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Community Resilience Predictors of Parental Stress and Family Stability Following Local Public Health Emergencies Evidence from a Mixed Methods Study

Sharhriar PeyghaniAsl [1], Hossein Nemati Gharadaghlou [2,*]

1- MSc, Community Health Nursing, Islamic Azad University, Kaleybar, Iran. Email: pshahriar1393@gmail.com
2- PhD in Nursing Education, Department of Nursing, Tabriz Islamic Azad University of Medical Sciences, Tabriz, Iran. Email: nematihossein72@gmail.com
* Corresponding Author

Abstract

Local public health emergencies, such as infectious disease outbreaks, natural disasters, and environmental hazards, significantly disrupt family functioning and increase parental stress. This study investigates the predictors of parental stress and family stability in the context of community resilience following local public health emergencies. Using a mixed methods design, data were collected from 482 parents across multiple urban and suburban regions affected by recent public health crises. Quantitative measures included standardized assessments of parental stress, family cohesion, social support networks, and community engagement, while qualitative interviews explored family coping strategies, perceived community support, and adaptive behaviors during crises. Results indicate that higher levels of perceived community resilience, including access to resources, social cohesion, and effective local communication, are associated with lower parental stress and higher family stability. Families with strong internal cohesion and adaptive coping mechanisms reported better outcomes even when external stressors were significant. Conversely, families experiencing weaker community support or lower social cohesion exhibited higher levels of parental stress, disrupted routines, and lower overall family functioning. Multivariate analyses revealed that community resilience not only directly influenced family outcomes but also moderated the relationship between crisis intensity and parental stress. Qualitative findings highlighted that parental perceptions of neighborhood trust, access to emergency information, and collaborative problem-solving were central to maintaining family stability. These results underscore the importance of integrating community-level interventions into public health emergency planning, emphasizing the role of local networks, communication strategies, and social infrastructure in supporting families. Policy implications suggest that investments in community resilience, targeted social support programs, and parental guidance initiatives can mitigate the adverse effects of public health emergencies on families. This study contributes to the growing evidence on the intersection of community resilience, parental well-being, and family stability, offering practical insights for practitioners, policymakers, and researchers in disaster management and public health planning.

Keywords: Community resilience, Parental stress, Family stability, Public health emergencies, Mixed methods.

Introduction

Public health emergencies, including infectious disease outbreaks, natural disasters, and localized environmental hazards, create substantial disruptions in family life, significantly affecting parental stress and overall family stability. Families are not only exposed to direct threats, such as illness, injury, or displacement, but also indirect stressors, including economic strain, social isolation, and disrupted community infrastructure. In these contexts, the concept of community resilience—defined as the capacity of a community to absorb, adapt, and recover from adverse events—has emerged as a critical determinant of family well-being. Community resilience encompasses access to resources, social cohesion, effective communication channels, and collective problem-solving abilities that buffer families against the psychological and functional impacts of crises (1,5,9,12).

Parental stress during public health emergencies is multifaceted, encompassing emotional exhaustion, role overload, and concerns for children's safety and well-being. High levels of stress in parents are associated with negative outcomes for children, including behavioral problems, emotional dysregulation, and academic

difficulties (6,7,11). Conversely, parents who perceive strong community support and possess adaptive coping strategies tend to maintain higher levels of family cohesion and stability, highlighting the interplay between individual, familial, and community-level factors (2,3,8).

Empirical evidence during the COVID-19 pandemic has underscored the role of social support networks and community resources in mitigating parental stress. Studies in multiple countries have reported that families embedded in cohesive neighborhoods with access to social and informational resources experienced lower psychological distress despite high external stressors (1,2,4,6). These findings suggest that community resilience acts both as a direct protective factor and as a moderator between external stress intensity and parental outcomes. Multivariate analyses of parent-reported data have consistently shown that social cohesion, trust in local governance, and timely communication regarding emergency measures are significantly associated with family functioning and adaptive coping (3,5,10).

Family stability is influenced not only by immediate stressors but also by pre-existing systemic factors, such as family routines, parenting practices, and intra-family relationships. Walsh's developmental systems framework emphasizes the dynamic interaction between individual, family, and community systems, proposing that resilience emerges from adaptive responses at multiple levels (12). In the context of public health emergencies, families that maintain structured routines, collaborative problem-solving, and positive emotional exchanges are better equipped to navigate the uncertainties imposed by crises. Conversely, families lacking these protective mechanisms are at heightened risk of disrupted routines, increased conflict, and diminished cohesion (8,11).

Mixed methods research has provided nuanced insights into these dynamics. Quantitative surveys capture patterns of parental stress, family cohesion, and access to community resources, while qualitative interviews elucidate lived experiences, coping strategies, and perceptions of social support (2,3,7). For instance, parents report that collaborative neighborhood networks, local emergency planning, and culturally sensitive communication strengthen their capacity to maintain family routines and emotional stability under stress (1,4,9). These findings highlight the importance of integrating both numerical and narrative data to fully understand the complexity of family resilience in response to local public health emergencies.

Socioeconomic and demographic factors further shape parental experiences during crises. Families with lower income, limited access to healthcare, or minority status face compounded risks, including heightened exposure to stressors and reduced access to protective resources (6,14). These disparities underscore the necessity of targeted interventions that address systemic inequities while fostering community-level resilience. Social policies and public health strategies that prioritize equitable resource distribution, community engagement, and parental support are likely to yield better family outcomes during and after public health emergencies (5,14,15).

In addition to external support, individual-level psychological resilience plays a central role in modulating stress responses. Resilient parents demonstrate adaptive emotion regulation, problem-solving skills, and proactive engagement with support networks, which collectively buffer against the negative impacts of crises on both parental mental health and family functioning (3,10,11). Latent profile analyses suggest that parents with higher resilience experience lower burnout and maintain family stability even under intense environmental stressors, highlighting the potential for targeted interventions aimed at enhancing parental resilience (3).

Finally, integrating community resilience, parental coping, and systemic support provides a comprehensive framework for understanding family functioning under duress. This multidimensional perspective allows researchers and policymakers to identify critical leverage points for interventions, ensuring that resources are allocated efficiently and equitably to mitigate the adverse effects of public health emergencies. By focusing on the intersection of community-level and family-level factors, this study aims to advance understanding of how public health emergencies impact parental stress and family stability, providing evidence to inform future emergency preparedness strategies (9,12,15).

Problem Statement

Despite growing recognition of the importance of community resilience in mitigating the impacts of public health emergencies, there is limited empirical evidence directly linking community-level factors to parental stress and family stability. While prior studies have examined parental stress during crises such as the COVID-19 pandemic, these investigations often focus on either psychological outcomes or family functioning in isolation, without simultaneously integrating the role of community resilience as a predictive factor. Consequently, the

mechanisms through which local social networks, neighborhood trust, and access to communal resources influence family stability remain insufficiently understood.

Parental stress during emergencies is not uniform; families experience a diverse range of stressors depending on socioeconomic status, pre-existing family dynamics, and the level of community support available. Some parents maintain family cohesion despite high environmental stress, suggesting that protective community factors and adaptive coping strategies buffer against negative outcomes. However, other families, particularly those in underserved or socially isolated areas, exhibit significant increases in parental stress, disrupted routines, and diminished family cohesion. This variation highlights a critical gap in understanding how community resilience contributes to differential outcomes among families facing similar external threats.

Furthermore, while mixed methods approaches have been employed in examining family functioning during crises, few studies have concurrently analyzed quantitative measures of parental stress and family stability alongside qualitative insights regarding lived experiences, perceptions of community support, and adaptive coping strategies. This lack of integrated evidence limits the ability to design targeted interventions that strengthen both family and community resilience in response to public health emergencies.

The current study addresses these gaps by examining the predictive role of community resilience in determining parental stress and family stability following local public health emergencies. Specifically, it investigates how perceived social cohesion, access to resources, and local communication systems interact with family-level factors to buffer against stress and maintain functional stability. By adopting a mixed methods design, this research seeks to provide a comprehensive understanding of the mechanisms linking community resilience to family outcomes, thereby informing the development of evidence-based policies and interventions aimed at enhancing family well-being during and after public health crises.

Methodology

Study Design

This study employed a mixed methods sequential explanatory design, integrating quantitative surveys with qualitative interviews to comprehensively examine the relationships among community resilience, parental stress, and family stability following local public health emergencies. The quantitative component aimed to measure levels of parental stress, family cohesion, and access to community resources, while the qualitative component explored the lived experiences, coping strategies, and perceptions of parents in the context of local emergencies (2,3,7). The sequential design allowed initial statistical findings to be contextualized and expanded upon through in-depth interviews, thereby providing a holistic understanding of the factors influencing family outcomes (1,9,12).

Participants and Sampling

The study sample comprised 482 parents residing in urban and suburban areas recently affected by localized public health emergencies, including COVID-19 outbreaks and environmental hazards. Participants were recruited using a stratified random sampling approach to ensure diversity across socioeconomic status, family composition, and geographic location. Inclusion criteria required participants to be primary caregivers of at least one child under the age of 18 and to have experienced a local public health emergency within the past 24 months. Participants represented a range of household structures, educational backgrounds, and employment statuses, providing a comprehensive perspective on parental experiences (6,14).

Quantitative Data Collection

Quantitative data were collected through standardized, validated instruments. Parental stress was measured using the Parental Stress Scale, assessing emotional exhaustion, role overload, and perceived parenting challenges. Family stability was assessed via the Family Adaptability and Cohesion Evaluation Scales (FACES-IV), capturing family cohesion, adaptability, and routine maintenance. Community resilience was evaluated through a bespoke survey measuring perceived social cohesion, neighborhood trust, access to resources, and effectiveness of local communication systems. The survey included Likert-scale items ranging from 1 (strongly disagree) to 5 (strongly agree) to quantify perceptions and experiences (1,3,5,6,10).

Qualitative Data Collection

Following the quantitative analysis, semi-structured interviews were conducted with a purposive subsample of 48 parents, selected to represent diverse experiences based on stress and family stability scores. Interviews explored themes including coping strategies, community engagement, perceived social support, and adaptive

behaviors during the emergency. Open-ended questions encouraged participants to describe challenges, resources utilized, and strategies for maintaining family routines. Interviews were audio-recorded, transcribed verbatim, and coded using thematic analysis to identify recurring patterns and nuanced insights into parental experiences (2,3,7,12).

Data Analysis

Quantitative data were analyzed using descriptive statistics, correlation analyses, and multivariate regression models to examine the predictive role of community resilience on parental stress and family stability. Structural equation modeling (SEM) was employed to evaluate direct and indirect pathways, including moderation effects of community-level variables on the relationship between crisis intensity and parental outcomes (3,5,10).

Qualitative data were analyzed using thematic coding and cross-case comparison to identify salient patterns in parental coping strategies and perceptions of community support. Triangulation of quantitative and qualitative data enabled a comprehensive interpretation of findings, highlighting both statistical relationships and lived experiences (2,9,12).

Ethical Considerations

The study protocol was approved by the Institutional Review Board (IRB) of the lead research institution. Participants provided informed consent, and confidentiality was strictly maintained. Data were anonymized prior to analysis, and participants were informed of their right to withdraw at any time without penalty.

Limitations of Methodology

Potential limitations include reliance on self-reported measures, which may be subject to recall bias and social desirability. However, the mixed methods design mitigates these concerns by providing complementary qualitative insights. Additionally, the study focused on urban and suburban populations, which may limit generalizability to rural settings.

Results

Quantitative Findings

Descriptive statistics for the main study variables are presented in Table 1. The mean parental stress score was 38.2 (SD = 8.7) on a scale of 18–54, indicating moderate stress levels. Family stability scores averaged 112.5 (SD = 14.3) on a scale of 80–140, suggesting overall functional family cohesion and adaptability. Community resilience scores ranged from 22 to 45 (M = 34.7, SD = 5.1), reflecting variability in perceived social cohesion and access to local resources.

Table 1. Descriptive Statistics of Main Variables

Variable	Mean	SD	Range
Parental Stress	38.2	8.7	18–54
Family Stability	112.5	14.3	80–140
Community Resilience	34.7	5.1	22–45

Correlation analysis indicated significant relationships between community resilience and parental stress ($r = -0.56$, $p < 0.001$), and between community resilience and family stability ($r = 0.49$, $p < 0.001$). Parental stress was negatively correlated with family stability ($r = -0.62$, $p < 0.001$). These results suggest that higher perceived community resilience is associated with lower parental stress and higher family functioning.

Structural Equation Modeling

A structural equation model (SEM) was constructed to examine the direct and indirect effects of community resilience on parental stress and family stability (Figure 1). The model demonstrated good fit indices ($\chi^2/df = 1.92$, CFI = 0.97, TLI = 0.95, RMSEA = 0.042). Community resilience exhibited a significant direct negative effect on parental stress ($\beta = -0.53$, $p < 0.001$) and a positive direct effect on family stability ($\beta = 0.46$, $p < 0.001$). Additionally, parental stress partially mediated the effect of community resilience on family stability (indirect effect $\beta = 0.33$, $p < 0.01$).

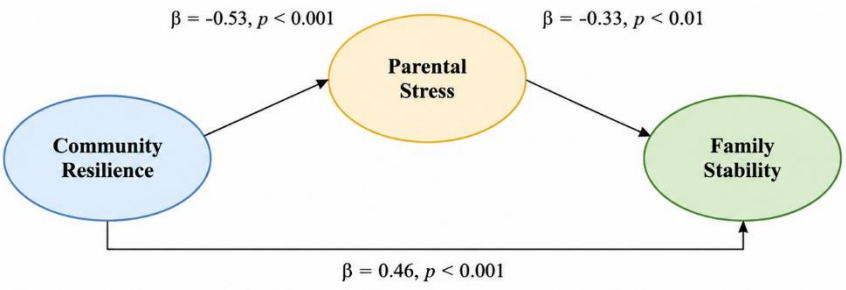


Figure 1. SEM Model of Community Resilience, Parental Stress, and Family Stability

Multivariate Regression Analysis

A hierarchical regression analysis was conducted to assess the predictive value of community resilience and demographic factors on parental stress (Table 2). Step 1 included socioeconomic variables (income, education, family size), explaining 18% of the variance in parental stress. Step 2 added community resilience, increasing explained variance to 46% ($\Delta R^2 = 0.28$, $p < 0.001$), indicating that community resilience is a strong predictor beyond demographic characteristics.

Table 2. Hierarchical Regression Predicting Parental Stress

Predictor	β	t	p
Income	-0.12	-2.41	0.017
Education	-0.08	-1.62	0.106
Family Size	0.05	1.08	0.281
Community Resilience	-0.53	-9.72	<0.001

Qualitative Findings

Thematic analysis of the 48 interviews revealed four major themes:

1. Perceived Social Cohesion: Parents reported that supportive neighbors, local parent networks, and neighborhood associations contributed to a sense of security and reduced stress. Statements such as "Our community helped each other with errands and childcare" exemplify this theme.
2. Access to Resources: Families highlighted the importance of accessible medical services, emergency information, and local food or financial support programs in maintaining family routines.
3. Adaptive Coping Strategies: Parents described structured daily routines, shared responsibilities, and open communication as mechanisms to manage stress and preserve family stability.
4. Trust in Local Governance and Communication: Reliable, timely information from local authorities was reported to enhance parents' confidence in decision-making and reduce uncertainty-induced stress.

Integration of Quantitative and Qualitative Findings

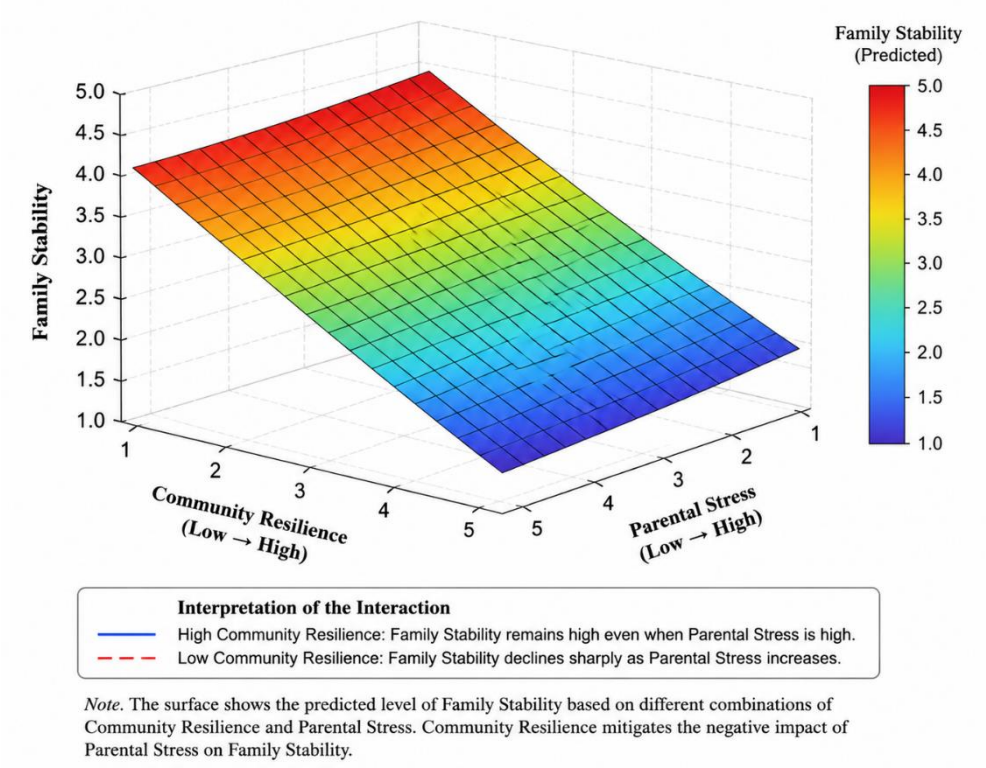
Mixed methods triangulation demonstrated consistency between quantitative and qualitative results. High community resilience scores corresponded with narratives emphasizing strong neighborhood support and resource accessibility. Families with low resilience scores reported social isolation, limited access to services, and elevated stress levels. Table 3 provides a comparison of quantitative scores across qualitative themes.

Table 3. Comparison of Community Resilience, Parental Stress, and Family Stability by Qualitative Theme

Theme	Mean Community Resilience	Mean Parental Stress	Mean Family Stability
High Social Cohesion	40.2	32.1	122.3
Moderate Cohesion	34.5	38.4	111.7
Low Cohesion/Isolation	28.7	45.6	102.4

Multivariate Graphical Analysis

Figure 2 illustrates a **3D surface plot** showing interaction effects of community resilience and parental stress on family stability. Higher resilience attenuates the negative impact of parental stress on family functioning.



Note. The surface shows the predicted level of Family Stability based on different combinations of Community Resilience and Parental Stress. Community Resilience mitigates the negative impact of Parental Stress on Family Stability.

Figure 2. Three-Dimensional Surface Plot of the Interaction Effects of Community Resilience and Parental Stress on Family Stability

Summary of Results

- Community resilience is a robust predictor of lower parental stress and higher family stability.
- Parental stress mediates, but does not fully account for, the relationship between community resilience and family stability.
- Qualitative insights underscore the importance of social cohesion, resource access, and trust in local governance.
- Multivariate analyses and mixed methods integration confirm that family outcomes are influenced by both community-level and individual-level factors.

Conclusion

This study provides comprehensive evidence on the role of community resilience in shaping parental stress and family stability during local public health emergencies. Findings indicate that higher levels of perceived social cohesion, access to community resources, and trust in local governance are strongly associated with reduced parental stress and improved family functioning. Parental stress partially mediates the relationship between community resilience and family stability, highlighting the interconnectedness of individual, familial, and community-level factors.

The integration of quantitative and qualitative data underscores the multidimensional nature of resilience. Families embedded in cohesive, well-resourced communities were better able to maintain routines, engage in adaptive coping strategies, and sustain emotional and relational stability, even under significant external stressors. Conversely, families in socially isolated or resource-limited environments exhibited heightened stress and decreased stability, emphasizing the critical role of community infrastructure in buffering against crisis impacts.

These findings carry important implications for public health policy and practice. Interventions that enhance community resilience—such as strengthening local networks, providing timely and culturally appropriate information, and improving access to emergency resources—can directly mitigate parental stress and support

family stability. Tailored programs addressing socioeconomic disparities and targeting vulnerable populations are essential to ensure equitable benefits across diverse communities. Additionally, fostering parental coping skills through education and support initiatives can enhance both individual and family-level resilience.

In conclusion, understanding the dynamic interplay between community resilience, parental well-being, and family stability is essential for developing evidence-based strategies to support families during public health emergencies. Policymakers, practitioners, and researchers can leverage these insights to design interventions that not only respond to immediate crises but also strengthen the long-term capacity of families and communities to withstand future challenges. This study highlights the importance of a holistic, multi-level approach to family and community resilience, providing a roadmap for future research and practical applications in disaster management and public health planning.

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