.3.rs-2419693/v1.

18. Mubeen SM, Nigah-e-Mumtaz S, Gul S. **Prevalence of post-traumatic stress disorder and depression among flood affected individuals of Sindh, Pakistan: A cross-sectional survey in camps five months after the flood.** Pak J Med Res. 2013 Oct 1; 52(4):111.

19. Mao W, Eboreime E, Shalaby R, Nkire N, Agyapong B, Pazderka H, et al. **One year after the flood: Prevalence and correlates of post-traumatic stress disorder among residents in Fort McMurray.** Behav Sci. 2022 Mar 2; 12(3):69.

20. Brown G O. **Healing Complex Posttraumatic Stress Disorder: A Clinician's Guide.** New York: Springer Nature. 2021; 39p.

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