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International Journal of Health, Psychology and Human Development (IJHPHD)

# Psychological Resilience Predictors in Post-Disaster Recovery Communities

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A contributory publication research for Greenresearch Digital Publishing
In affiliation with TES Digital Service Limited for the promotion of African Education under International Journal of Health, Psychology and Human Development (IJHPHD)
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**Received: 15.04.2026 | Revised: 17.05.2026 | Accepted: 25.05.2026**

## Abstract

**Purpose:** Psychological resilience has been widely acknowledged as a critical determinant of individual and community well-being following disaster events. Yet, there remains limited consensus on the specific predictors that explain why some individuals demonstrate sustained adaptation while others experience chronic distress. This study critically examines the role of demographic, social, and exposure-related variables in forecasting psychological resilience outcomes among post-disaster recovery communities.

**Methodology:** Employing a quantitative research design, the study collected cross-sectional survey data from disaster-affected populations using validated resilience and psychopathology measures. Multiple regression analyses were conducted to identify predictors and estimate effect sizes for resilience outcomes. Results were then presented using well-labelled and detailed statistical tables, including measures of association and variance explained.

**Findings:** The analyses reveal a complex interplay of socio-demographic and psychosocial predictors. Social support emerged as one of the most robust predictors of resilience, whereas disaster exposure severity and prior trauma were consistently associated with diminished resilience scores. Demographic characteristics such as age and gender exhibited nuanced effects, interacting with psychosocial factors to shape resilience outcomes.

**Value:** By integrating empirical evidence with rigorous quantitative analysis, this study advances theoretical understandings of resilience in post-disaster contexts. The findings challenge simplistic notions of resilience as a fixed trait, highlighting instead its dynamic nature contingent on social and contextual resources.

**Keywords:** psychological resilience, disaster recovery, post-traumatic stress, social support, quantitative predictors.

## 1. Introduction

Psychological resilience refers to the capacity of individuals to maintain or regain psychological well-being in the face of adversity, trauma, or significant stress. Contemporary resilience frameworks challenge traditional deficit-based perspectives by recognising resilience not as a static personality trait but as a process shaped by complex interactions between individual resources and socio-environmental contexts (Southwick, Bonanno, Masten, Panter-Brick & Yehuda, 2014). In post-disaster settings, resilience is particularly salient because individuals and communities are frequently subjected to extreme disruptions that test emotional, cognitive, and functional capacities. Despite the increasing emphasis on resilience in disaster research, inconsistencies remain in empirical accounts regarding which predictors most substantially influence resilience outcomes. Historically, research conducted in the aftermath of large-scale events such as the September 11 terrorist attacks indicated that resilience was disproportionately predicted by socio-demographic variables, including gender, age, education, and income, as well as levels of social support and prior life stress (Bonanno, Galea, Bucciarelli & Vlahov, 2007). However, such work also suggested a need to move beyond demographic descriptors to incorporate deeper psychosocial and exposure-related factors to understand resilience variation. Subsequent reviews have corroborated that social support consistently predicts resilient outcomes, whereas female gender and high disaster exposure frequently associate with poorer adaptation (Rodriguez-Llanes, Vos & Guha-Sapir, 2013). Despite this progress, significant gaps remain in quantifying the unique contribution of these predictors within recovery communities. For example, while some studies find that prior trauma dampens resilience potential, others report that prior exposure may enhance adaptive learning processes depending on cognitive coping mechanisms. Moreover, the relative influence of community-level resources—such as economic stability, access to healthcare, and social capital—remains underexplored in quantitative models that simultaneously account for individual and environmental predictors (Lowe, Sampson, Gruebner & Galea, 2015). Consequently, there is a pressing need for robust quantitative evaluations that disentangle the predictive influence of key variables on psychological resilience among disaster-affected populations. This paper addresses this need by investigating a broad set of potential predictors within post-disaster recovery communities, employing rigorous statistical methods to evaluate the relative significance and effect size of demographic, psychosocial, and exposure-related factors. The central research question guiding this inquiry is: *Which individual and contextual variables most strongly predict psychological resilience outcomes in post-disaster recovery communities?*

## 2. Literature Review

The concept of psychological resilience in post-disaster contexts has evolved from early trait-oriented perspectives to contemporary process-oriented models that emphasize dynamic interactions between individual, social, and environmental factors (Southwick et al., 2014). Resilience is increasingly understood as a multidimensional construct encompassing emotional regulation, cognitive flexibility, social engagement, and the ability to harness external resources to restore equilibrium after adversity (Bonanno, 2004). While descriptive studies initially focused on demographic

correlates, a growing body of research has examined predictors across psychosocial, cognitive, and community levels, highlighting a complex web of influences on post-disaster adaptation.

### 2.1 Socio-Demographic Predictors

Socio-demographic factors, such as age, gender, education, and socioeconomic status, have been consistently examined in resilience research. Studies indicate that older adults often display greater resilience due to accumulated coping strategies and experience in navigating adversity (Norris, Tracy & Galea, 2009). However, age effects are not uniform; younger individuals sometimes exhibit greater cognitive flexibility and adaptability, particularly in communities with strong social cohesion (Laksmita, Chung, Liao, Haase & Chang, 2020). Gender has emerged as a nuanced predictor, with women frequently reporting higher psychological distress post-disaster, yet simultaneously demonstrating adaptive coping through social networks and community engagement (Bonanno et al., 2007). Socioeconomic status influences resilience indirectly by shaping access to resources, healthcare, and stable housing, which are critical for recovery trajectories (Adams & Fankhauser, 2006). Critical evaluation reveals that demographic variables alone cannot adequately account for variance in resilience outcomes, underscoring the need for models integrating psychosocial and environmental determinants.

### 2.2 Psychosocial Predictors

Among psychosocial variables, social support consistently emerges as the most robust predictor of resilience. Strong family ties, community networks, and institutional support mitigate the impact of trauma and buffer against prolonged distress (Hobfoll, Hall, Canetti-Nilson & Galea, 2012). Yet, the quality, rather than mere presence, of social connections is paramount; superficial or conflictual relationships may exacerbate stress rather than alleviate it. Cognitive appraisals and coping strategies also play critical roles; individuals capable of reframing adversity as manageable or meaningful experience enhanced resilience outcomes (Tedeschi & Calhoun, 2004). Critically, while coping strategies are often culturally mediated, cross-cultural research demonstrates some universal protective mechanisms, such as problem-solving orientation and goal-directed planning. Despite substantial evidence supporting psychosocial predictors, the literature remains fragmented, with studies often treating variables in isolation rather than considering interactive or cumulative effects.

### 2.3 Disaster Exposure and Trauma History

Disaster severity and prior trauma history are frequently cited as negative predictors of psychological resilience. Higher exposure to life-threatening events, property loss, or displacement correlates with elevated risk of post-traumatic stress disorder and diminished adaptive functioning (Pfefferbaum & North, 2015). Conversely, emerging evidence suggests that moderate prior exposure may foster resilience through stress inoculation and experiential learning, illustrating the non-linear nature of trauma-resilience relationships (Bonanno, Galea, Bucciarelli & Vlahov, 2007). Critical assessment of these findings reveals methodological limitations: many studies rely on

cross-sectional designs, limiting causal inference, while standardized exposure measures vary widely, complicating comparisons across studies.

### 2.4 Community-Level and Environmental Predictors

Beyond individual factors, community resources and environmental stability significantly shape post-disaster resilience. Access to healthcare, economic stability, and social capital collectively influence recovery trajectories (Rodriguez-Llanes, Vos & Guha-Sapir, 2013). Communities with robust governance structures and coordinated disaster response systems facilitate adaptive outcomes by reducing uncertainty and providing material and psychological support. Critically, the interplay between community-level and individual-level predictors remains underexplored; few quantitative studies integrate both levels into multivariate models to elucidate their relative contributions. This represents a key gap addressed by the present study.

### 2.5 Critical Synthesis and Research Gaps

Although the literature establishes multiple predictors of psychological resilience, several gaps persist. First, research often prioritizes psychosocial variables while underrepresenting demographic and environmental contexts in integrated models. Second, the majority of studies adopt descriptive or correlational approaches, limiting the capacity to establish predictive strength or relative effect sizes. Third, cross-cultural variability remains poorly understood, with most studies conducted in Western contexts, raising questions about generalizability to diverse post-disaster populations. Finally, few studies have quantitatively assessed cumulative or interactive effects of predictors, a limitation that constrains both theoretical advancement and practical intervention design. Taken together, these gaps highlight the need for rigorous, quantitative research that simultaneously evaluates multiple predictors to provide a more nuanced understanding of resilience in post-disaster recovery communities.

## 3. Methodology

### 3.1 Research Design

This study employed a quantitative, cross-sectional research design aimed at identifying predictors of psychological resilience among post-disaster recovery communities. The design was selected for its ability to capture relationships between multiple independent variables (demographic, psychosocial, and exposure-related factors) and the dependent variable (resilience score) at a single point in time. A purely mathematical approach was adopted, allowing for statistical modeling of effect sizes and predictive strength.

### 3.2 Population and Sampling

The target population comprised adults aged 18 years and above residing in communities affected by natural disasters within the past five years. Multi-stage cluster sampling was employed to select participants from five disaster-affected regions. Using Cochran's formula for sample size estimation for continuous outcomes,

and accounting for a 10% non-response rate, a final sample of n = 500 respondents was achieved, deemed sufficient to detect medium effect sizes with 0.80 power at a 0.05 significance level.

### 3.3 Data Collection Instruments

Demographic Questionnaire: Captured age, gender, education, income, marital status, and household size.

i. Resilience Measurement: The Connor-Davidson Resilience Scale (CD-RISC-25) was used to quantify resilience. The instrument is widely validated, with Cronbach's alpha ranging between 0.85–0.90 across post-disaster populations.
ii. Social Support Assessment: Measured using the Multidimensional Scale of Perceived Social Support (MSPSS), covering family, friends, and significant others.
iii. Disaster Exposure Inventory: A structured checklist quantified exposure severity, including property damage, injury, displacement, and loss of livelihood.
iv. Trauma History Questionnaire: Captured prior traumatic experiences unrelated to the disaster.

All instruments were pilot-tested on n = 50 respondents from non-study communities, demonstrating high reliability (Cronbach's $\alpha > 0.80$).

### 3.4 Data Analysis Procedures

Data were analyzed using SPSS v28. The analytic approach comprised:

i. Descriptive Statistics: Mean, standard deviation, and frequency distributions.
ii. Bivariate Correlations: Pearson correlation coefficients to examine preliminary relationships between predictors and resilience scores.
iii. Multiple Linear Regression: Enter method was used to model resilience scores as a function of demographic, psychosocial, and exposure variables. Assumptions of linearity, multicollinearity, homoscedasticity, and normality of residuals were checked.
iv. Effect Size and Variance Explained: Standardized beta coefficients ($\beta$) and $R^2$ values were reported for each model.

Significance was evaluated at $p < 0.05$, and tables were prepared to clearly present coefficients, confidence intervals, and model summaries.

## 5. Results

### 5.1 Descriptive Statistics

Table 1 presents participant characteristics. The mean age was 37.4 years (SD = 12.6). Gender distribution was 52% female and 48% male. Approximately 60% had secondary education or higher, and 40% reported household income below the national median. Social support scores averaged 5.8/7, indicating moderate to high perceived support.

**Table 1: Participant Demographic and Psychosocial Characteristics (n = 500)**

| Variable | Category / Mean (SD) | Frequency (%) |
|---|---|---|
| Age (years) | 37.4 (12.6) | - |
| Gender | Female | 260 (52) |
| | Male | 240 (48) |
| Education | Primary | 80 (16) |
| | Secondary | 250 (50) |
| | Tertiary | 170 (34) |
| Household Income | Below Median | 200 (40) |
| | Above Median | 300 (60) |
| Social Support (MSPSS) | 5.8 (1.2) | - |
| Disaster Exposure Score | 8.6 (3.5) | - |
| Prior Trauma (Yes) | 150 (30) | - |

### 5.2 Correlations

Bivariate correlations revealed significant associations between resilience scores and multiple predictors. Social support ($r = 0.61$, $p < 0.001$) was the strongest positive correlate, while disaster exposure ($r = -0.43$, $p < 0.001$) and prior trauma ($r = -0.35$, $p < 0.001$) were negatively associated. Age showed a modest positive correlation ($r = 0.18$, $p = 0.002$), whereas gender effects were minimal ($r = -0.09$, $p = 0.06$).

### 5.3 Multiple Regression Analysis

A multiple regression model was fitted with resilience score as the dependent variable and predictors including age, gender, education, income, social support, disaster exposure, and prior trauma. The model accounted for $R^2 = 0.52$, indicating that approximately 52% of the variance in resilience scores was explained by these predictors.

**Table 2: Multiple Regression Predicting Psychological Resilience (n = 500)**

| **Predictor** | **B** | **SE B** | **β** | **t** | **p** | **95% CI** |
|---|---|---|---|---|---|---|
| Age | 0.15 | 0.05 | 0.12 | 3.00 | 0.003 | 0.05–0.25 |
| Gender (Female = 1) | -0.80 | 0.45 | -0.06 | -1.78 | 0.076 | -1.68–0.08 |
| Education | 0.32 | 0.12 | 0.09 | 2.67 | 0.008 | 0.08–0.56 |
| Income (Above Med) | 0.41 | 0.18 | 0.08 | 2.28 | 0.023 | 0.05–0.77 |
| Social Support | 1.84 | 0.14 | 0.53 | 13.14 | <0.001 | 1.57–2.11 |
| Disaster Exposure | -0.95 | 0.10 | -0.36 | -9.50 | <0.001 | -1.15–-0.75 |
| Prior Trauma (Yes =1) | -1.12 | 0.29 | -0.17 | -3.86 | <0.001 | -1.69–-0.55 |

Model Summary: $F(7,492) = 51.36$, $p < 0.001$, $R^2 = 0.52$, Adjusted $R^2 = 0.51$

### 5.4 Critical Interpretation of Findings

**Social Support**: Emerged as the strongest predictor (β = 0.53), highlighting the crucial role of relational and community resources in post-disaster adaptation. This aligns with conservation of resources theory, which posits that resource availability mitigates stress impact.

**Disaster Exposure and Prior Trauma:** Negative predictors, confirming that cumulative adversity diminishes resilience potential. However, effect sizes suggest that protective psychosocial factors can partially offset exposure-related vulnerability.

**Demographic Predictors:** Age and education were positive, albeit weaker, predictors, while gender effects were not statistically significant. This finding challenges assumptions of universal gender vulnerability in disaster contexts, emphasizing context-dependent variation.

**Overall Model Fit:** With $R^2 = 0.52$, the model explains over half of resilience variance, suggesting that unmeasured factors—such as personality traits, cultural norms, and community-level interventions—likely contribute to residual variance.

These results provide a quantitatively rigorous foundation for understanding the

## 6. DISCUSSION AND CONCLUSION

### 6.1 Discussion

The findings of this study offer a nuanced understanding of psychological resilience predictors in post-disaster recovery communities. Social support emerged as the most robust predictor, consistent with extant research emphasizing the protective role of relational networks in mitigating the psychological impact of disasters (Hobfoll, Hall, Canetti-Nilson & Galea, 2012). The magnitude of this effect (β = 0.53) underscores that interventions enhancing family cohesion, peer networks, and institutional support may yield substantial gains in adaptive capacity. Critically, these findings challenge narrow conceptualizations of resilience as an individual trait, highlighting its embeddedness within relational and community systems. Disaster exposure and prior trauma were significant negative predictors, confirming the cumulative risk hypothesis wherein multiple stressors amplify vulnerability (Bonanno, Galea, Bucciarelli & Vlahov, 2007). However, the residual variance unexplained by the model (48%) suggests that protective mechanisms, such as coping strategies, cultural norms, and psychological flexibility, likely modulate individual outcomes. This observation aligns with process-oriented resilience frameworks, which conceptualize adaptation as dynamic and context-dependent (Southwick et al., 2014). Demographic factors—age, education, and income—exhibited positive but modest effects. Older participants demonstrated slightly higher resilience, likely reflecting accrued coping experience, whereas higher education and income provided access to resources facilitating recovery. Gender effects were non-significant, emphasizing that social and environmental contexts may attenuate or amplify gender-based differences, a finding that resonates with critiques of universalist vulnerability assumptions (Rodriguez-Llanes, Vos & Guha-Sapir, 2013). Methodologically, the study contributes by

integrating demographic, psychosocial, and exposure variables within a single multivariate model, offering empirical clarity on relative predictor strength. Unlike previous research that often isolates predictors, this comprehensive approach reveals the hierarchical influence of social support, exposure, and demographics on resilience outcomes. These insights have direct implications for targeted interventions, suggesting that resource-focused policies and community-based psychosocial programs may produce disproportionate benefits in post-disaster adaptation.

### 6.2 Implications for Practice and Policy

The results underscore the importance of community-centered disaster recovery interventions. Programs that enhance social support structures—through peer mentoring, family counseling, and social cohesion initiatives—are likely to be more effective than interventions focusing solely on individual psychological training. Furthermore, prioritizing resources for individuals with high disaster exposure or prior trauma may mitigate risk, ensuring that recovery efforts are both equitable and evidence-based. Policymakers should consider resilience not merely as an outcome but as a process that can be actively facilitated through structured community and resource interventions.

### 6.3 Limitations and Future Research Directions

While the study advances quantitative understanding of resilience predictors, several limitations merit consideration. The cross-sectional design restricts causal inference and may obscure temporal dynamics of adaptation. Additionally, the study did not incorporate personality traits, cultural factors, or community-level interventions that likely interact with individual predictors. Future research should employ longitudinal designs and multilevel modeling to capture temporal, contextual, and interactive effects. Cross-cultural validation of predictive models would further enhance generalizability, particularly in non-Western contexts where socio-cultural norms shape coping and support mechanisms.

### 6.4 Conclusion

In essence, psychological resilience in post-disaster recovery communities is a complex, multifactorial construct. Social support consistently emerges as the most influential predictor, whereas high disaster exposure and prior trauma diminish adaptive outcomes. Demographic characteristics exert secondary effects, emphasizing that individual attributes alone cannot fully explain resilience trajectories. This study demonstrates that rigorous quantitative modeling can elucidate the hierarchical importance of predictors, guiding both theoretical refinement and practical intervention strategies. Based on this understanding, effective post-disaster recovery policies must prioritize relational and community-level resources while accounting for the compounded impact of exposure and historical trauma.

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