

Psycho-Social and Educational Impact of Flood among School Going Children

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Abstract

Background: Disasters being unanticipated events by their nature results in extremely destructive consequences. It disrupts the lives of trillions and among which children are the most vulnerable. There is a need for a study of the impacts of those events in the current society especially among children where always interventions used to meet their needs and demands are based on top-down approaches. The disasters especially, floods have a huge impact in all spheres of life including psychological, social and educational and its effects may persist for life long if not intervened properly. This study plan to measure the psycho-social and educational impact of flood among school-going children in Kerala in the background of 2018 flood.

Methods: Semi-structured Quantitative questionnaires along with CRIES 13 Scale was used among the flood-affected students under Aluva Sub-district who were in rehabilitation camps using random sampling with a size of 100 samples. The results of focused group discussions conducted among children and their class in charges were also accustomed to support the data. Statistical Package for the Social Sciences (SPSS) version 21 was used to analyze data.

Results: After six month of event 60% of the participants (41% of female and 19% of male) started to show PTSD symptoms. Lack of psychological first aid and counselling had impacted in absentism in schools after re-opening and children have reported poor concentration and other symptoms of psychological disorder in a context where they had lost properties, notebooks, uniforms, family members, close friends, pets, damaged school buildings and their family background where most of the parents are working in the informal sectors and are suffering to rebuild their homes.

Conclusion and Suggestions: The study established that floods impacted is more among girls than boys. It is also evident that the basic needs of the children were not taken into consideration in the camps and it's a violation of their fundamental rights to survival, development and protection. The study suggests that every child need to be given training on disaster risk reduction and prevention measures to avoid trauma after the disaster. It needs to be a mandatory part of the curriculum and policies.

Keywords: Disaster; Flood; Psycho-Social; Children.

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Introduction

Disasters are unanticipated events that can result in extremely destructive consequences. It disrupts the lives of millions. In a global context, a minimum average of one disaster occurs per day.¹ The Emergency Event Database (EM-DAT), shows that 10,733 lives were cost by 281 climate-related events only in 2018. And it also counts about that 6 crore

mankind were affected. Around half of total deaths due to disasters in 2018 were recorded in Indonesia, and it is India which recorded around half of its total population affected.² Floods are considered to be the second-most widespread natural disaster. Worst floods in the past 100 years were witnessed by China's yellow river valley among which flood of Yellow River in 1931 drowned about one million people and made many homeless.³ In the last century, the main cause of natural disasters and the reason for 6.8 million deaths were floods. The most flood-affected region of the last quarter of the previous century is Asia as there reported flood-related fatalities nearly to 50%.⁴

Floods in Indian Scenario

India is a vulnerable country due to the changing frequencies of large number of both natural and man-made disasters. The Disaster Management Policy, 2009 reveals that 4 crore hectares which is about dozen per cent of India's land are liable to floods and river erosion.⁵ River floods are common in India and about 5 million people are exposed to river flooding in every year.⁶ The last 65 years' estimation of damage due to flood is calculated as of amount ₹37,82,47,04,70,000.⁷ Data reveals that 2087.61 million people were high flown and 1,07,535 lives were lost by floods and heavy rainfall from 1953 till 2017 in India. The damage to Public Utilities has calculated as 2,12,060 crore rupees, loss of agricultural crops in 256.02 hectares area and 60,49,349 number of cattle lost and 8,07,17,993 houses were destroyed and an area of 466.335 million hectares affected.^{7,8}

"Floods are the most common natural disaster," says Encyclopaedia.⁹ The reports of CRED recorded 108 of floods in 2018. India witnessed the largest flood event of the year through the August flooding in Kerala where over 23 million humans were contrived with 504 deaths.² The downpour of monsoon floods which Kerala witnessed was the worst disaster in its 100 years.⁷ The impact of the flood can be due to both natural as well as human-induced factors. Intense rainfall in short span contributes to flood hazard.¹⁰ The Center for Research on the Epidemiology of Disaster (CRED) defines a flood as "a significant rise of water level in a stream, lake, reservoir or coastal region".¹¹ Climatological forces, vegetation clearing, urban development, exploitation on river catchments and land, deforestation and so on have increased the immensity and character of floods.^{12,13} Vulnerability of mankind to disaster is mostly contriving weaker section especially related with with social and

economic aspects. Elderly persons, women, children especially women rendered destitute, children orphaned on account of disasters and differently-abled persons are under high risk category.⁵

Impact of Disaster among Children

There are lots of studies related to the impact of disasters among children from different age groups. The damage caused to children's physical health, chances for malnutrition and diarrheal illness due to contaminated water are the three long-lasting effects that can cause harm to children during natural disasters disproportionately.¹⁴ 13.9% among 2030 children were reported subjection throughout life in a study conducted from the United States (US) and 4.1% were encountering a previous disaster. Its abide that the mental health of children exposed to victimization, disaster or both was worst compared to the rest.¹⁵ Psychiatric reports of Buffalo Creek dam collapse in 1972 after 2 years of the disaster found 37% of children with Post-Traumatic Stress Disorder (PTSD) symptoms. Also noticed that girls had higher symptom levels than boys.

Age, gender, parents' functioning, home environment and unique individual experience of disaster by children are the common factors of symptom.¹⁶ A positive correlation of PTSD criteria symptoms with measure of risk to trauma was evident from the study after 28 months of 1997 Flood in south-western Poland during the disaster. Also noted that young participants and girls showed more PTSD symptoms.¹⁷

It is also found that over parental control and infantilization of children for a long time after a disaster are harmful to adolescents' health and could be an obstacle in the recovery process.¹⁸ The study conducted in Namibia related to extreme flooding of 2011, have assessed post-traumatic stress disorder (PTSD) on school children after 2 years of the event and noted that even after 2 years, 55.2% of learners of age 12 and below and 72.8% of learners of age 13 and above have symptoms of trauma.¹⁹

The study which reviewed conceptual advances of last 10 years found less number of effective interventions for victims especially children and youth and suggested to bring informative strategies through researches to protect and promote resilience.²⁰ Early exposure is observed to be a threat factor for anthropometric failure in children in the study conducted in 14 flooded and 18 non-flooded villages of Orissa.²¹ The results of the study on the impact of the 2009 flood on children in North Karnataka indicated a higher level of intrusion and

avoidance aftermath of floods. It also mentioned psychological impact is more significant for boys than girls.²² Similar results with high levels of intrusion and avoidance shown by the children from a study conducted in Kashmir.²³

Floods in Kerala

The state Kerala, in India having two main monsoons as South-west and North-east, provides an average annual rainfall of about 3000 mm. It is this rainfall which results in 90% heavy oozing in 44 rivers of the state.⁶ Because of its geographical location with the Western Ghats on one side and the sea coast on other make Kerala highly vulnerable to natural disasters and the changing climatic dynamics. Devastating massive flooding of 2018, was an unexpected one because of which people were not prepared and resulted in heavy human and economic consequences. It was severe flash floods that are sudden flooding within the short duration that resulted in the damages, with cost 504 lives and two-thirds of the state’s population affected (over 23 million people).

The Post-Disaster Needs Assessment (PDNA) report of Kerala says that people have been affected in multiple of ways during the anticipatory period, cleanup and recovery phase. Stress and emotional hardship because of damage to properties including personal properties like homes, vehicles and so on creating financial burden. Floodwaters damaged land by eroding shorelines and disrobing soils. The fertility and natural vegetation is also lost in the path of the flowing water. Hazardous living conditions since the water was not cleaned up immediately. Floodwaters carried with them many health and injury risks, including diseases and hazards such as sharp glass or metals. Alluvion also contaminated water sources, demolished drainage systems and afflicted farm crops.²⁴ CRED reports that it was flash floods which Kerala faced and it was the intense rainfall resulted in inland flooding. Previously it was in 1924 unparalleled heavy floods was witnessed in almost all rivers of Kerala that resulted in huge damage to properties and crops, losses to life, and so on.⁶

Table 1: Impact of floods in the state Kerala (last 6 decades)

| Year (in decades) | Affected area (in M.ha) | Population affected in millions) | Loss of human life (in numbers) | Total damage crops, houses, public utilities (in ₹ Crore) |
|-------------------|-------------------------|----------------------------------|---------------------------------|--|
| 1957-1966 | 0.49 | 1.39 | 215 | 2.338 |
| 1967-1976 | 1.39 | 8.13 | 369 | 60.404 |
| 1977-1986 | 1.8 | 43.26 | 791 | 1231.753 |
| 1987-1996 | 3.711 | 24.947 | 1089 | 3399.968 |
| 1997-2006 | 0.585 | 2.139 | 462 | 1412.312 |
| 2007-2016 | 0.043 | 4.708 | 926 | 2016.683 |

Source: (Central Water Commission, 2018)

Objective of the Study

To explore the psychosocial and educational impact of flood among school-going children in Kerala with special reference to 2018 flood.

Materials and Methods

This exploratory study was conducted in Educational Institutions under the Aluva Sub-District Education Office in Ernakulam District of Kerala. The sample size of the study was 100 (Boys 50 and Girls 50). The study followed random sampling. The qualitative narrations and results of focus group discussions are added to support the data collected through a survey conducted among the children of age between 12 and 18 who stayed

in rehabilitation camps atleast for one week. The CRIES-13 Scale tool.²⁵ which is stable across age and gender with arousal items to classify children with and without PTSD^{26,27} were used to measure PTSD symptoms. Data were analysed through the Statistical Package for the Social Sciences (SPSS) version 21.0. The data collection was done from the middle of February to March 2019.

Results

The present study explored the psychosocial and educational impact of flood among 100 with 50% Girls and 50% Boys school-going children in the context of 2018 Kerala floods. All the participants (n = 100) were aged between 12 and 18 years.

Table 2: Socio-demographic details of the respondents (N = 100)

| Parameters | | Frequency | Percentage |
|--|------------------|-----------|------------|
| Gender | Male | 50 | 50 |
| | Female | 50 | 50 |
| Age | 12 to 14 years | 72 | 72 |
| | 15 to 17 years | 28 | 28 |
| Community | General | 9 | 9 |
| | OBC | 68 | 68 |
| | SC | 18 | 18 |
| | ST | 5 | 5 |
| Education | 7 th | 35 | 35 |
| | 8 th | 19 | 19 |
| | 9 th | 20 | 20 |
| | 10 th | 17 | 17 |
| | 11 th | 1 | 1 |
| | 12 th | 8 | 8 |
| Type of family | Nuclear | 89 | 89 |
| | Joint | 3 | 3 |
| | Extended | 2 | 2 |
| | Single Parent | 5 | 5 |
| | Other guardians | 1 | 1 |
| Number of earning members in family | None | 4 | 4 |
| | One | 47 | 47 |
| | Two | 43 | 43 |
| | Three | 5 | 5 |
| | Four and above | 1 | 1 |

Table 2 shows the classification of school-going children based on the socio-demographic details. 72% of children belonged to the first category of the age group from 12 to 14 years and the rest 28% belonged to the next category of age from 15 to 17 years of age. It is clear from the table that 50 out of 100 respondents were girls and the next 50 were boys. 68% of respondents belonged to Other Backward Class (OBC) and 18% to Scheduled Caste

(SC), 9% General category and 5% Scheduled Tribe (ST). 35% of the respondents were studying in 7th standard, 20% in 9th standard, 19% in 8th standard, 17% in 10th standard, 8% in 12th standard and 1% in 11th standard. 89% of the total respondents belong to nuclear family set up which is common in Kerala and 5% single parent-child, 2% from a joint family, 3% from extended family and 1% are looked after by other guardians.

Table 3: Physical losses and psychosocial-educational impact

| Parameters | Frequency | Percentage |
|-------------------------------------|-----------|------------|
| PTSD Symptoms | 60 | 60 |
| Female | 41 | 41 |
| Male | 19 | 19 |
| Loss of property | 7 | 79 |
| Loss of family members | 18 | 18 |
| Yes | 31 | 31 |
| Avoidal of functions/ events | 14 | 14 |
| Thought of suicidal attempt | 49 | 49 |
| Fear to word "flood" | 28 | 28 |
| Irritability while discussing flood | 74 | 74 |
| Reminders of flood | 17 | 17 |
| Damage to School | 53 | 53 |
| Loss of notes | 59 | 59 |
| Loss of uniforms | 40 | 40 |
| Continuous leave | 94 | 94 |
| Support from parents/ guardians | | |

(Contd.)

| Parameters | Frequency | Percentage |
|--|-----------|------------|
| Receival of counselling | 75 | 75 |
| Able to concentrate | 74 | 74 |
| Support from teachersand friends | 93 | 93 |
| Syllabus coverage | 92 | 92 |
| Training in disaster risk reduction/ prevention measures | 41 | 41 |

Table 3 reveals that 60% of the respondents are having PTSD symptoms even after months of flood disaster. The researcher observed gloomy disturbed faces of respondents while discussing flood. 79% of them reported loss of property while 21% of them had no such severe losses. It shows that 18% of the respondents lost their family members or relatives in the flood while the rest 82% of them reported not. 31% of the respondents used to avoid functions like marriages or other events after the flood. 64% of them had no such problems. 14% of the respondents reported that either themselves or close ones to the respondents had thought of suicidal attempts or have tried. Among which 9% are girls. 49%, nearly half of the total respondents said that still, they have fear while hearing the word 'flood'. Children were responding "Let it never come again," "If another flood happens, we will die" the responded during focus group discussions. 72% of the respondents have no issues while discussing flood but the rest of the 28% feels irritability while discussing it. "Why are you asking about flood even after all those got settled down?" reacted a respondent during the focus group discussion. 17% reported the damage to their schools. The researcher found the broken desks and benches in school compounds. 53% of the respondents had lost their notebooks during

the flood. From the above-given table, it is clear that 59% of the school-going children have lost their uniforms in flood. The table discloses 40% of the respondents have taken continuous leave from schools even after the flood got settled. "Contaminated water, House Cleaning, fever,, to change the house, lack of uniform, lack of dresses, No reason, Eye operation, For consulting doctor, Diseases, Lost books, bag, uniform, Bad water, Repair of house, School Cleaning, Stomach pain, Sneeze, Hospitalized" were the responses.94% of the respondents were receiving support from their parents or guardians to continue studies and focus the studies. The data in the table depicts that 75% of the children received counselling from the school after rejoining. But 15% disclosed they havenot received. 74% of the children affected by the flood have no concentration problems. But the remaining 16% have issues. About 93% of the students responded that they got help and support from friends and teachers to maintain their focus on studies. 92% of respondents say that the syllabus has been covered by the teachers and 8% reported not. The data given in the table shows that only 41% received disaster risk reduction or prevention training from schools. But 59% of them reported not.

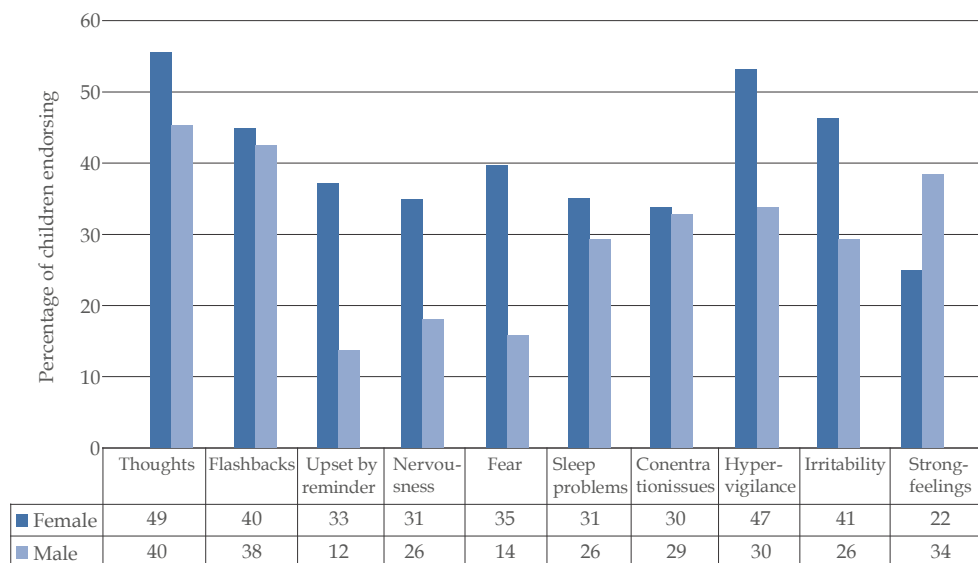


Fig. 1: Percentage of children endorsing with symptoms of PTSD

The Fig. 1 indicates that 89% of the total participants were still worried by the thoughts or memories of flood among which 49% are female and 40% male. 78% of them reported flashbacks,

45% shows upset by reminders, 57% nervousness, 49% fear, 57% sleep problems, 59% are facing concentration issues, 77 with hypervigilance, 67 with irritability, 44% waves of strong feelings.

Table 4: Impact on basic child rights

(N = 100)

| | Parameters | Frequency | Percentage |
|-----|-----------------------------------|-----------|------------|
| No | Enough food in the camp | 20 | 20 |
| | Safe water | 19 | 19 |
| | Injuries | 70 | 70 |
| | Disease | 63 | 63 |
| | Medical assistance | 32 | 32 |
| | Satisfaction with camp facilities | 26 | 26 |
| Yes | Physical abuse | 6 | 6 |
| | Discrimination | 17 | 17 |
| | Non-receipt of PFA or counselling | 26 | 26 |
| | Lack of enough space to sleep | 72 | 72 |

The data represented in Table 4 reveals that 80% of the respondents got enough food in the camp while the condition of 20% of them was pathetic. "The food that we received was having bad smell and taste, it seemed to be old food" In contrast to this respond "We were having biriyani, fried rice...it was like a festival for us" responded two different participants. The quality water was available for 81% of the respondents and the remaining 19% suffered even for safe water in some camps. "It was difficult to catch the water bottle dropping from helicopters to the camp... most of them were lost to mud water" "Our camp was isolated as it got surrounded by water" responses from focus group discussion. 30% of the respondents reported injuries during the flood. "I and my brother got injured while running away from home seeing flood" responded during focus group discussion.

From the table 4, it is clear that 37% of respondents suffered from diseases during the flood. Fever, Cough, Cold, Jaundice, Stomach pain were some of it. 68% of the respondents reported that medical assistance was available in the camps but for 32% of the respondents, it was not in the camp. "My brother suffered from fever for many days, but no medicines were provided". 6% of the respondents mentioned that they were physically abused in the camps. 17% of the respondents felt

that they have been discriminated in the camp. Only 26% of the respondents received either Psychological First Aid (PFA) or counselling in the camp. 72% of the respondents reported for enough space to sleep and the rest 18% reported its lack." It was congested, so we changed the camp after one week" from focus group discussion. 74% of the respondents indicated high satisfaction level while others, 26% of them were not. Lack of sanitation facilities, unavailability of food and water, difficulty in sanitary pad disposal and so on. No electricity, Lack of water, Lack of sanitation facilities, Pad disposal, congested area, light, Not hygienic, Lack of water in toilet, Lack of enough number of toilets, Pipe leakage in the toilet, Camp submerged and so on were the responses.

From the figure 2, it is clear that the basic fundamental rights of children especially for girls seem to be violated more. 17% of girls reported that they were not provided with enough food, 15% with issues related to water, 16% mentioned that lack of space to sleep was a problem in the camp, 4% of them even revealed that they were physically abused, 9% of them disclosed that they felt discriminated also. 39% of them reported neither receipt of psychological first aid nor counselling. Injuries were reported more by boys of 23%, lack of medical assistance was endorsed by 17% boys and 15% girls.

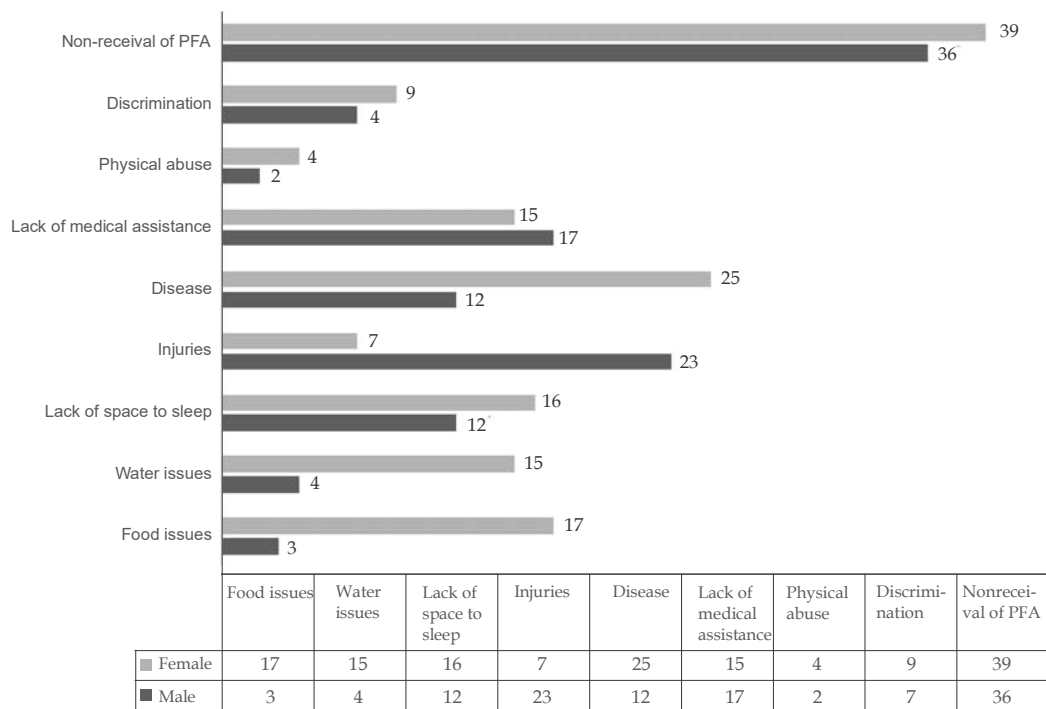


Fig. 2: Descriptive statistics of flood impact on basic child right by gender.

Discussion

Sixty percent of the participants are having PTSD symptoms after six months of the event. During the flood, 20% of the children reported that they faced difficulty in getting enough food in the camps and 19% suffered even for safe water. 28% of them reported a lack of enough space to sleep which are the basic needs of a human being. 32% of the respondents reported that medical assistance was unavailable for them in the camp in a context where 30% of the respondents reported injuries and 37% of respondents suffered from diseases during the flood.

Psychosocial impact of flood

The findings of the CRIES 13 Scale questionnaire are alarming as it shows that, 6 months after the event, children were still experiencing symptoms of trauma. The score greater than or equal to seventeen of PTSD symptoms which was shown by 60% of the total participants, among which, both gender categories of children with mean score of 17 included 41% of female and 19% of male suggesting that the effects of the floods are a cause for concern to the researcher. 49%, nearly half of the total respondents said that still, they have fear while hearing the word ‘flood.’ According to the findings and observation of the researcher with this current study, it’s found that psychological injuries, physiological problems, re-encountering, avoidance,

intrusion, arousal, the tenacity of emotional trauma, troublesome behaviour, depression, abstention, disappointment and so on which are symptoms of other psychological disorders were existing. The Post Disaster Need Assessment (PDNA) reports the pathetic condition of 90% informal sector workforce of Kerala whose employment displacement for 45 days resulted in wage loss.²⁴ To this context the findings can be added and understood in connection to it as 80% of the 39 respondents’ fathers are working in unorganized sector and 51% of the mothers of respondents are homemakers. 79% of them reported loss of property and 18% of the respondents lost their family members or relatives in the flood. 49% of them reported that their houses aren’t still in sound condition. Even 31% of the respondents used to avoid functions like marriages or other events after flood. 14% of the respondents reported that either themselves or close ones to the respondents had thought of suicidal attempts or have tried.

Impact on basic child rights

Twenty percent of the children reported that they faced difficulty in getting enough food in the camps and 19% suffered even for safe water. 28% of them reported a lack of enough space to sleep which are the basic needs of a human being. 32% of the respondents reported that medical assistance was unavailable for them in the camp in a context

where 30% of the respondents reported injuries and 37% of respondents suffered from diseases during the flood. Though no epidemic burst out but reported considerable destruction to health facilities.²⁴ Receival of Psychological First Aid (PFA) or counselling were reported by only 26% of the respondents. At the same time, 6% of the respondents said that they were physically abused in the camps. 17% of the respondents felt that they have been discriminated in the camp.

Impact and psychosocial support for educational attainment

Loss of note-books by 53% of the respondents, loss of uniform by 59%, continuous leave by 40% of the respondents, poor concentration by 26% were the impacts of the flood. PDNA reported 20% of less attendance in schools, the anxiety of class X and XII students in a context where they faced lots of loss as books and notes. Though PDNA expected more dropouts from school especially girls, such cases were not reported from the institutions where the research was conducted. 17% reported for damage occurred to their school. Academic activities were affected all over Kerala because of the shutdown of schools for about 23 days and about 1613 schools directly got affected during the floods.²⁴ The 94% of the participants reported support from parents/guardians to continue studies and focus the studies and 93% of the students responded that they got help and support from friends and teachers to maintain their focus on studies. Also, 92% of respondents say that the syllabus has been covered by the teachers. Among the total participants, 75% of the children received counselling from the school after rejoining and 49% of the children reported training in disaster risk reduction and prevention measures

Limitations of the Study

The sample design did not take into consideration of all age groups of school-going children and also excluded those flood affected who were at relatives' and friends' home and children with special needs. Due to the random selection, an age-wise impact assessment was not possible. The study is confined to a particular region while the whole State of Kerala has been affected by 2018 floods.

Ethical Consideration

The researcher has obtained permission from the Head of the institutions where the respondents

were studying. The researcher administered the questionnaire and has ensured participation with own will. The procedure of research along with nature, and duration, their rights as participants were also informed. The confidentiality of the respondents and collected data are ensured as safe.

Conclusion and Suggestions

It is obvious from the study that floods have adverse psychosocial, physical and educational impact on children. The current study discloses that more than half of the children (60%) including 49% of girls even 6 months after the disasters suffer from symptoms of PTSD. While considering the consequences of this issue, psychological counselling is inferred as the topmost necessary service to be provided for them. Also, it's really important to be provided immediately after the disaster to avoid the trauma that may persist for life long. It is also found that the fundamental rights of children are not always getting protected or taken into consideration in humanitarian settings like rehabilitation camps during disasters. There are also issues related to gender insensitiveness in the camps. Girls were facing issues of sanitary napkin disposal, hygiene issues and so on in camps. Other major problems in the camp include unavailability of food and water while it gets accumulated in some other camps.

The services such as psychological first aid and counselling though existed for the name in both schools and camps, it was not reached properly. It reminds of the need for enough experts as well as professionals especially Social Work professionals in every school as well as in camps to provide these services. Networking and coordination issues were also there in the camps. This context also reminds us of the need for Social Work professionals. Children need to be given training on disaster risk reduction and prevention measures to avoid trauma after the disaster. It needs to be part of the curriculum and policies. If implemented properly, present state government policy, Nava Kerala Mission can also bring about changes which plan for rebuilding a green and resilient Kerala by making use of crisis as an opportunity that has also given importance to education. Also, there is a real need for inclusive and children-centred-researches considering their gender and physical as well as psychological needs and issues of those children during and after such disasters and the policies need to be modified based on it.

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