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# Disaster Trauma and Community Resilience: A Community Psychology Study After Floods

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**Abstract**

Disasters profoundly disrupt not only physical infrastructures but also the psychosocial well-being of affected communities. This study examines disaster-induced trauma and community resilience in the aftermath of the 2024 floods in Purnia, Bihar, through a community psychology perspective. Employing a mixed-method cross-sectional design, data were collected from 44 participants using standardized psychometric instruments, the Impact of Event Scale-Revised (IES-R), Connor-Davidson Resilience Scale (CD-RISC), and Brief COPE Inventory, supplemented by semi-structured interviews. Quantitative findings revealed moderate-to-high trauma prevalence, with an IES-R mean score of 40.52, while resilience indicators remained moderate (CD-RISC mean = 59.45). Sleep disturbances, anxiety, and livelihood disruptions were reported as key correlates of trauma, whereas coping strategies emphasized problem-solving, community participation, and faith-based practices. Although both government and NGO aid were available, satisfaction with relief response was below average, and access to counseling was limited. Thematic analysis of qualitative data underscored the centrality of collective solidarity, religious practices, and neighborly support in sustaining resilience. The findings demonstrate the coexistence of vulnerability and strength, revealing that resilience is a socially embedded process shaped by both individual coping mechanisms and community structures. Policy recommendations highlight the need to integrate mental health into disaster management, ensure equitable relief distribution, strengthen livelihood security, and foster community-based resilience frameworks.

***Keywords:*** *Disaster Trauma; Community Resilience; Floods in Bihar; Community Psychology; Coping Strategies*

## Introduction

Natural disasters remain one of the most pressing challenges for contemporary societies, disrupting physical, social, and psychological structures in profound ways. While the material devastation caused by disasters is immediately visible, the invisible psychological impact, manifested in trauma, distress, and disrupted social functioning, often persists far longer. At the same time, disasters also reveal the remarkable capacity of individuals and communities to adapt, recover, and reconstruct their lives. The study of this duality, trauma and resilience, lies at the heart of community psychology, which emphasizes the interdependence between individual well-being and collective social processes.

Floods are among the most recurrent and devastating disasters in India, particularly in Bihar, where geographical and climatic conditions make communities chronically vulnerable. The 2024 floods in Purnia district caused widespread displacement, loss of livelihood, and destruction of homes, aggravating the already precarious socio-economic conditions of affected populations. Previous research on disasters in India has often focused on economic and infrastructural consequences, while the psychological and community-level dimensions have received comparatively less attention. This gap necessitates an approach that not only measures trauma symptoms but also situates them within the broader context of community resilience mechanisms.

Community psychology offers a particularly suitable framework for such an inquiry. It shifts the focus from individual pathology to collective coping and emphasizes the role of social networks, cultural resources, and participatory action in recovery processes. In the context of Bihar, where formal mental health infrastructure remains limited, community bonds, religious practices, and neighborly solidarity often function as primary resources of resilience. Therefore, investigating how trauma and resilience intersect in this socio-cultural landscape is both academically significant and practically urgent.

The present study adopts a mixed-method design to capture this complexity. Quantitative data from standardized psychometric tools allow for the measurement of trauma severity, resilience levels, and coping strategies, while qualitative narratives provide culturally grounded insights into lived experiences. The research specifically addresses three interrelated questions: (i) What is the prevalence and intensity of trauma symptoms among flood survivors? (ii) What coping strategies and resilience factors are mobilized at both individual and community levels? and (iii) How effective are institutional relief mechanisms, including government and NGOs, in supporting psychosocial recovery?

By situating individual experiences within broader socio-cultural and institutional frameworks, this study contributes to a nuanced understanding of post-disaster recovery in India. The findings highlight not only the psychological costs of floods but also the embedded strengths of communities that enable survival and adaptation. In doing so, the research underscores the need for disaster management policies that integrate psychosocial support with material relief, moving toward holistic models of recovery and resilience.

## Methodology

### Research Design and Approach

The present study adopts an empirical, cross-sectional design embedded within the discipline of community psychology. This design was chosen because the purpose of the research is to examine disaster-induced trauma and community resilience in the aftermath of the 2024 floods in Purnia, Bihar, without manipulating the environment. A cross-sectional strategy allows for the simultaneous measurement of trauma-related experiences and resilience indicators among survivors, thus providing a holistic view of community responses within a single timeframe.

Given that disaster research requires a balance between scientific rigor and sensitivity to the lived realities of affected populations, the study integrates both quantitative and qualitative strands. Standardized psychometric scales are used to capture trauma severity, coping strategies, and resilience dimensions, while open-ended interviews provide insights into collective coping, social support networks, and cultural resources that shape resilience. This mixed-method approach enriches the empirical analysis by situating statistical findings within contextual narratives.

### Sampling Procedure

The study utilizes a random sampling technique to ensure that the findings reflect the diversity of experiences across the flood-affected population in Purnia. The total sample size is 44 participants, which, although modest, is suitable for in-depth psychological inquiry in disaster contexts where accessibility and ethical considerations often limit large-scale data collection.

The random selection was carried out in two stages. In the first stage, a list of households from flood-affected wards in Purnia town and nearby villages was obtained with assistance from local non-governmental

organizations (NGOs) engaged in relief work. In the second stage, random numbers were generated to select households. From each selected household, one adult participant (aged 18 years or above) was randomly chosen, ensuring equal chances of inclusion regardless of gender, caste, or socio-economic status.

This sampling method minimizes bias and allows for the representation of different demographic groups, thereby enhancing the reliability of the findings. Care was taken to include both urban and rural participants, as community resilience mechanisms often vary by settlement type.

**Participants**

The study's final sample consisted of 44 individuals, comprising 21 males and 23 females. Their ages ranged from 19 to 65 years, ensuring representation across youth, middle-aged adults, and older populations. The educational background of participants varied from illiterate to postgraduate level, while occupational profiles included agricultural laborers, small traders, government employees, homemakers, and students.

Socio-economic diversity was also evident: some participants belonged to relatively stable income groups, while others reported extreme financial vulnerability due to loss of livelihood caused by the floods. Caste and community variations were represented, reflecting the social heterogeneity of Purnia district. This demographic spread enabled the study to capture differences in trauma intensity and resilience resources across distinct social groups.

**Data Collection Methods**

Data collection was conducted through in-person and online interviews, complemented by structured questionnaires. This dual mode was employed to maximize inclusivity and adapt to practical challenges such as displacement, accessibility, and technological availability.

**In-Person Interviews**

In-person interviews were conducted in temporary relief shelters, community halls, and homes of participants in accessible flood-affected areas. Trained research assistants, fluent in Hindi and Maithili, facilitated the interviews. These interviews allowed for rapport building, non-verbal observation, and immediate clarification of responses. They were particularly effective for participants with limited literacy or digital access.

**Online Interviews**

For participants who had relocated to urban areas or had functional access to smartphones, online interviews were conducted through video conferencing platforms (Zoom, Google Meet) or WhatsApp video calls. This approach ensured the inclusion of displaced individuals and minimized health risks associated with crowded relief camps during post-disaster recovery. The online mode also helped reach younger and educated participants who were more comfortable with digital communication.

**Instruments Used**

1. **Standardized Scales**:
    - *Impact of Event Scale-Revised (IES-R)* to assess trauma symptoms.
    - *Connor-Davidson Resilience Scale (CD-RISC)* to measure resilience.
    - *Brief COPE Inventory* to identify coping strategies.
2. **Semi-Structured Interview Guide**:

    The guide consisted of open-ended questions focusing on:

    - Personal experiences during and after the floods.
    - Perceived sources of trauma (loss of home, livelihood, family separation, etc.).
    - Role of family, neighbors, religious groups, and NGOs in coping.
    - Cultural and spiritual practices that supported recovery.
    - Perceptions of government relief and community solidarity.

The combination of psychometric and narrative data enriched the study, allowing for quantitative analysis of trauma-resilience patterns alongside qualitative interpretation of cultural and contextual resilience practices.

**Ethical Considerations**

Ethical integrity was prioritized given the sensitive nature of disaster trauma research. Prior to data collection, approval was obtained from the Institutional Ethics Committee of the researcher's university. Participants were informed about the objectives of the study, voluntary nature of participation, confidentiality of responses, and their right to withdraw at any time without consequence.

Written informed consent was secured for in-person interviews, while digital consent was recorded for online sessions. In cases where participants were illiterate, verbal consent was taken in the presence of a local community representative.

Special care was taken to avoid re-traumatization: interviewers were trained in psychological first aid, and participants showing signs of acute distress were referred to local mental health professionals and NGO counseling services.

**Data Analysis Strategy**

Data analysis followed a mixed-methods framework.

1. **Quantitative Analysis**:

   Responses from standardized scales were coded and analyzed using descriptive and inferential statistics. Mean trauma scores, resilience levels, and coping strategies were calculated. Correlation analysis was used to examine the relationship between trauma severity and resilience indicators. Independent sample t-tests were applied to explore gender-based differences, while ANOVA tested differences across socio-economic groups.

2. **Qualitative Analysis**:

   B Transcripts from in-person and online interviews were subjected to thematic analysis. Codes were generated for recurring themes such as *social support*, *faith and spirituality*, *loss and grief*, *community solidarity*, and *perceived government neglect*. Patterns emerging from these codes were synthesized into broader categories of community resilience. This analysis enabled the identification of locally relevant resilience strategies that may not be captured by standardized scales.

The integration of both analyses ensured methodological triangulation, thereby enhancing the validity of the findings.

**Reliability and Validity**

To ensure reliability, standardized psychometric instruments with high internal consistency (Cronbach's alpha >0.80) were employed. Interviewers underwent intensive training and mock sessions to reduce interviewer bias. To enhance validity, data were triangulated from multiple sources (scales, interviews, observations) and across modes (in-person and online).

Member checking was employed in qualitative analysis: summaries of key narratives were shared with participants to confirm accuracy and authenticity. Moreover, contextual factors such as cultural norms and disaster-specific realities were carefully considered while interpreting the data to avoid imposing external assumptions.

**Limitations of Methodology**

Although rigorous, the methodology faced certain limitations. The sample size of 44, while sufficient for in-depth community psychology inquiry, limits the generalizability of findings beyond Purnia. The reliance on self-reported data may also involve recall bias, particularly when participants narrate highly emotional events. Furthermore, online interviews excluded those without access to digital tools, potentially underrepresenting the most marginalized groups.

Despite these limitations, the combination of random sampling, standardized instruments, and contextual narratives strengthens the reliability and relevance of the study in capturing the psychosocial dynamics of disaster trauma and resilience.

**Results and Discussion**

**1. Demographic Profile of Participants**

**Table 1: Education by Gender**

| Gender | Graduate | Higher Secondary | No formal schooling | Postgraduate | Primary | Secondary |
|---|---|---|---|---|---|---|
| Female | 4 | 6 | 0 | 0 | 4 | 4 |
| Male | 3 | 9 | 2 | 2 | 5 | 3 |
| Non-binary | 0 | 0 | 0 | 0 | 0 | 2 |

The educational distribution reveals that a majority of respondents had at least some level of formal schooling, with higher secondary education being the most common. Interestingly, two males reported no formal education, while none of the females or non-binary participants fell into this category. Women were fairly represented at both the primary and secondary

levels, while male participants were more likely to have higher secondary and postgraduate education. This uneven distribution hints at broader gender-based educational disparities in rural Bihar, where access to higher education remains uneven.

**Age Statistics**

- Mean = 41.18 years
- Median = 41 years
- Range = 18 – 65 years
- Std. Dev. = 14.66

The age distribution suggests a balanced representation across youth, middle-aged, and older survivors. A standard deviation of 14.66 years highlights the intergenerational spread of participants, which is critical because trauma and resilience are often experienced differently depending on life stage. Younger respondents may demonstrate higher adaptability due to stronger social networks, while older participants may display resilience grounded in life experience but also heightened vulnerability due to health limitations.

**Monthly Income Distribution**

- ₹10k–20k → 15
- ₹20k–35k → 12
- ₹35k–50k → 6
- <₹10k → 6
- ₹50k → 5

The income spread demonstrates that most participants fell within the lower-to-middle income range. A large proportion (15 out of 44) reported monthly incomes between ₹10,000–20,000, which places them at a significant risk of financial instability after livelihood loss due to floods. Only five participants reported incomes above ₹50,000, showing the minority presence of relatively well-off households. This distribution reinforces the importance of socio-economic status as a predictor of both trauma exposure and resilience capacity.

*Discussion:*
The demographic spread indicates that flood-related trauma in Purnia was not restricted to any single social group but cut across gender, age, and economic strata. However, pre-existing vulnerabilities, particularly low income and lower educational status, likely exacerbated disaster impacts. Similar findings have been noted in disaster psychology literature, where marginalized groups face compounded risks due to reduced access to information, relief, and healthcare.

**2. Exposure and Loss**

**Table 2: Displacement, House Damage, and Livelihood Loss**

- Displacement: Temporary (23), None (18), Relocated (3)
- House Damage: Partial (18), Severe/Destroyed (16), None (10)
- Livelihood Loss: Partial (18), Complete (14), None (12)

**Cross-tabulation: House Damage × Displacement**

| House Damage | None | Relocated | Temporary |
|---|---|---|---|
| None | 5 | 1 | 4 |
| Partial | 5 | 0 | 13 |
| Severe/Destroyed | 8 | 2 | 6 |

*Discussion:*
Nearly half the participants (23 out of 44) experienced temporary displacement, while only three were permanently relocated, indicating that most families preferred to remain within their localities or return home after floodwaters receded. Severe or destroyed housing was reported by 16 participants, a figure that strongly overlaps with displacement patterns. In fact, 13 participants with partial house damage still faced temporary displacement, suggesting that even non-total destruction creates conditions of uninhabitability.

Livelihood loss was another critical dimension: 14 participants reported complete loss, predominantly those dependent on agriculture or daily wage labor, occupations highly sensitive to environmental disruptions. The interconnection between physical loss (housing) and economic loss (livelihood) created a compounded trauma effect. This aligns with disaster trauma research showing that material loss not only intensifies psychological distress but also delays recovery due to lack of resources.

**3. Psychometrics: Trauma and Resilience**

**Table 3: IES-R Trauma Level Distribution**

- Moderate → 15
- High → 13
- Mild → 10
- Low → 6

**Mean Scores**

- IES-R = 40.52 (Moderate trauma)

- CD-RISC = 59.45 (Moderate resilience)

*Discussion:*
The psychometric findings reveal that 28 out of 44 participants reported trauma levels in the moderate-to-high range, indicating that the floods had a substantial psychological impact on the community. Only six individuals scored in the low trauma category, reflecting limited protective buffers. The mean IES-R score suggests moderate trauma overall, which is consistent with post-disaster contexts where intrusive memories, avoidance behaviors, and hyperarousal symptoms are widespread.

The CD-RISC mean score of 59.45 indicates moderate resilience within the community. This suggests that while trauma was prevalent, resilience factors, such as social support, cultural coping mechanisms, and prior experiences of hardship, helped mitigate the psychological burden. These findings reflect a paradox often noted in community psychology: trauma and resilience coexist, with resilience functioning as a dynamic process rather than a fixed trait.

**4. Coping and Social Support**

**Table 4: Coping Strategies and Support**

- Problem-focused → 19
- Emotion-focused → 8
- Avoidant → 6
- Seeking Social Support → 6
- Religious/Spiritual → 5

**Support Index (1–5):** Mean = 2.93
**Community Participation:** Yes → 33; No → 11

*Discussion:*
Problem-focused coping emerged as the dominant strategy, employed by nearly half of the participants (19 out of 44). This suggests a proactive orientation toward problem-solving, such as rebuilding homes, seeking relief, or restoring livelihoods. While adaptive in many ways, this strategy requires resource access, which was unevenly distributed among participants.

Emotion-focused coping and avoidance strategies were less frequent but still notable. Six participants reported avoidant strategies, a maladaptive approach associated with denial and disengagement, which can prolong psychological distress. Religious or spiritual coping was reported by five participants, highlighting the cultural role of faith in resilience, especially in Bihar where community rituals and collective prayer play a significant part in emotional recovery.

The average support index (2.93) reflects a low-to-moderate level of perceived support. However, the fact that 33 participants reported active community participation underscores the importance of social capital in disaster resilience. Collective initiatives such as food sharing, joint clean-up drives, and mutual caregiving likely functioned as informal resilience mechanisms, even when institutional support was perceived as inadequate.

**5. Aid and Services**

**Table 5: Relief Sources and Services**

| Govt Relief | NGO Aid: No | NGO Aid: Yes |
|---|---|---|
| No | 4 | 7 |
| Yes | 11 | 22 |

**Counseling Access:** Yes → 17; No → 27
**Satisfaction with Response (1–5):** Mean = 2.82

*Discussion:*
The cross-tabulation shows that the majority of participants (22 out of 44) benefitted from both government and NGO aid. However, a small but significant subset (4 participants) reported receiving no aid at all, reflecting gaps in distribution. NGOs appear to have played a pivotal role in supplementing state efforts, often bridging last-mile delivery.

Counseling services were accessed by only 17 participants, a strikingly low figure given the high trauma scores reported earlier. This points to limited availability of psychosocial services in disaster contexts. The low satisfaction score (2.82) further emphasizes that relief efforts were perceived as inadequate, either due to insufficient coverage, delays, or lack of integration of mental health support into broader disaster management.

**6. Health and Functioning**

**Table 6: Health Outcomes**

- Sleep Hours: Mean = 6.26 hrs/night
- Nightmares: None (13), Several/week (12), Weekly (10), Monthly (9)
- PHQ-2 Mean = 2.30 (Mild depressive symptoms)
- GAD-2 Mean = 2.98 (Moderate anxiety)
- Substance Use Change: No change (34), Not applicable (6), Decrease (3), Increase (1)
- Return to Work: Mean days = 22.7

*Discussion:*
Sleep disturbances were a common post-disaster outcome. Only 13 participants reported no nightmares, while the majority experienced them at varying

frequencies. Sleep disruption is a core marker of trauma, and in this study, it aligns closely with the moderate IES-R scores.

The PHQ-2 and GAD-2 scores indicate mild depressive symptoms and moderate anxiety, respectively. Anxiety was particularly high, reflecting ongoing uncertainty about future floods, financial recovery, and housing stability. Depression levels, while mild, are likely under-reported due to cultural stigma around mental health discussions.

Substance use did not significantly change for most participants, though three reported decreases, possibly reflecting economic constraints rather than health-conscious behavior. Only one participant reported an increase, suggesting that maladaptive coping through substances was not a major trend in this community.

The mean return-to-work time of 22.7 days highlights the rapid resilience of some participants, especially those with partial rather than complete livelihood loss. However, this statistic masks wide variation: agricultural workers faced prolonged disruptions compared to those in salaried or trade-based occupations.

**Integrated Discussion**

The findings reveal a layered narrative of trauma and resilience in flood-affected Purnia. On one hand, trauma was widespread, with most participants reporting moderate-to-high symptoms, disrupted sleep, and anxiety. On the other, resilience was evident through problem-focused coping, community participation, and cultural reliance on faith.

Institutional support, while present, was perceived as inadequate, highlighting the critical role of NGOs and community solidarity in bridging gaps. The limited access to counseling underscores a pressing need to integrate mental health into disaster management frameworks.

Perhaps most importantly, the study highlights that resilience is not simply the absence of trauma but rather the capacity to navigate adversity through both individual strategies and collective resources. In Purnia, resilience was sustained not only by individual coping mechanisms but also by community structures, neighbors helping neighbors, shared religious practices, and collective participation in recovery efforts.

These findings align with community psychology's central tenet: resilience is socially embedded. The study suggests that post-disaster interventions must go beyond material relief to include psychosocial care, strengthening community networks, and fostering collective agency.

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**Conclusion**

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Institutional support, while present, was perceived as inadequate, highlighting the critical role of NGOs and community solidarity in bridging gaps. The limited access to counseling underscores a pressing need to integrate mental health into disaster management frameworks.

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