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A Systems Approach to Understanding How Poverty and Parental Stress Contribute to Family Trauma

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Abstract

Poverty, parental pressure and family trauma are not isolated issues but are a combination of processes that determine the way families operate. A mixed-method sequence explanatory research design was used in this study in the investigation of the interactions of these dynamics in the ecological structures of families where 342 households were selected both with urban and rural setting with various economic statuses. During the quantitative stage, standardized measures like the parental Stress Index, economic Hardship Scale, and Family Trauma Assessment were used, and the structural equation modeling was applied in order to analyze the direct and indirect relationships. The qualitative stage entailed semi-structured interviews of 45 purposely chosen families, which were examined through a system based thematic framework. Findings indicated three interdependent loop interactions that displayed nonlinear and reciprocal interactions: poverty increased parental stress (= 0.58, p ¡ = 0.001), the presence of stress increased family trauma (= 0.47, p ¡ = 0.001), and family trauma further exposed economic insecurity by creating job disruptions and cost of living. The analysis of mediation showed that the relationship between trauma and poverty was explained by parental stress to approximately 43 percent. The responses of the interviews shed light on experiences of families living with the pressures that were already there, the patterns of stressed-out situations, and the sense-making processes of struggling. Significantly, family social support and resilience were buffers and minimized the intensity of adverse outcomes. The study proposed an advanced systems model by combining the two data strands in such a way that the challenges occur as interacting and self-reinforcing mechanisms on the family environment. The results highlight the significance of pervasive interventions and family-based policies that would simultaneously include addressing the issues of economic hardship and reinforcing coping resources to disrupt distress cycles.

Keywords: Socioeconomic Circumstances; Family Trauma; Parental Stress; Poverty Dynamics; Integrated Intervention Techniques

1. Introduction

The connection between the economic deprivation and family well-being has been an issue of research, policy and practice in various fields in both scholarly and practitioner communities, but our comprehension of the manner in which poverty manifests as the source of psychological and relationship damages is still maddeningly partial. Although much data is available that captures the relationships between financial distress and poor family outcomes, the channels by which economic conditions trickle down family systems to generate trauma are yet to be theorized, and carefully studied empirically. Conventional method of research has been disposed to the study of poverty, parental stress and family trauma as individual variables in linear causal sequences that cannot be viewed as dynamically related, reciprocating and systemic relations as they occur in actual families going through actual adversity.

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The problem of family poverty in contemporary societies is a time-based social epidemic in health, which is rampant in human existence in its current manifestation of the events of the world. The latest estimates estimated the figures at approximately 10.5 percent of families in the developed world and much higher percentages in the developing environment as those who continually struggle to endure economic hardships [1]. These figures, dramatic as they are, convey little about the sheer wonder of poverty or the experience of a sort, about the accession of stressors, the day in day out calculations of conflicting demands, the despondency of a hope that long material deprivation brings. Economic hardship does not just happen to be a deprivation of financial assets, but it remains a constant instigator, which influences every field of the family life, imposes a constraint on the decision-making alternatives and basically alters the circumstances in which the children develop [2,3].

Parental stress, in its turn, has now become a significant moderating factor in family functioning research studies. Even under perfect circumstances the demands of contemporary parenting can exert pressure on the psychological resources and bring the ability to cope under stress. This kind of stress on parents with economic insecurity becomes an even greater crucible, which entails what researchers termed, through some design, as toxic stress environments wherein stress response mechanisms are hyper stimulated with an inadequate amount of relaxation between them [4]. Less parenting consistency, emotionally unavailable, recently reacted parents: under the influence of stress-induced prevailing and chronic conditions, parents demonstrate a style of parenting which, in turn shifts family emotional climates and patterns of development [5, 6]. But the pressure of the parents is not only being in vacuum and it is a byproduct of interactions between individual weaknesses, family dynamics as well as more general socioeconomic influences.

Family trauma is the greatest impact of these opposing strains. Compared to personal trauma, family trauma is qualitative, since it destroys the relationships, the pattern of communication as well as the fundamental sense of safety at which families are supposed to serve [7].. Family trauma is not just about specific traumatic experiences but it also includes the general effect resulting in continuous trauma and negative relationships and other forms of transgenerational transfer of traumatic stress reactions [8].Once families have undergone trauma, whether within the form of violence, loss, and displacement or within the weight of a relentless barrage of stress, complete family systems restructure in response to survival and threat management, which results in massive loss to individual growth and the integration of the family [9].

The only thing that is yet to be comprehensively learn is the exact interaction of these three phenomena poverty, parental stress, and family trauma on a systemic level in the long-run. Do they follow predictable sequential pathways, or do they operate through complex feedback loops that amplify and perpetuate distress? How do families experiencing these intersecting adversities make meaning of their circumstances, and what protective processes enable some families to maintain functioning despite overwhelming challenges? Traditional research designs, with their emphasis on unidirectional causation and statistical control of confounding variables, have struggled to capture the dynamic complexity inherent in these questions.

The limitations of existing research become apparent when we consider several persistent gaps in the literature. First, most studies examining poverty and family functioning have employed cross-sectional designs that provide snapshots of associations but cannot illuminate the temporal unfolding of systemic processes [10]. Second, research has tended to fragment these phenomena, with poverty researchers, parenting scholars, and trauma specialists often working in relative isolation from one another, producing parallel literatures that rarely integrate [11]. Third, the heterogeneity in family experience and reactions to adversity has been prevented by the dominant use of approaches that focus on variables, in which all the families below the poverty line are viewed as the same and much of the within-group variation is overlooked [12].

Another framework that can give a good explanation of these phenomena is systems theory. Instead of defining poverty, stress, and trauma as cause-and-effect processes, a systems approach considers families to be complex adaptive systems with reciprocal causation, feedback loops, emergence, and self-organization [13]. In this perspective, it is not only poverty that leads to stress, which consequently leads to trauma; rather, these two components are interconnected in overlapping ecological realms, and their interaction has results that cannot be forecasted using information about individual parts only [14]. Economic hardship may intensify parental stress, but parental stress also affects employment stability and economic decision-making. Trauma disrupts family functioning, but disrupted functioning also increases vulnerability to traumatic experiences. These circular processes create either vicious cycles that amplify distress or virtuous cycles that promote resilience, depending on the presence or absence of protective factors [15].

The integration of multiple systems theories including general systems theory, family systems theory, ecological systems theory, and family stress theory provides a comprehensive framework for examining these complex

relationships. Bronfenbrenner's ecological systems model reminds us that family poverty exists within broader macrosystem contexts of economic inequality, social policy, and cultural values, while simultaneously affecting microsystem interactions between parents and children [16]. Family systems theory, particularly Bowen's concepts of emotional triangles and multigenerational transmission, illuminates how stress and trauma reverberate through family structures and relationships [17]. The Double ABC-X model of family stress and adaptation offers insight into how families appraise and respond to pile-ups of stressors, with crisis emerging when demands exceed resources and coping capabilities [18].

Several theoretical propositions guide this inquiry. First, we propose that poverty, parental stress, and family trauma form a mutually reinforcing system characterized by positive feedback loops that can rapidly escalate distress in the absence of intervention.

Second, we suggest that the strength and nature of relationships among these variables depend on moderating factors operating at multiple ecological levels, including individual resilience, family cohesion, social support networks, and community resources. Third, we hypothesize that families actively construct meaning around their experiences of adversity, and these meaning-making processes influence whether families become trapped in destructive cycles or find pathways toward adaptation and recovery.

The present study addresses these gaps through a mixed-methods sequential explanatory design that combines the strengths of quantitative modeling and qualitative inquiry. By employing structural equation modeling, we can map the complex web of direct and indirect relationships among poverty, parental stress, and family trauma, identifying mediating processes and moderating influences. Through in-depth interviews with families, we can understand the lived experience of these systemic processes, capturing family members' own understandings of how economic, psychological, and relational factors intersect in their daily lives. The integration of these approaches promises a more complete and nuanced understanding than either method alone could provide.

This research holds significant practical implications. If poverty, parental stress, and family trauma indeed operate systemically through feedback loops and reciprocal processes, then intervention strategies must become correspondingly systemic. Point interventions targeting isolated variables may prove insufficient if other elements of the system perpetuate distress. Conversely, identifying key leverage points within these systems—factors that exert disproportionate influence on overall functioning—could enable more efficient and effective interventions. Understanding protective factors that moderate negative trajectories could inform prevention efforts aimed at building family resilience before crises emerge.

The aims of this study are threefold. First, we seek to quantitatively model the direct and indirect relationships among poverty, parental stress, and family trauma, examining mediation and moderation effects to understand the mechanisms through which these factors influence one another. Second, we aim to qualitatively explore families' lived experiences of these intersecting adversities, understanding how family members perceive connections among economic circumstances, stress, and traumatic experiences. Third, we endeavor to integrate quantitative and qualitative findings to develop an enhanced systems model that captures both the statistical relationships and the subjective meanings characterizing these complex phenomena. To accomplish these aims, we have organized this article into six main sections. Following this introduction, we present the theoretical framework integrating multiple systems perspectives. We then describe our mixed-methods approach in detail, followed by presentation of quantitative and qualitative results. The discussion synthesizes findings across methods, considers theoretical and practical implications, and acknowledges study limitations. We conclude with reflections on the necessity of systems-oriented approaches to family adversity and directions for future research.

2. Theoretical Framework

The complexity of relationships among poverty, parental stress, and family trauma demands a theoretical framework capable of accommodating nonlinearity, reciprocal causation, and emergent phenomena. No single theoretical perspective adequately captures this complexity; instead, we draw upon and integrate multiple systems-oriented theories to construct a comprehensive conceptual foundation. This integration acknowledges that families operate simultaneously as psychological entities, social units, and economic actors embedded within broader ecological contexts.

2.1. General Systems Theory

General systems theory, articulated by Ludwig von Bertalanffy in the mid-twentieth century, provides fundamental principles applicable across diverse phenomena from biological organisms to social organizations [19]. Several core principles prove particularly relevant for understanding family adversity. The principle of wholeness asserts that systems cannot be fully understood through analysis of component parts in isolation; emergent properties arise from the interactions among elements that are not predictable from knowledge of those elements alone. In family contexts, this suggests that understanding poverty, stress, and trauma separately cannot reveal how their interaction produces family functioning outcomes.

The concept of equifinality—the observation that systems can reach similar end states through different pathways—helps explain the heterogeneity in how families experience and respond to adversity. Two families facing comparable economic circumstances may follow entirely different trajectories depending on initial conditions, family histories, and contextual factors. Conversely, the principle of multifocality suggests that similar initial conditions can produce divergent outcomes, explaining why some families experiencing poverty develop traumatic patterns while others demonstrate remarkable resilience.

Systems are characterized by boundaries that regulate the flow of information and resources between the system and its environment. Family boundaries vary in their permeability, with some families operating as relatively closed systems that resist external input and others maintaining open, flexible boundaries that enable resource exchange with extended family, friends, and community institutions [20]. The nature of family boundaries influences vulnerability to poverty-related stress and capacity to access protective resources.

2.2. Family Systems Theory

Family systems theory, developed through the clinical work of pioneers like Murray Bowen, Salvador Minuchin, and Jay Haley, conceptualizes families as organized relational units governed by implicit rules, communication patterns, and structural arrangements [21]. Bowen's concept of differentiation of self—the capacity to maintain individual identity while remaining emotionally connected to family—becomes compromised under chronic stress, leading to fusion, emotional reactivity, and dysfunction [22]. The lack of financial means usually leads to a level of differentiation because survival instincts win the battle at the cost of individual needs, and family members are entangled in anxiety.

Triangulation is a concept that is especially applicable in the study of circulation of stress within the family systems. Once the dyadic relationships are engulfed in anxiety or conflict, families tend to add a third party to stabilize the system. In this case, children tend to parentify or scapegoat [23]. Triangulation patterns can be enhanced in the families of living under poverty because parents find it difficult to cope with their distress and retain parental roles.

The family system is homeostatically driven which seeks to attack change to create a balance. This homeostasis may be adaptive to give a state of stability and predictability or maladaptive in that the dysfunctional patterns are perpetuated. Homestatic processes surrounding poverty and stress may evolve in families in predictable and destructive patterns of interaction, which may be maintained regardless of the original conditions [24]. To disrupt these patterns, it is necessary to break the homeostatic processes and at this, families usually disagree with it even in cases when the system is better off with the change.

2.2.1. Ecological Systems Theory

Bronfenbrenner's ecological systems theory situates individual and family development within nested environmental contexts, from immediate settings (microsystem) to broader social and cultural systems (macrosystem) [25].This framework proves indispensable for contextualizing poverty, which operates simultaneously as a microsystem stressor affecting daily parent-child interactions, a mesosystem factor influencing connections among family, school, and work settings, an exosystem variable reflecting employment conditions and social policies, and a macrosystem phenomenon rooted in economic structures and cultural ideologies about poverty and social mobility.

The chronosystem dimension captures how environmental contexts and their influences change over developmental time and historical periods [26]. Economic circumstances fluctuate across individual and family lifecycles, with periods of acute crisis alternating with relative stability. Historical contexts matter profoundly—the experience of poverty during economic recession differs from poverty during periods of growth, just as the meaning of poverty varies across cultural and national contexts [27].

2.2.2. Ecological systems theory emphasizes the importance of connections among contexts.

The mesosystem concept—relationships between microsystems such as family, school, and work—highlights how stress in one domain spills over into others. Parents experiencing workplace stress bring that stress home, affecting family interactions, while family trauma may impair work performance and economic stability. These interconnections create systemic feedback loops where problems in one context amplify difficulties in others [28].

2.3. Family Stress Theory

Hill came up with the ABC-X model of family stress, which McCubbin and Patterson later developed into the Double ABC-X model to offer an insight into the manner in which families react to stressors and crises [29].In this model, A represents the stressor event or demand, B captures family resources available for coping, C reflects the family's perception or appraisal of the situation, and X represents the outcome—crisis or adaptation. The Double ABC-X model extends this framework to address the pile-up of stressors over time (aA), the depletion and acquisition of resources (bB), and the evolution of perceptions as situations unfold (cC), recognizing that family stress is rarely a single event but rather an accumulating process [30].

Poverty is a chronic stressor- a persistent need that overproportions the family's resources in more than one area at a time. Unlike acute stressors that spike and resolve, chronic stressors erode coping capacities through sustained demands without adequate recovery periods. This chronicity fundamentally changes the stress experience, as families exhaust psychological, social, and material resources while facing unremitting pressures [31].The pile-up phenomenon becomes particularly salient, as poverty rarely occurs in isolation but typically co-occurs with housing instability, food insecurity, health problems, and social marginalization.

Family resources (B factor) encompass economic resources, certainly, but also social support, problem-solving skills, family cohesion, and community connections. The adequacy of resources relative to demands determines whether families successfully manage stressors or experience crisis. Importantly, poverty directly depletes the very resources needed to cope with poverty-related stress, creating a destructive cycle where diminished resources lead to poorer coping, which produces worse outcomes, which further depletes resources [32].

Family appraisal processes (C factor) profoundly influence stress responses. How families make meaning of their economic circumstances whether they perceive poverty as temporary or permanent, surmountable or overwhelming, shameful or unjust shapes emotional responses and coping strategies. These appraisals are not purely individual cognitive processes but emerge through family communication and interaction, influenced by cultural narratives and social discourses about poverty and deservingness [33].

2.4. Trauma Systems Theory

Understanding trauma in family contexts requires moving beyond individualistic conceptualizations to recognize how trauma affects entire family systems. Cook and colleagues describe how traumatic stress disrupts attachment relationships, emotional regulation, and meaning-making processes at both individual and family levels [34].When family members experience trauma whether discrete events like violence or loss, or cumulative trauma from chronic adversity the entire family system must reorganize to accommodate traumatic stress responses.

The concept of intergenerational trauma transmission has gained increasing empirical support, with evidence suggesting that traumatic stress can be transmitted across generations through multiple pathways, including altered parenting behaviors, disrupted attachment patterns, and possibly epigenetic mechanisms [35, 36]. Parents who experienced trauma in their own childhoods may struggle with emotional regulation, hypervigilance, or dissociation in ways that profoundly affect parenting capacity and children's sense of security. These intergenerational patterns can perpetuate cycles of trauma across multiple generations, particularly in contexts where each generation faces similar environmental stressors [37].

Trauma fundamentally alters how family systems process information and respond to threat. Families may develop hypervigilant scanning of the environment, interpreting ambiguous situations as dangerous, or conversely may develop dissociative processes that numb awareness of danger [38]. Communication patterns may become constricted, with certain experiences or emotions becoming unspeakable within the family. Children in traumatized families often take on roles as protectors or caretakers, parentified beyond their developmental capacities in attempts to stabilize distressed parents [39].

2.5. Integrated Conceptual Model

The integration of these theoretical perspectives yields a comprehensive conceptual model, illustrated in Figure 1, that captures the complex systemic relationships among poverty, parental stress, and family trauma. This model proposes multiple direct and indirect pathways through which these factors influence one another, mediated by intervening processes and moderated by protective and risk factors operating at individual, family, and community levels.

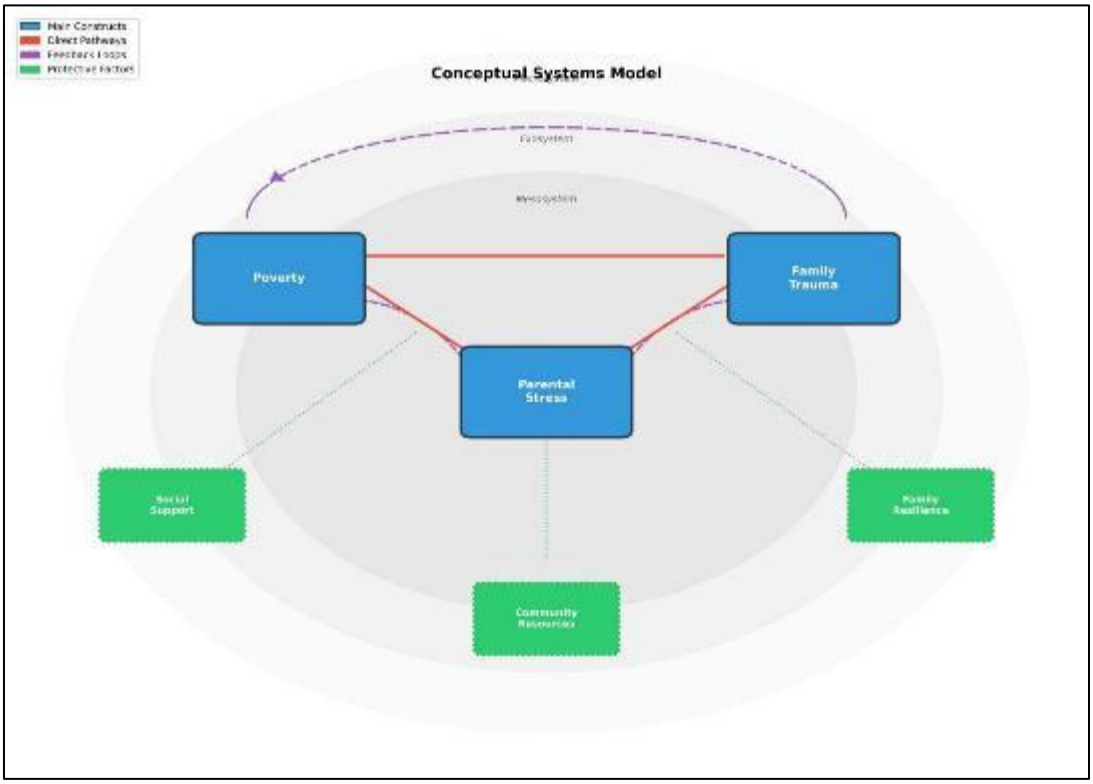

Figure 1 Conceptual systems model depicting hypothesized relationships among poverty, parental stress, and family trauma, including direct pathways, feedback loops, mediating mechanisms, and moderating influences operating within nested ecological contexts

As depicted in Figure 1, poverty exerts direct effects on both parental stress and family trauma while also operating indirectly through parental stress as a mediating mechanism. Parental stress, in turn, increases vulnerability to family trauma through compromised emotional regulation, reduced parenting consistency, and elevated family conflict. Critically, the model incorporates reciprocal pathways: family trauma feeds back to intensify both parental stress and economic instability through mechanisms such as increased healthcare costs, disrupted employment, and depletion of social support networks.

The model identifies three primary feedback loops that can amplify system distress. Loop 1 connects poverty to parental stress to family trauma and back to poverty through trauma-related economic impacts. Loop 2 involves poverty directly intensifying family trauma (through mechanisms like housing instability or exposure to community violence), which then exacerbates parental stress as parents attempt to help traumatized children or cope with their own traumatic responses. Loop 3 captures direct reciprocal relationships between parental stress and family trauma, where stress increases trauma vulnerability while trauma intensifies stress responses.

Protective factors moderate these pathways at multiple points in the system. Social support networks can buffer the impact of poverty on parental stress, family resilience can moderate the relationship between stress and trauma, and community resources can interrupt the feedback from trauma back to economic instability. These moderators operate at different ecological levels, from individual psychological resources to family processes to community and societal factors, consistent with the ecological systems framework.

The model further recognizes that these processes unfold within nested ecological contexts and across developmental time (chronosystem). The strength and nature of relationships among poverty, stress, and trauma likely vary across

developmental periods, with particular vulnerability during transitions such as the birth of children, school entry, or adolescence. Historical and cultural contexts shape both the experience of poverty and the availability of protective resources.

This integrated conceptual model generates several testable hypotheses that guide the empirical investigation reported in subsequent sections. We hypothesize that (H1) poverty will demonstrate significant direct effects on both parental stress and family trauma; (H2) parental stress will partially mediate the relationship between poverty and family trauma; (H3) reciprocal pathways will exist, with family trauma predicting increases in both parental stress and economic hardship; (H4) social support and family resilience will moderate key pathways, reducing the strength of negative relationships; and (H5) qualitative exploration will reveal that families perceive these systemic interconnections and can articulate how economic, psychological, and relational factors interact in their lived experience.

3. Method

3.1. Research Design

This study employed a mixed-methods sequential explanatory design, a two-phase approach in which quantitative data collection and analysis precede qualitative inquiry designed to help explain and elaborate quantitative findings [40]. This design was selected because neither quantitative nor qualitative methods alone could adequately address the research questions. Quantitative approaches enable systematic examination of relationships among variables across a sizable sample, identification of mediating and moderating processes, and generalization of findings. Qualitative methods provide depth, nuance, and access to subjective experiences and meaning-making processes not captured by standardized measures. The sequential structure, with qualitative inquiry following quantitative analysis, allowed us to use preliminary quantitative findings to inform qualitative interview protocols and participant selection, ensuring that qualitative inquiry addressed areas requiring deeper explanation or where quantitative findings raised new questions.

3.2. Participants and Sampling

3.2.1. Quantitative Phase

Participants for the quantitative phase were recruited through multiple channels to ensure sample diversity. We collaborated with community organizations, family service agencies, pediatric clinics, and schools serving diverse communities across urban and rural contexts. Inclusion criteria specified families with at least one child between ages 3 and 17 residing in the home, and at least one parent or primary caregiver willing to participate. We deliberately sampled families across the economic spectrum, from those experiencing deep poverty to middle-income families, to ensure adequate variance in economic hardship measures and enable examination of relationships across socioeconomic contexts.

Power analysis for structural equation modeling, conducted using simulation methods in R, determined that a sample of 300 participants would provide 0.80 power to detect medium-sized effects ($\beta = 0.30$) with $\alpha = 0.05$. We oversampled to account for missing data and potential attrition, ultimately recruiting 342 families. Table 1 presents demographic characteristics of this sample.

Table 1 Demographic Characteristics of Quantitative Sample (N = 342)

Characteristic	**n**	**%**
Primary Caregiver Gender Female	289	84.5
Male	48	14.0
Non-binary/Other	5	1.5
Primary Caregiver Age (years) 18-29	67	19.6
30-39	158	46.2
40-49	92	26.9
50+	25	7.3
Family Structure Two-parent household	201	58.8
Single-parent household	118	34.5
Multigenerational	23	6.7
Number of Children 1	98	28.7
2	147	43.0
3+	97	28.4
Household Income Below poverty line	112	32.7
100–200% poverty line	98	28.7
200–400% poverty line	87	25.4
Above 400% poverty line	45	13.2
Geographic Context Urban	203	59.4
Suburban	89	26.0
Rural	50	14.6
Primary Caregiver Education Less than high school	34	9.9
High school/GED	89	26.0
Some college	112	32.7
Bachelor's degree	71	20.8
Graduate degree	36	10.5

As Table 1 indicates, the sample was predominantly female primary caregivers, reflecting the reality that mothers typically serve as primary respondents in family research. The sample included substantial representation of families experiencing economic hardship, with nearly one-third below the federal poverty line and an additional 29% in the near-poor category. Geographic diversity was adequate though urban families were overrepresented, a common challenge in family research given the concentration of research infrastructure in urban areas.

3.3. Qualitative Phase

Following quantitative analysis, we employed purposive maximum variation sampling to select 45 families for qualitative interviews. Selection criteria emphasized diversity across key dimensions including socioeconomic status, family trauma experiences, parental stress levels, and the presence or absence of social support and resilience factors. We deliberately oversampled families at the extremes—those demonstrating high stress and trauma despite moderate economic hardship, and those showing resilience despite severe poverty—to understand protective and risk processes. We also ensured representation of different family structures, racial/ethnic backgrounds, and geographic contexts.

3.4. Data Collection Procedures

3.4.1. Quantitative Measures

Economic hardship was assessed using the Economic Hardship Scale, a multidimensional measure capturing subjective economic stress beyond simple income levels [41]. This 24-item scale includes subscales assessing financial strain (" difficulty making ends meet"), economic adjustments (cutting back on necessities), and perceived economic trajectory (expectations about future financial circumstances). Participants rated items on 5-point scales, with higher scores indicating greater hardship. The scale has demonstrated excellent reliability ($\alpha = 0.91$) and validity in diverse samples. In this sample, internal consistency was $\alpha = 0.89$.

Parental stress was measured with the Parental Stress Index, Fourth Edition (PSI-4), a widely-used and well-validated 120-item instrument assessing stress in the parent-child relationship [42]. The PSI-4 yields subscale scores for Child Domain stress (related to child characteristics), Parent Domain stress (related to parent functioning), and Total

Stress. For this study, we utilized the Total Stress score as our primary indicator, supplemented by subscale analysis. Reliability and validity evidence is extensive, with test-retest reliability above 0.80 and demonstrated sensitivity to intervention effects. Internal consistency in this sample was $\alpha = 0.93$.

Family trauma was assessed using a composite approach combining standardized measures and clinical indicators. We utilized the Adverse Childhood Experiences (ACE) questionnaire to capture exposure to potentially traumatic events, including abuse, neglect, household dysfunction, and community violence [43].We supplemented this with the Trauma Symptom Checklist (TSC), which assesses trauma-related symptoms across multiple domains including anxiety, depression, dissociation, and anger/aggression [44].Additionally, we included items assessing family-level trauma indicators such as sudden loss, violent events affecting the family, and displacement. These measures were combined into a family trauma severity index with adequate reliability ($\alpha = 0.87$).

Social support was measured with the Multidimensional Scale of Perceived Social Support, a 12-item instrument assessing perceived support from family, friends, and significant others [45]. Family resilience was assessed using the Family Resilience Assessment Scale, which captures family belief systems, organizational patterns, and communication processes associated with resilience [46]. Both measures demonstrated good reliability in this sample ($\alpha = 0.91$ and $\alpha = 0.88$, respectively).

Demographic information was collected through a structured questionnaire assessing family composition, income and employment, education, housing stability, health insurance status, and other socioeconomic indicators. We also collected information about service utilization and previous trauma or mental health treatment.

Quantitative data were collected through in-person or online survey administration depending on participant preference, with research assistants available to answer questions and ensure comprehension. Data collection occurred between September 2022 and March 2023.

3.5. Qualitative Methods

Qualitative interviews were conducted between April and August 2023, after preliminary quantitative analysis had been completed. Interviews were semi-structured, guided by a protocol developed from the theoretical framework and informed by quantitative findings, but flexible enough to follow participants' narratives and emerging themes. The protocol included open-ended questions exploring families' experiences of economic circumstances, sources and manifestations of parental stress, traumatic experiences and their impacts, perceptions of relationships among these factors, meaning-making processes, coping strategies, and sources of support and resilience.

Interviews were conducted in participants' homes or locations of their choosing, typically lasting 90 to 120 minutes. When possible and appropriate, we interviewed multiple family members to capture diverse perspectives, though primary caregivers were always included. Interviews were audio-recorded with permission and transcribed verbatim. Field notes documented observations of family interaction patterns, home environment, and nonverbal communication.

3.6. Data Analysis

3.6.1. Quantitative Analysis

Quantitative analysis proceeded in stages, beginning with preliminary descriptive analyses to characterize the sample and examine distributions of key variables. We examined normality, outliers, and missing data patterns. Missing data were minimal (less than 5% on any variable) and appeared to be missing completely at random based on Little's MCAR test, so we employed multiple imputation to handle missing values [47].

Correlation and regression analyses examined bivariate relationships and provided initial tests of hypothesized pathways. Hierarchical multiple regression examined how poverty and parental stress predicted family trauma while controlling for demographicovariates.

The primary analytical approach employed structural equation modeling (SEM) using Mplus software. SEM allows simultaneous estimation of multiple relationships, accommodation of measurement error, and testing of direct and indirect effects [48]. We developed a measurement model specifying latent constructs and their indicators, then tested the structural model depicted in the theoretical framework. Model fit was evaluated using multiple indices including chi-square statistic, comparative fit index (CFI), Tucker-Lewis's index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR), with conventional cutoffs indicating adequate fit [49].

Mediation analysis examined whether parental stress mediated relationships between poverty and family trauma, using bootstrap procedures to generate confidence intervals for indirect effects [50]. Moderation analysis tested whether social support and family resilience altered the strength of key pathways, conducted through multi-group SEM and interaction term approaches.

3.6.2. Qualitative Analysis

Qualitative analysis employed thematic analysis following Braun and Clarke's recursive six-phase approach [51]. Analysis began with repeated reading of transcripts to achieve immersion and familiarity, followed by initial coding, generating descriptive codes close to the data. We employed both semantic coding, capturing surface meanings, and latent coding, interpreting underlying assumptions and conceptualizations.

Codes were organized into candidate themes representing patterns of meaning across the dataset. These initial themes were reviewed against coded extracts and the entire dataset to ensure coherence and distinctiveness. Themes were defined and refined through team discussion and consultation with the theoretical framework, ensuring alignment with research questions while remaining grounded in participant narratives. Throughout the analysis, we maintained attention to the systemic nature of phenomena, coding for interconnections, feed-back processes, and emergent patterns beyond individual factors.

To enhance rigor, three researchers independently coded a subset of transcripts, compared coding, discussed discrepancies, and refined the coding framework. Inter-coder agreement exceeded 85% for major themes. NVivo software facilitated data management and retrieval. Analysis remained iterative, with later interviews informed by emerging themes and analytic insights.

3.6.3. Integration

Integration of quantitative and qualitative findings occurred at multiple levels. We developed joint display tables juxtaposing quantitative results with qualitative themes to identify convergence, divergence, and complementarity [52]. Qualitative findings were used to explain and elaborate quantitative results, particularly regarding mechanisms underlying statistical relationships. We also employed qualitative insights to refine and enhance the conceptual model, adding nuance and complexity not captured in the initial quantitative model. The integration aimed to produce meta-inferences—conclusions drawn from synthesized findings that exceed what either method alone could achieve.

3.7. Ethical Considerations

This research received approval from the Institutional Review Board at [Institution]. Given the sensitive nature of questions about trauma, poverty, and family stress, extensive attention was devoted to ethical research conduct. Informed consent procedures ensured participants understood research purposes, procedures, risks, and benefits, with emphasis on voluntary participation and right to withdraw. Consent forms were available in multiple languages, and research staff were trained in trauma-informed consent processes.

Participants received modest compensation ($50 for the quantitative survey, $75 for qualitative interview) acknowledging their time and contribution. We provided resource lists connecting families to relevant services, and research staff were trained to recognize signs of acute distress requiring referral.

Data security measures included encrypted storage, de-identification procedures, and restricted access. Particular care was taken to protect participant privacy, given the stigmatized nature of poverty and trauma experiences. All study materials and procedures incorporated trauma-informed principles, recognizing that research participation itself could potentially trigger trauma responses.

4. Results

4.1. Quantitative Findings

4.1.1. Descriptive Statistics and Correlations

Table 2 presents descriptive statistics and correlations among primary study variables. As anticipated, all three focal variables—poverty, parental stress, and family trauma—demonstrated substantial variability, indicating success in recruiting a diverse sample. Economic hardship scores ranged from 24 to 108 (possible range 24-120), with a mean of 61.3 (SD = 24.7), indicating that while many families experienced significant hardship, considerable variation existed. Parental stress scores similarly showed wide dispersion (M = 258.6, SD = 68.9, range 120-432 on a possible range of 120-600). Family trauma scores averaged 34.2 (SD = 18.7) on our composite measure, with some families reporting minimal trauma exposure and others reporting extensive traumatic experiences.

Table 2 Descriptive Statistics and Correlations Among Study Variables (N = 342)

Variable	M	SD	1	2	3	4	5
1. Economic Hardship	61.3	24.7	—				
2. Parental Stress	258.6	68.9	.62***	—			
3. Family Trauma	34.2	18.7	.51***	.58***	—		
4. Social Support	58.4	14.2	-.48***	-.53***	-.44***	—	
5. Family Resilience	112.7	23.4	-.39***	-.47***	-.52***	.61***	—

*** p ¡ .001

The correlation matrix in Table 2 reveals that economic hardship, parental stress, and family trauma are substantially intercorrelated, with coefficients ranging from r = 0.51 to r = 0.62 (all p ¡ .001). These large correlations provide initial support for the hypothesis that these phenomena are interconnected, though the correlational nature of these relationships leaves causal direction ambiguous. Notably, both social support and family resilience demonstrated significant negative correlations with all three problem variables, suggesting their potential as protective factors. The correlation between social support and family resilience (r = 0.61) indicates these constructs overlap considerably while remaining distinct.

4.1.2. Regression Analyses

Hierarchical multiple regression analysis examined how poverty and parental stress predicted family trauma while controlling for demographic factors. Results are presented in

Table 3 Hierarchical Regression Predicting Family Trauma (N = 342)

Predictor	**Model 1**	***β***	**Model 2**	***β***	**Model 3**	***β***
Step 1: Demographic Controls Family structure (single-parent)	.18**		.09		.05	
Number of children	.12*		.08		.07	
Caregiver education	-.14*		-.06		-.04	
Urban residence	.08		.04		.02	
Step 2: Economic Hardship Economic Hardship			.47***		.22***	
Step 3: Parental Stress Parental Stress					.39***	
$R2$	.06		.28		.39	
ΔR^2	.06***		.22***		.11***	

* p ¡ .05, ** p ¡ .01, *** p ¡ .001

As Table 3 indicates, demographic variables explained only 6% of variance in family trauma, with single-parent family structure, number of children, and lower caregiver education showing small but significant associations. Adding economic hardship in Model 2 substantially increased explained variance to 28%, with economic hardship demonstrating a strong standardized coefficient (β = 0.47, p ¡ .001). The addition of parental stress in Model 3 further increased explained variance to 39%, with parental stress showing a substantial independent effect (β = 0.39, p ¡ .001) while the coefficient for economic hardship reduced but remained significant (β = 0.22, p ¡ .001). This pattern suggests partial mediation, with parental stress explaining some but not all of the relationship between poverty and trauma.

4.1.3. Structural Equation Model

The structural equation model tested the comprehensive theoretical framework incorporating direct pathways, mediation, and reciprocal effects. Given the cross-sectional nature of data, reciprocal effects could not be estimated simultaneously; instead, we compared alternative models representing different theoretical propositions about causal priority.

The final structural model, presented in Figure 2, demonstrated excellent fit to the data: $\chi2(87) = 142.3$, p ¡ .001; CFI = 0.96; TLI = 0.95; RMSEA = 0.044 (90% CI: 0.032-0.056); SRMR = 0.038. All fit indices exceeded conventional thresholds for good fit, providing confidence in the model structure.

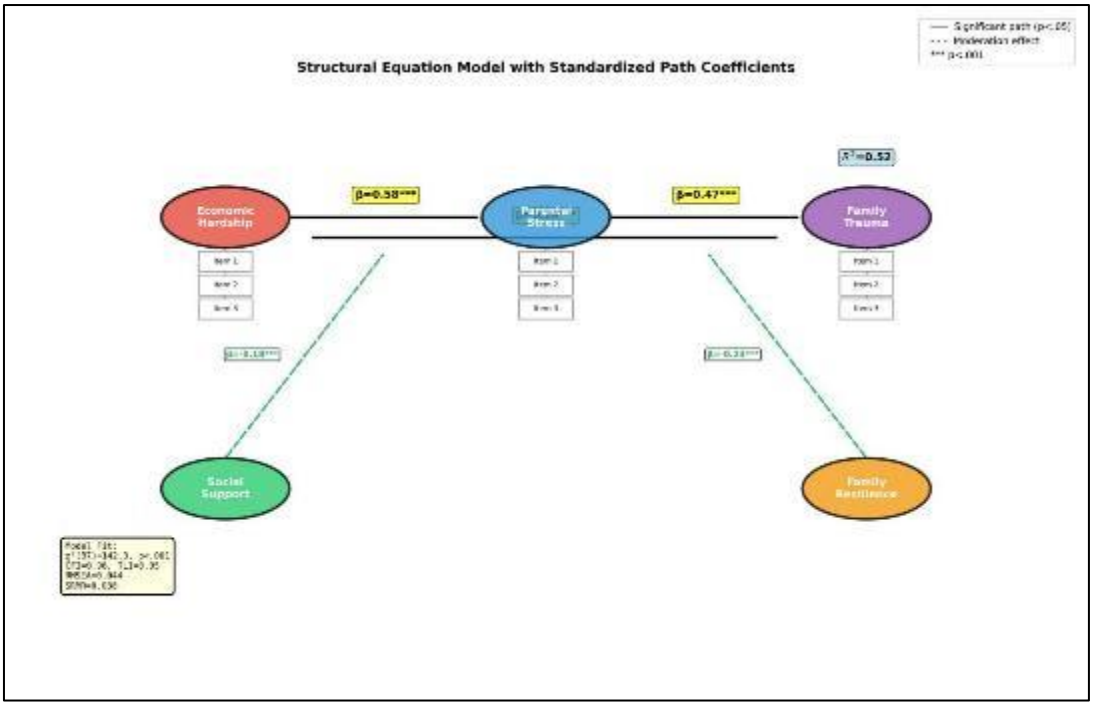

Figure 2 Final structural equation model with standardized path coefficients. Solid lines indicate significant paths (p ¡ .05); dashed lines indicate non-significant paths. All demographic covariates controlled but not shown for clarity

Figure 2 reveals several important findings. First, economic hardship demonstrated a strong direct effect on parental stress (β = 0.58, SE = 0.05, p ¡ .001), indicating that each standard deviation increase in economic hardship was associated with more than half a standard deviation increase in parental stress. Economic hardship also showed a significant direct effect on family trauma (β = 0.24, SE = 0.06, p ¡ .001), though this effect was smaller than its impact on parental stress. Parental stress, in turn, strongly predicted family trauma (β = 0.47, SE = 0.06, p ¡ .001). Together, economic hardship and parental stress explained 52% of variance in family trauma, substantially exceeding what either variable explained alone.

4.1.4. Mediation Analysis

Formal mediation analysis examined whether parental stress mediated the relationship between economic hardship and family trauma. Results are presented in Table 4.

Table 4 Direct, Indirect, and Total Effects in Mediation Model

Effect	**Estimate**	**SE**	**95% CI**
Economic Hardship → Family Trauma Direct effect	0.24***	0.06	[0.13, 0.36]
Indirect effect (via Parental Stress)	0.27***	0.04	[0.20, 0.36]
Total effect	0.51***	0.05	[0.41, 0.61]
Proportion mediated	0.53	0.09	[0.37, 0.70]

*** p ¡ .001; CI = confidence interval from 5000 bootstrap samples

Table 4 demonstrates that parental stress significantly mediated the relationship between economic hardship and family trauma. The indirect effect through parental stress

(β = 0.27, 95% CI [0.20, 0.36]) was actually larger than the direct effect (β = 0.24, 95% CI [0.13, 0.36]), with approximately 53% of the total effect operating indirectly. This finding supports the hypothesis that poverty influences family trauma substantially through its impact on parental stress levels, though direct pathways also exist.

4.1.5. Moderation Analysis

Moderation analyses examined whether social support and family resilience attenuated relationships among poverty, stress, and trauma. We tested moderation at two key points in the system: the path from economic hardship to parental stress, and the path from parental stress to family trauma.

Table 5 Moderation Effects of Social Support and Family Resilience

Moderator	Path Moderated	Interaction β	SE	p-value
Social Support	Hardship → Stress	-0.18	0.05	¡ .001
Social Support	Stress → Trauma	-0.12	0.06	.041
Family Resilience	Hardship → Stress	-0.15	0.05	.003
Family Resilience	Stress → Trauma	-0.24	0.05	¡ .001

As shown in Table 5, both social support and family resilience significantly moderated key pathways, though effects were stronger for family resilience. The interaction patterns are depicted in Figure 3.

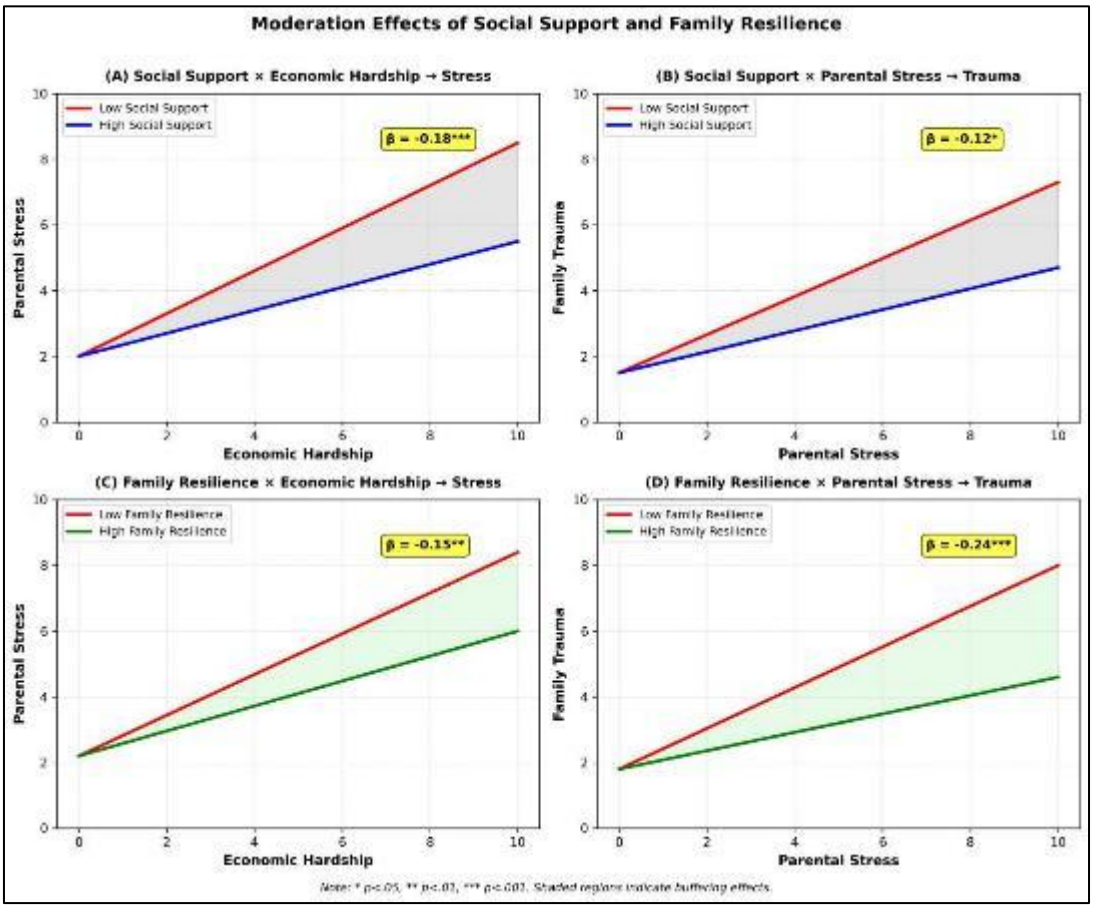

Figure 3 Moderation effects of social support and family resilience on key pathways. At high levels of protective factors, relationships between stressors and outcomes are substantially attenuated

Figure 3 illustrates that protective factors functioned as anticipated. For families with strong social support networks, the relationship between economic hardship and parental stress was significantly weaker than for families with limited support. Similarly, families high in resilience demonstrated less pronounced increases in trauma despite elevated parental stress. These findings suggest that protective factors do not eliminate risk but substantially buffer against negative cascades.

4.1.6. Alternative Model Testing

To examine potential reciprocal effects, we compared the hypothesized model with alternative models reversing causal directions. While cross-sectional data limit definitive causal inference, model comparison can provide some evidence regarding theoretical plausibility. We tested a model with family trauma predicting parental stress (rather than vice versa) and a model with stress predicting economic hardship. Both alternative models demonstrated significantly poorer fit than the hypothesized model ($\Delta CFI > 0.02$, $\Delta RMSEA > 0.015$), suggesting that while reciprocal effects likely exist, the predominant direction of influence in this sample flows from economic hardship through parental stress to family trauma rather than in reverse.

4.2. Qualitative Findings

Qualitative analysis of 45 in-depth family interviews yielded five major themes, each containing multiple subthemes. These themes illuminate the lived experience of systemic relationships among poverty, stress, and trauma, providing texture and depth to quantitative findings while also revealing dynamics not captured by standardized measures.

4.2.1. Overview of Themes

Table 6 Thematic Structure with Representative Quotations

Theme	Representative Quotation
1. Cascading Economic Pressures	” It’s never just one thing. You lose your job, then you can’t pay rent, then you’re moving, then the kids switch schools, then they’re acting out. Everything falls like dominoes.”
2. Stress Amplification Cycles	” I wake up already anxious. Every decision—what we eat, whether I can buy shoes—it’s all stress. And then I’m snapping at the kids for normal kid stuff because I’m already at my limit.”
3. Trauma as System Disruptor	” After [traumatic event], we just couldn’t function the same. It was like the trauma took over everything—how we talked to each other, how we handled problems, everything changed.”
4. Protective Processes	” My sister, my church community, they kept us afloat. Not just money, though that helped, but knowing someone had our back. That made all the difference.”
5. Systemic Interconnections	” You can’t separate the money stress from the family problems. They feed each other. When money’s tight, everyone’s on edge, and when we’re fighting, I can’t focus at work, which makes money tighter.”

4.2.2. Theme 1: Cascading Economic Pressures

Families consistently described poverty not as a static condition but as a cascade of interconnected pressures that compound over time. The metaphor of dominoes falling appeared repeatedly, capturing how one economic setback triggers a sequence of further problems. A single parent working two part-time jobs described:” When my car broke down, I couldn’t get to work, so I lost one job. Then I couldn’t afford the repairs, so I had to take the bus, but that meant leaving the kids alone longer, and Child Services got involved. One thing led to another until we were in crisis.”

This spillover effect made the difference between poverty and short-term financial crises. Families explained that poverty exposes them to low buffers, such as emergency savings, social ties, time, emotional reserves, which can mitigate or eliminate other stressors. As one of the fathers described: When you have a cushion, a problem is a problem. You handle it and move on. When you are poor, all the issues are crises due to the fact that you do not have any backup.

Time dimensions became important. Families were differentiating between acute poverty, which is loss of a job suddenly or some unforeseen costs, and chronic, which is years or generations of economic hardship. Poverty of chronic nature, in its turn, was especially corrosive, since the families stopped harboring hope. One of the mothers commented that you begin to think that this is the way it is in life. You give up and dream of a better life, and you just live to make an end.

Economic stresses represented in several areas at once: housing unstable caused by frequent changing the place of residence and school; food insecurity made everyone stressed constantly because of meal planning; lack of money to visit a doctor or purchase medications; social isolation because families no longer participated in the activities that demand monetary investments. These twin demands had what some families called the poverty overload- a sense of being caught in a snare of concurrent demands in every aspect of life.

4.2.3. Theme 2: Stress Amplification Cycles

Parents claimed to experience stress which accrued in a spiraling fashion. The stress associated with poverty reduced the psychological and emotional resources available to deal with the parenting demands in a way that generated more stress, which in turn exhausted the available resources. One mother said it felt like she is operating on empty all the time. I am stressed over money and this makes me short-tempered with the kids and this makes me guilty, hence making me stressed over money again. It just keeps cycling."

Sleep was found to be an essential factor in increasing stress. Wall Street concerns shaken.

and sleep loss slowed emotion regulation and made parents more reactive and harsher in their discipline, which worsened relationships between parents and children as well as formed guilt and shame leading to more sleep disruption. The several parents reported staying awake and financing bills, fearing eviction or just simply could not get their minds to stop.

Magnification was increased through the interdomain spillover of stress. Whatever tensions that occurred in the work place, either due to the work stressful environment, the precarious employment, and discrimination, trailed children to their households, where they affected family relationships. Conversely family stress discouraged the work performance and increased the level of job insecurity. Parents complained that they have been incarcerated in such spillover forms and that they have no means of bundling stress factors and relieving themselves.

The key principle of pressure parenting changed. Parents identified themselves as less patient, less playful, less emotionally available. One of the fathers replied: I would have fun with my kids. I am now home weary of worrying all the day and I would wish I were alone. I can see that is not a reason to them but I do not have anything to offer them anymore. This feeling of unparenting was further angering and shame, and this too depleted the psychological reserves.

Interestingly, there were parents who said that they have special purpose of breaking stress cycles. The mindfulness, exercise, faith practices and social connection stole the amplification and relieved the stress. Once again, the practices consume time and resources that are numerous occasions broken by poverty becoming another vicious cycle.

4.2.4. Theme 3: Trauma as System Disruptor

According to families, it was the devastating effect on families causing the shift in fundamental patterns of interaction, communication and roles. Trauma did not merely have effects on people; it has restructured whole family setups at threat, survival and protection. Everything changed, [after traumatic event], as one of the mothers clarified. "We became a different family. The manner in which we addressed one another, the regulations we had, our activities--all these became different.

Family members identified various categories of traumas that included discrete events (violence, loss, accidents), cumulative trauma due to ongoing adversity and intergenerational trauma. The discrete events that are formed before/after divisions, families make reference to how things used to be like before the trauma and how things have been like after. The accumulated trauma due to poverty, perpetual community violence or discrimination was more inaccessible, as it worked to weaken family functionality but in an insidious way. Intergenerational trauma. The unresolved childhood trauma of parents on current parenting characterizes intergenerational trauma, which acted mostly beyond the conscious awareness of the families until they were involved in interviews, which made them reflect.

Family communication was transformed basically due to trauma. Families had come up with unwritten rules of what was and was not to be said, and traumatic experiences usually ceased to be mentioned in the family despite taking up huge mental currents. Children got to know what parents were angry about and would practice such things so as to ensure that there was falsely normal growth that could not allow genuine interaction. We know all what has happened, one of the teenagers said, and are acting like we do not. It is such a huge elephant in the room we all are walking around.

Trauma was normally followed by role shifts. Children were parentified and played caretaking roles to traumatized parents or younger siblings. Parents were at times ready to give away their parental role out of exhaustion or because

they were afraid of making similar errors as the parents did. Parents were incapacitated by trauma reactions, so that grandparents or extended family moved into the home or assumed parenting.

4.2.5. Theme 4: Protective Processes

Even though families endured significant adversity, most of them exhibited robust endurance, and protective processes occur on the individual, family, and community levels. The most commonly mentioned protective factor was social support. Material assistance, emotional support, childcare, and physical problem-solving support were offered to the family by extended family, friends, faith groups and neighborhoods. Most importantly, support was also appreciated not just because it provided handy support, but because of the mental health of feeling like someone had our back.

The quality of relationships was more valuable than the quantity. Families also differentiated between surface relationships and those that are of trust, reciprocity and caring. They were two good friends who visited when they were needed and that was compared by one of the mothers to a large and careless extended family. The safe foundation of these deep relationships enabled the families to go out and face the challenges.

The communication and the family unity also played some protective functions. The families that could freely communicate with each other, express love, do things and solve problems collectively fared this adversity better. Several parents provided the description of a deliberate action of securing family time and bond under straining circumstances. We are poor in money, but we are all father I had a father in a one father. We also have dinner together, and talk about our days and stay as a family. That's what gets us through."

It was significant that there were processes of making meaning. Families that put together consistent stories regarding their lives and regarded adversity as transient, overcome able, or possibly even growth-enhancing had more resilience. The religious belief made many families find the strong frameworks of meaning-making by putting suffering into perspectives of wide spiritual storytelling. Even those families that had no religious framework enjoyed the consistency of the explanatory narratives that sensibly dealt with their experiences and held on to hope.

Cultural resources- cultural identity, communities, traditions gave the added protection, especially to minority families confronting discrimination. Cultural pride and identification with the past provided different sources of value and belonging which compensated marginalization in society.

4.2.6. Theme 5: Systemic Interconnections.

Surprisingly, families did this naturally as they explained their experience of a systemic awareness with regard to how economic, psychological and relational aspects were interconnected within their experiences. Lacking encouragement by systems theory language, families were employing such terms as "vicious cycles, downward spirals and everything is connected as they would describe their lives.

Families identified both way interventions. Not all that it makes us stressed being poor, which one mother explained. The pressure causes financial strains to find forward.

When these things happen, I also make poor decisions because of stress: I use money I do not have, I skip work because I am too tired to work, I complement my boss. The stress keeps us poor." Such an appreciation of mutual causation, disappointing as it was sometimes, also implied intervention points, as some families pointed out that a cycle break at any stage might lead to a beneficial recovery.

Families explained temporal trends- how issues accumulated to become larger, how minor gains developed to major change, how crisis was a result of stressful situations cumulating other than individual causes. This time consciousness was an indicator of advanced knowledge of system dynamics. We did not arrive here in a night, and we are not going to be coming out. One of the fathers thought philosophically, overnight.

A number of families spontaneously created diagrams at interviews depicting the interrelation between factors using circles, arrows and description such as goes back and forth, makes the other worse. These images of systems created by the family were strikingly similar to formal systems models, and indicated that systems thinking is consistent with lived experience despite the lack of theoretical training on the part of the individual.

It is interesting to note that no feelings of hopelessness were always created by the realization of systemic interconnections. The systemic view was empowering to some families which indicated that there could be different points of interventions. Well, everything must be related, so ameliorating one of them would benefit the rest of the

world, one mother thought. " We started with small things—getting more sleep, asking for help—and it did seem to help other areas too."

4.3. Integrated Findings

Integration of quantitative and qualitative findings produced an enhanced understanding exceeding what either approach alone could provide. Figure 4 presents an integrated systems model incorporating both statistical relationships from the SEM and qualitative insights about lived experience and mechanisms.

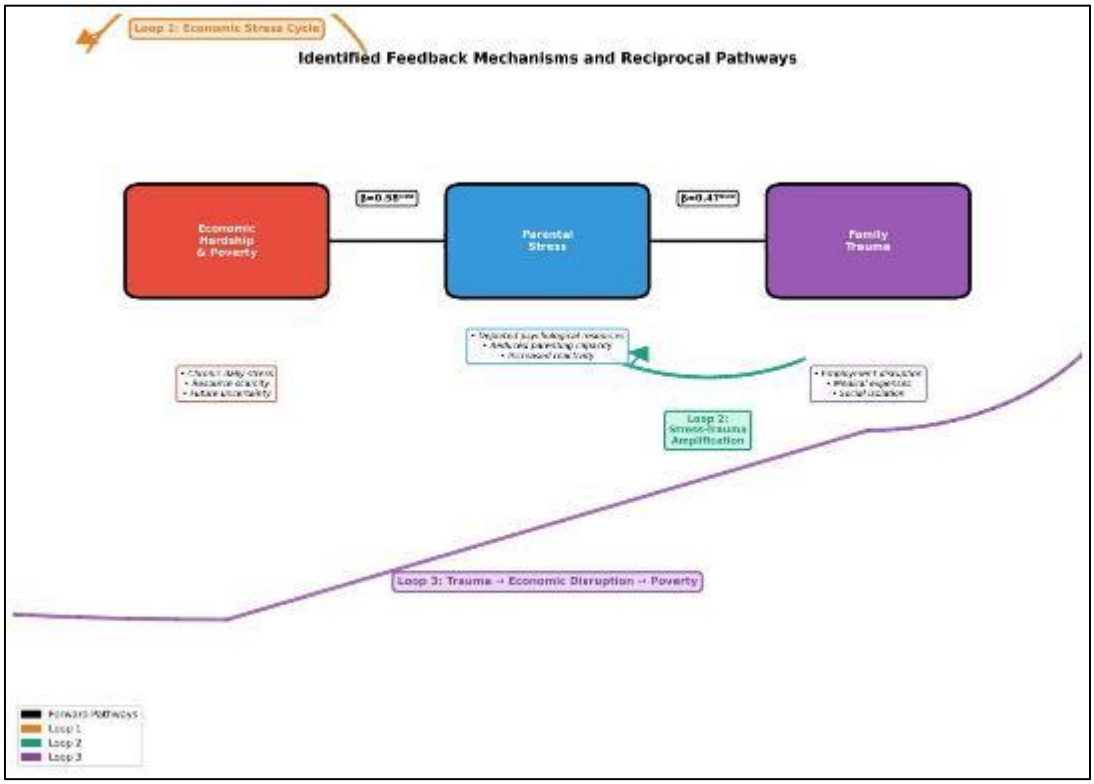

Figure 4 Integrated systems model synthesizing quantitative and qualitative findings. Solid arrows indicate quantitatively confirmed pathways with effect sizes; dashed arrows indicate qualitatively identified processes; feedback loops highlighted; temporal dimensions and moderating influences incorporated

The integrated model, shown in Figure 4, reveals several important insights. First, quantitative findings provided robust evidence for hypothesized direct pathways, mediation through parental stress, and moderation by protective factors, while qualitative findings illuminated the mechanisms underlying these statistical relationships—exactly how poverty translates into stress, how stress disrupts parenting and family functioning, and how these processes accumulate to produce trauma.

Second, qualitative findings revealed additional systemic dynamics not captured in quantitative models, particularly regarding temporal processes, cascading effects, and reciprocal influences. Families' descriptions of vicious cycles and feedback loops suggested that cross-sectional quantitative analyses, while valuable, captured only snapshots of dynamic processes unfolding over time.

Third, integration highlighted the importance of meaning-making processes. Quantitative analyses identified social support and resilience as moderators but could not capture how these factors operated psychologically. Qualitative findings revealed that protective factors work partly through cognitive and emotional processes—providing hope, alternative narratives, psychological resources—not merely through material assistance.

Fourth, both approaches converged on the critical importance of parental stress as a pivotal variable in the system. Quantitatively, stress had a significant percentage of mediation on the effect of poverty on trauma. Qualitatively, parents referred to stress as the intersection between economic hardship and parenting, relationship in family and wellbeing of children. This overlap forms strong support to the stress as a significant intervention.

Fifth, integration demonstrated that the system works across a number of timescales at once. Quantitative analyses were used to represent differences between families which were to be steady, whereas qualitative discussions were focused on dynamic within the family processes which were to be daily, weekly, and yearly. The diagnosis of the chronic background background osteoporotic situations and acute crisis situations necessitated the dissimilar coping strategies and interventions that families underwent.

5. Discussion

Such vague studies of the relationships among poverty, parenting stress and family trauma have generated substantial information to be used in proposing that the three phenomenon is an interdependent variable of the family systems rather than independent variables of the linear causal relationships. Quantitative structural equation modeling with a thematic analysis in a qualitative manner has allowed a more comprehensive view of each of the two approaches separately as they both provide the statistical makeup of the links, as well as the lived life of a family that is currently experiencing these twin hardships.

5.1. Principal Findings and Theoretical Implications

The structural equation model showed that the parental stress and family trauma have a major direct influence of poverty with a second effect parental stress as the mediator between poverty and stress. The fact that the economically deprived condition correlates with the condition of being stressed by parents (b = 0.58) implies that, unlike other types of stressors, economic strain is a monumental contributor that determines the condition of the parental situation; stressors are the basic variables in this theory of family stress [53].

The mediation examination found that a parental stress Is approximately 53% of the connection between poverty and family trauma, which has considerable theoretical and practical implications. The result is consistent with the family stress model that implies that economic conditions influence the results of children and their family significantly by influencing the psychological performance of parents rather than simply influencing material deprivation [54].The changes in emotional availability, parenting consistency and reactivity sensitive shifts that alter family emotional climate and developmental situations by parents in the chronic stress have shifted [55].Our qualitative findings described these mechanisms, whereby stressing was found to suppress the psychological resources, minimize the patience and playfulness, disrupt sleep and shape the feelings of guilt, and shame, and this further intensified the distress.

The fact that the direct pathways" etwe'n trauma and poverty continue to play an important role once the influence of parental stressing factors has been controlled might mean that economic hardship protects families by acting through other factors than stress. The revelations of the qualitative research brought to the fore some of these views like the unstable housing condition that results to them shifting residence regularly and varieties in schools that results to school disruptions, food issues that causes unpredictability forever, neighborhood insecurity and community violence, and isolation as the family results to pursuing activities that happen to require money. The results are in line with ecological systems theory, which states on a number of paths in which the processes of the macrosystem, including the economic inequality, are mediated by the microsystem experience [56].

The establishment of the important moderating effects of both social support and family resilience elicits empirical evidence that supports resilience frameworks that concur that the protective factors may break the negative vacuums [57]. The patterns of interaction showed that in the conditions of high levels of protective factors, the generally strong links between poverty and stress, and between stress and trauma were significantly weakened. These finding challenges deficit-based models that treat adverse outcomes as inevitable consequences of risk exposure, instead highlighting the potential for protective processes to alter developmental pathways. Qualitative findings provided rich detail about how protective factors operate—not merely through material assistance but through psychological processes including hope, alternative narratives, and secure relational bases.

Our findings contribute to theoretical understanding in several ways. First, they demonstrate the value of systems-oriented approaches that accommodate complexity, reciprocal causation, and emergent phenomena. The integrated model revealed that poverty, stress, and trauma form what systems theorists would recognize as a complex adaptive system, characterized by feedback loops, nonlinear relationships, and sensitivity to initial conditions [58]. Traditional linear models, while analytically tractable, fail to capture this systemic complexity.

Second, the findings extend family stress theory by demonstrating not just that stress mediates relationships between socioeconomic circumstances and family outcomes, but that stress operates within a broader system including trauma

responses and economic feedback effects. The Double ABC-X model's emphasis on stress pile-up and resource depletion proved highly relevant, with qualitative findings vividly illustrating how multiple stressors accumulate and deplete family coping resources [59].

Third, our findings have something to offer to the field of trauma theory as they help to understand the way trauma interferes with family systems not only in the case of individual symptomatology. Family accounts of trauma described the radical re-integration of patterns of interaction, norms of communication, functioning of the family role-both of which could not be described through the predictive measures of each trauma symptom but which had far-reaching implications in the functioning of the family. The discovery also helps corroborate up-and-coming family-trauma models that incorporate the systemic assessment and intervention [60].

5.2. Mechanisms and Processes

The synthesis of the two quantitative and qualitative outcomes throwing more light on the statistical associations processes. Poverty to parental stress relationship has various avenues of operation. The poverty of the economy creates physical, everyday stressors, like computations of bills to pay, decisions in terms of what type of necessities to do without, fear of being thrown out or deprived of utility. These are short term anxieties which accompany the greater stress involved of reduced opportunities which, in turn are accompanied by social marginalization as well as stigma on the poor. According to parents, a financial-management and financial-planning burden was ever present in their minds to the extent that it drained their mental and emotional resources which they needed to hand over to parenting and maintaining relationships.

The mediation between stress of parents and family trauma entails a number of processes. Stress affects the control of emotions, making parents more reactive and stricter in their discipline that may result into emotional or physical abuse. Stress reduces parental warmth and emotional accessibility to affect bond security and the feeling of security in children. Parent conflict due to stress puts children at risk of interparental violence or provides other children with chaotic and unpredictable family conditions. The cumulative effect of these processes would be generation of traumatic experiences or traumatic family climates even in the absence of identifiable traumatic events.

There are feedback loops that enhance system distress by working in a reciprocal process. Trauma interferes with employment by causing symptoms such as lack of concentration, missed work to see doctors or psychiatrists or being discriminated against due to the knowledge of trauma history hence complicating poverty. The stress of the parents derails the performance at the workplace by creating presenteeism, supervisor/ colleague conflict and insufficiency in complying with a job requirement, yet degrades an employer further. Family trauma adds to parental stress in terms of more caregiving responsibilities, guilt and concern over the wellbeing of the children and traumatization on the part of parents when their own histories become triggered.

These processes are moderated by protective factors in a variety of ways. Social support has material resources that cushion economic depletion, emotional support that assists in managing stress, childcare or problem-solving instrumental assistance that diminishes demands and psychological encouragement gained by the knowledge one is not alone. Family resilience works by systems of belief that perceive adversity as a problem that can be overcome, organizational scripts that sustain control and routine in the presence of anarchy, and communication scripts that hold the relationship and provide support and connection [61].

5.3. Practical Implications

These results are also of great importance to policy and intervention. Interdependence of relationships between poverty, stressful and traumatic conditions is systemic and therefore interventions should also be systemic, entailing many variables including their interdependence as opposed to dementing individual variables. Single-focus interventions—economic assistance alone, stress management alone, or trauma treatment alone—may prove insufficient if other system elements perpetuate distress.

Integrated interventions simultaneously addressing economic circumstances, parental wellbeing, and family functioning may prove more effective than sequential or fragmented services. Models like two-generation approaches that combine economic supports for families with early childhood programming for children and mental health services for parents align well with systemic frameworks [62]. Case management models coordinating multiple services and addressing families holistically may prove more effective than traditional categorical service systems.

The prominence of parental stress as a mediating mechanism suggests that interventions reducing parental stress could interrupt the pathway from poverty to trauma even when economic circumstances remain challenging. Stress reduction

interventions might include mindfulness training, social support groups, respite care, or workplace accommodations. Importantly, such interventions must recognize that stress reduction requires not just individual coping skills but also changes in stressors themselves—reducing poverty related stressors requires economic interventions, not simply helping parents manage stress better.

Moderating effects of social support and family resilience indicate the possibility of prevention. Social network and family resilience programs developed prior to crisis are potentially protective capacities which could cushion against the vulnerability to negative trajectories when families are actually suffering. Some of the prevention strategies that have been suggested by these findings include community development that involves improving social cohesion of a neighborhood, family support programs that educate the families involved in the challenges on the skill of communicating and problem solving and peer support groups that help in uniting the families that have experienced some form of challenge [63].

The Implications of the policies dwell on the immutable spirit of pursuing the latent economic talking points. Whereas, such interventions like psychological and relational should help the families overcome poverty, to lessen the impact of family trauma it is necessary to mitigate the poverty along with the reduction of family trauma. Income supports, living wage and affordable housing and universal healthcare would mitigate the economic stressors that trigger cascading distress in the family systems. Direct prediction of stress and trauma by the poverty itself, even under the condition of many factors is the proof that economic policy is family policy, mental health policy, not just financial policy.

There is a need to make service delivery systems less fragmented and more integrated. These families claimed to have encountered various systems in an effort to get economic services, mental health services, child welfare, health services, housing and employment that are poorly coordinated and this results into yet another assault of stress. Such families who have overlapping needs would be suited to integrated service hubs that offer multiple supports in integrated forms with jovial handoffs between the providers and shared case planning.

5.4. The methodological contribution

In this paper, the role of research based on mixed methods in the exploration of the complex phenomena within the systems is depicted. Quantitative research permitted the system review of the connection on the huge scale of responses, finding mediation and moderating procedures, as well as the regulation of confounding factors statistically. Qualitative approaches introduced illumination, details, a gateway to the subjective experience, and understanding of the process that describe the statistical relationships. The two methods could not have been used independently to reach the overall knowledge that would have been realized by integrating the two methods.

The explanatory sequential design with qualitative Inquiry as a subsequent and informed measure of quantitative findings was especially useful. A preliminary quantitative analysis has identified some areas that needed further investigation and assisted in steering sampling protocols and interview methods that were qualitative in design. On the one hand, qualitative results implied the revision of the conceptual models, and on the other hand, the processes that did not point to the quantitative results. Synthesis was improved by the iterative combination of approaches in the course of analysis instead of considering them as distinct steps.

Applicability of these questions to the structural equation modeling showed the applications of latent variable models that compute measurement error and test multiple relationships simultaneously to explain mechanics and conditions developed along lines of effects and extended the understanding of the fundamental correlation or regression.

The thematic analysis that is systems oriented was perceived to be helpful in the identification of circular processes, feedback loops, and emergent tendencies. Traditional qualitative interpretation can unravel the results establishing discrete categories which are not related to the system. The systems oriented analysis with its emphasis on relationships, processes and dynamics more strongly reflected the complexity that families were experienced to be.

5.5. Limitations

It has a number of limitations that should be mentioned. The design chosen is cross-sectional, which restricts its ability to draw a causal conclusion since the data has been collected at one point. While theory and previous research support the causal directions tested, reciprocal effects and alternative causal orderings remain plausible. Longitudinal research following families across time as circumstances change could provide stronger evidence for causal relationships and illuminate temporal dynamics of feedback loops [64].

The reliance on self-report measures introduces potential biases including social desirability, recall bias, and shared method variance. While we employed well-validated measures with strong psychometric properties, observed measures of behavior, physiological assessments of stress, and multi-informant approaches would strengthen future research. Particularly for trauma assessment, clinical interviews and behavioral observations would complement self-report measures.

Sample characteristics limit generalizability. While we achieved considerable socioeconomic diversity, the sample was predominantly female primary caregivers and overrepresented urban residents. Families with the most severe dysfunction likely were underrepresented, as such families may lack capacity or motivation to participate in research.

Cultural diversity was present but not comprehensively represented, limiting understanding of how these processes operate across diverse cultural contexts with different family structures, values, and support systems.

The measurement of family trauma, while comprehensive, combined multiple indicators into a composite that may have obscured important distinctions among trauma types, severities, and timing. Discrete traumatic events differ qualitatively from chronic traumatic stress, and childhood trauma differs from adult trauma. More nuanced measurement differentiating trauma characteristics could reveal differential relationships with poverty and stress.

While we assessed important moderators including social support and family resilience, many potentially relevant moderators remained unexamined. Individual differences in temperament, attachment style, and psychological resources; family differences in communication patterns, cohesion, and adaptability; and community differences in resource availability, collective efficacy, and discrimination all likely influence the relationships examined. Further studies must be able to test other moderators to comprehend differences in families experience and reaction.

The sample size was limited to families that had children between the ages of 3-17, and the findings cannot be generalized to other stages. The ages of children and their coexistence is core to the family set-ups and the interrelationship between poverty, stress, and trauma is most likely to vary among couples with no children, families complete with young adults or even older adults.

6. Conclusion

The current investigation has proven that poverty, parental stress, and family trauma are an interrelated system with a system of reciprocity, feedback, and emergent processes that cannot be minimized to a couple of one-sided cause-effect relations. Through integrating the quantitative structural equation modeling methodology with qualitative thematic analysis, we have illuminated the statistical attribute as well as lived experience of these systemic relations. Yet it is an important direct and indirect source of family trauma because it heightens the stress levels of the parents on top of having a direct impact on at least half of the traumatic consequences of poverty. Concurrently, the presence of trauma and stress as a result of aggravated economic conditions has the feed-back loops that contribute to the aggravation of the economic situation by disrupted employment and drained resources that create vicious cycles and reinforce distress. The moderating effect of social support, family resilience and other protection factors are significant and it is said that the devastating effects can be prevented with the help of enhancing family functioning and the support networks even in the cases, when economic conditions seem to be a hindrance. These findings bear fatal consequences on our family adversity conceptualization, research, and intervention. Individualistic methods of addressing poverty, dealing with stress or trauma, should be replaced with systems of interventions that may recognize a dependent relationship. The optimal responses involve response interventions at the same time to improve the underlying economic circumstances by policy change, enhancing the family and individual capacities by psychosocial intervention, and creating community supports that offer material and psychological resources. Longitudinal designs should be used in future to track families over time in order to capture the dynamic unfolding of systemic processes, explore these relationships in different cultural backgrounds in order to determine the manner in which family structures and cultural values is modifying the situations of systemic processes, and test the interventions which are explicitly designed to develop various domains of system and relationship between them. The systems approach that is used in this context indicates that poverty, parental stress, family trauma are not independent issues that need independent remedies but rather a complex set of issues that upon which their fundamental inter-relatedness is to be seen and thus, which demand combination of responses that are both comprehensive and coordinated.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare no conflicts of interest related to this research.

Statement of ethical approval

De-identified quantitative data are available from the corresponding author upon reasonable request and with appropriate institutional approvals. Qualitative interview transcripts cannot be shared due to confidentiality considerations and the potential for identifying information despite de-identification efforts.

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