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Assessment of socio psychological constructs in post flood situation: The case of Kuttanad rice farmers

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Abstract

The Kuttanad region of Kerala, India, is an ecologically fragile area highly susceptible to recurrent floods. These devastating natural disasters not only inflict severe economic damage on the agrarian community but also create profound psychological distress and social disruption. Understanding the psychological resilience and coping mechanisms of rice farmers in this vulnerable post-flood context is crucial for developing effective rehabilitation and support strategies. This study aimed to assess key socio-psychological constructs, specifically focusing on the role of Emotional Intelligence (EI), in fostering psychological resilience among Kuttanad rice farmers. The correlation analysis demonstrated a statistically significant positive relationship between Emotional Intelligence and the three psychological constructs under investigation. Specifically, farmers with higher overall Emotional Intelligence scores exhibited greater Self-confidence ($r = 0.705$), enhanced Problem-solving abilities ($r = 0.686$), and a more pronounced sense of Optimism ($r = 0.432$).

Keywords: Disasters, resilience, emotional intelligence, self confidence, problem solving ability, optimism

Introduction

Kuttanad, spanning the Kottayam and Alappuzha districts, represents the lowest altitude region in India, lying several metres below sea level—a rare geographical phenomenon recognized by the Food and Agricultural Organisation (FAO) as a Globally Important Agricultural Heritage System. While the region is renowned for its expansive paddy fields, it simultaneously ranks among Kerala's most flood-prone areas. Historically, Kuttanad experienced flooding predominantly during the southwest monsoon, with the northeast monsoon rarely triggering such events. Recurrence data indicates intervals of 2, 5, 10, 25, and 50 years, with floods corresponding to 10-year cycles or more classified as severe, while those occurring at 5-year intervals or less are considered routine and less intense. However, recent years have witnessed a dramatic shift in this pattern—floods now strike annually, unleashing widespread devastation and instilling deep fear among residents.

The 2018 floods inflicted extensive damage on the region. When the first flood struck in July 2018, its waters had not yet receded when a second flood hit in August, compounding the hardships faced by the populace. The situation was further exacerbated by the breach of outer bunds in several areas due to heavy rainfall. Hundreds of hectares of paddy fields were submerged, and thousands of residents were compelled to reside in relief camps for several months. Climate change operates as an intricate process wherein one change precipitates another, rendering outcomes increasingly unpredictable. It is a stark reality that Kuttanad will never be

the same again, and its inhabitants must adapt to the enduring impacts of climate change. The lessons derived from these adversities are crucial for developing more responsive strategies and fostering a resilient society. Consequently, socio-psychological studies related to flood management are essential for devising appropriate preparedness and mitigation strategies.

Materials and Methods

The study was conducted in the Kuttanad region of Alappuzha district, with Chambakulam and Veliyanad blocks purposively selected as they were the most severely flood-affected blocks in terms of rice cultivation. The respondent groups comprised 60 farmers from each block. From each block, the two most severely affected grama panchayats were chosen as study areas: Chambakulam, Nedumudi, Pulikunnu, and Ramankary. From each panchayat, 30 farmers were selected, yielding a total sample size of 120 farmers.

Emotional feeling, measured through Emotional Quotient (EQ)—also referred to as Emotional Intelligence (EI)—constituted the primary dependent variable. EQ was operationalized as the capacity to recognize one's own emotions and those of others, manage emotions, and motivate oneself. The measurement was based on Goleman's (1995) [1] five-element framework, encompassing self-awareness, self-regulation, motivation, empathy, and social skills. Self-awareness involves knowing one's feelings at any given moment and using those priorities to guide decision-making, coupled with a realistic assessment of one's abilities and a

grounded sense of self-confidence. Self-regulation refers to the ability to respond to ongoing experiential demands with a range of emotions in a socially acceptable manner, allowing for the postponement of impulsive reactions when necessary. Motivation entails using one's innermost priorities to pursue objectives, seize opportunities, strive for advancement, and maintain perseverance in the face of setbacks and disappointments. Empathy signifies the capacity to understand another person's experience from their frame of reference, positioning oneself in another's situation and cultivating rapport. Social skills involve communication wherein relationships and social rules are created, communicated, and modified through verbal and nonverbal means. The scale comprised 50 statements, from which 25 appropriate items were selected for the study. Responses were recorded on a five-point continuum—strongly agree, agree, undecided, disagree, and strongly disagree—with scores of 5, 4, 3, 2, and 1, respectively.

The distribution of farmers based on their emotional intelligence is presented in Table 1. The findings revealed that the majority of farmers (63 per cent) belonged to the medium category of emotional intelligence, followed by high (20 per cent) and low (17 per cent) categories. This distribution pattern may be attributed to the fact that a significant proportion of farmers fell into the medium to high age category and possessed medium to high farming experience, enabling them to motivate themselves and manage their emotions admirably. These results align with the findings of Victor (2018) [6].

Table 1: Distribution of farmers based on their emotional intelligence

Sl. No	Categories	Frequency	Percentage
1	Low (<96)	14	17
2	Medium (96-110)	50	63
3	High (>110)	16	20
Average		103	

To analyse the influence of sub-components on the total emotional intelligence score, Principal Component Analysis (PCA) was performed. The analysis revealed that self-awareness, self-motivation, and empathy emerged as the principal components influencing emotional intelligence, as evidenced by their eigenvalues being either greater than or approaching one. Self-awareness, defined as the ability to manage one's inner world—thoughts and feelings—enables individuals to remain mindful and notice subtle but important life signals (Herwig *et al.*, 2010) [2], allowing them to address problems proactively rather than being overwhelmed by them. Flexibility and the capacity to manage change are critical for achieving success; motivated individuals focus on envisioned benefits and outputs, with barriers and insecurities failing to hold them back, as they anticipate occasional setbacks and recognize that worthwhile goals entail complications. Empathy facilitates effective emotion management and enables better interpersonal relations, contributing to heightened intuition and emotional intelligence.

Table 2 presents the PCA results, which yielded five principal components with eigenvalues of 1.736, 1.148, 0.990, 0.647, and 0.479. The first component accounted for 34.7% of the total variance, while the second contributed an additional 23.0%, resulting in a cumulative variance explanation of

57.7% for the two-component solution. Including the third component raised the cumulative proportion to 77.5%, indicating substantial capture of underlying information. The Kaiser-Guttman rule, retaining components with eigenvalues exceeding 1.0, would suggest extracting only the first two components. However, the third component's eigenvalue of 0.990—marginally below the threshold—meaningfully improved cumulative variance from 57.7% to 77.5%, surpassing the widely accepted 75% benchmark. Conversely, the fourth and fifth components contributed negligibly (12.9% and 9.6%, respectively), suggesting they primarily represent residual variance or random noise. The moderate eigenvalue of the first component indicates the absence of a single dominant latent factor, implying that the five variables capture fairly distinct dimensions. For parsimonious applications, a two-component solution is justifiable despite the 42.3% information loss, while a three-component solution is recommended for comprehensive data representation, optimizing the balance between dimensionality reduction and information preservation.

Table 2: Principal component analysis of dimensions of emotional intelligence

	PC1	PC2	PC3	PC4	PC5
Eigen values	1.736	1.148	0.990	0.647	0.479
Proportion	0.347	0.230	0.198	0.129	0.096
Cumulative Proportion	0.347	0.577	0.775	0.904	1.000

PC 1-Self awareness, PC 2-Motivating oneself, PC 3-Empathy, PC 4-Social skills, PC 5-Managing emotions

Dimensions/component	Eigen value (Total)	Cumulative Variance (%)	Weightage
Self Awareness	1.736	34.7	0.772
Motivating Oneself	1.148	57.7	0.707
Empathy	0.990	77.5	0.716

Correlation analysis was performed to examine the relationship between profile characteristics and emotional intelligence (Table 3). Self-confidence (self-worth) and problem-solving ability exhibited positive, significant relationships with emotional intelligence at the 1% level of significance, while optimism showed a positive, significant relationship at the 5% level. Conversely, variables such as age, education, gender, farming experience, annual income, area under cultivation, risk propensity, and innovation proneness were not significantly related to emotional intelligence.

Table 3: Factors that affected the emotional intelligence of the farmers

Name of the independent variable	Correlation Coefficient
Age	0.065
Education	0.074
Gender	-0.142
Farming experience	0.095
Annual income	0.122
Area under cultivation	-0.049
Self confidence	0.705**
Problem solving ability	0.686**
Risk propensity	0.087
Innovation proneness	0.023
Optimism	0.432*

**Significant at 1% level of significance

*Significant at 5% level of significance

The correlation analysis revealed that farmers with high self-confidence also exhibited high emotional intelligence. Self-confidence reflects the emotional component of personality, representing a positive, balanced attitude toward the self. It is the most significant determinant of how individuals feel, think, and behave. A self-confident person does not depend on others for emotional sustenance and, despite adversities, can shape outcomes and produce desired results. This finding is logical, as self-confident individuals exercise greater control over their emotions, corroborating the results of Laborde *et al.* (2013) ^[3].

The analysis further demonstrated that farmers with high problem-solving ability possessed high emotional intelligence. Effective problem-solving involves addressing both personal and impersonal challenges. Individuals with low emotional intelligence tend to jump to solutions, avoid dealing with problems, ignore emotional information, and feel overwhelmed, whereas those with high emotional intelligence adopt a measured approach. Enhanced problem-solving ability enables farmers to perceive problems from different perspectives, utilize emotional cues and reactions, and employ appropriate coping strategies, thereby developing emotional intelligence and providing resources for problem-solving. These findings are consistent with the results of Rahim and Minors (2003) ^[5].

Despite adverse circumstances, optimism enables farmers to remain hopeful and cheerful, maintaining a positive attitude in all activities. A farmer's level of optimism serves as a predictor of health, happiness, wealth, and longevity. Optimistic farmers perform better professionally, maintain stronger relationships, and exhibit greater resilience. Optimism enhances emotional strength, forms part of the positive psychological domain, and contributes to overall emotional competence. These findings align with the study conducted by Lee (2016) ^[4].

Conclusion

The study concludes that Emotional Intelligence serves as a vital psychological resource for rice farmers coping with the aftermath of floods. The positive correlations suggest that higher EI is intrinsically linked to the development of a resilient mindset, characterized by self-assurance, effective problem-solving, and a hopeful outlook for the future. These findings underscore the importance of integrating Emotional Intelligence development into disaster management and agricultural extension programs to enhance the psychological well-being and adaptive capacity of farming communities in climate-vulnerable regions like Kuttanad.

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