

Resilience in caregivers predicts lower anxiety, depression, and anger mediated by lower stress during COVID-19

Abstract

Caregivers experienced significant psychological strain during the COVID-19 pandemic, with increased reports of anxiety, depression, and anger. While resilience has been identified as a protective factor, the mechanisms through which it influences emotional outcomes remain unclear. This study explored whether caregiver stress mediates the relationship between resilience and emotional distress. To test a mediation model in which caregiver stress transmits the effects of resilience to emotional distress outcomes—specifically anxiety, depression, and anger. Data were drawn from a national archival survey of 1,920 participants. A subsample of 249 U.S.-based adult caregivers who provided data on resilience, stress, and emotional distress measures was analyzed. Resilience was assessed with the Brief Resilience Scale, caregiver stress with the Kingston Caregiver Stress Scale, and emotional distress with PROMIS short forms. Mediation analyses were conducted using Hayes' PROCESS macro (Model 4), with gender, race, and healthcare occupation as covariates. Resilience significantly predicted lower caregiver stress ($p < .001$), and stress significantly predicted higher levels of anxiety, depression, and anger ($p < .001$). Indirect effects were significant in all three models, indicating that caregiver stress partially mediated the relationship between resilience and each emotional distress outcome ($p < .001$). Resilience appears to influence emotional well-being in caregivers not only directly, but also indirectly by shaping the subjective experience of stress. These findings suggest that interventions to support caregiver mental health should target both stress management and resilience-building.

Keywords: COVID-19, mental health, resilience, caregiver, emotional distress, anxiety, depression, anger

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Abbreviations: BRS, brief resilience scale; COVID-19, coronavirus disease 2019; CATS, cognitive activation theory of stress; KCSS, Kingston caregiver stress scale; PROMIS, patient-reported outcomes measurement information system

Introduction

Pre-pandemic studies show that family caregivers report significantly higher levels of anxiety and depression than non-caregivers.^{1,2} The term “family caregiver” refers to an unpaid individual, usually a relative or close acquaintance, who provides assistance and support to someone with illness or disability, motivated by a personal relationship.³ The COVID-19 pandemic exacerbated psychological strain, with caregivers reporting elevated levels of anxiety, depression, and anger, stemming from prolonged exposure to stressors such as health risks, disrupted support services, financial instability, and social isolation.^{4,5} While previous research has documented the adverse psychological outcomes associated with caregiving during the pandemic,^{4,6} the underlying mechanisms linking psychological resources to emotional outcomes remain underexplored.

Resilience is increasingly considered as a multidimensional construct encompassing the perceived capacity to recover from stress and maintain psychological functioning amidst adversity.^{7,8} Recent literature highlights resilience as a critical psychological resource, particularly beneficial in caregiving contexts characterized by chronic stress and advanced illness.⁹ This growing body of evidence underscores resilience's role in promoting adaptive coping and emotional stability among caregivers facing significant caregiving demands and stressors.^{10,11}

Conceptualizations of resilience include trait,¹² outcome,¹³ and process orientations.¹⁴ The present study focuses specifically on trait resilience, defined as a stable personal characteristic facilitating effective coping and adaptation in response to adversity,¹² and examines how trait resilience may influence caregivers' emotional distress indirectly through their subjective experiences of stress.

During the COVID-19 pandemic, caregivers with greater resilience reported fewer symptoms of psychological distress, suggesting its relevance in mitigating the mental health impact of crisis conditions.¹⁵ However, most studies have focused on resilience as a protective buffer against stress¹⁶ rather than exploring its potential role in shaping the stress experience itself. Emerging research now points to resilience as a stable trait that may influence how individuals appraise and respond to chronic demands, indicating that its effects may be mediated by other psychological processes such as perceived stress.¹⁶

In caregiving contexts, particularly during the COVID-19 pandemic, caregivers faced environmental stressors (e.g., health risks, disruptions to care support, and social isolation) that would likely trigger negative primary appraisals. The construct of resilience, conceptualized as a psychological resource, influences this appraisal process by enhancing individuals' perceptions of their ability to cope effectively. Thus, caregivers with higher resilience may appraise caregiving demands as less threatening or more manageable, reducing the perceived intensity of stress. This conceptual framework posits that caregiver stress mediates the relationship between resilience (coping resource influencing cognitive appraisal) and emotional distress (anxiety, depression, and anger). Caregivers with higher resilience levels are expected to experience lower caregiver stress through more

adaptive cognitive appraisals and coping responses. Consequently, reduced caregiver stress leads to diminished emotional distress.

In a previous study using the same dataset, we examined resilience as a moderator of the relationship between caregiver stress and emotional distress.¹⁷ While resilience was expected to buffer the effects of stress, the findings suggested a more complex pattern, particularly in relation to anger, highlighting the need to consider alternative pathways. The current study addresses this gap by testing caregiver stress as a mediator in the relationship between resilience and emotional distress, offering a different conceptual lens on how resilience may exert its protective influence. Specifically, we hypothesized that:

1. Higher resilience will predict lower caregiver stress,
2. Lower caregiver stress, in turn, will predict lower anxiety, depression and anger, and
3. Caregiver stress will serve as a significant mediator of the relationship between resilience and each emotional distress outcome (anxiety, depression, and anger).

Materials and methods

This study used archival data from the *COVID-19 Health and Mental Health Survey*,¹⁸ a 120-item national survey conducted with 1,920 caregivers. For this current analysis, a subsample of 249 adult caregivers of individuals with chronic medical conditions was selected. Whereas the previous analysis,¹⁷ included 252 caregivers, the present study includes a slightly smaller sample due to listwise deletion of cases with missing data on one or more variables used in the mediation models. Participants were U.S.-based adult caregivers of individuals with chronic medical conditions. All participants included in this analysis completed measures of resilience, caregiver stress, and at least one emotional distress outcome (anxiety, depression, or anger).

The present analysis represents a distinct conceptual and statistical model, examining caregiver stress as a mediator, rather than moderator, in the relationship between resilience and emotional distress. Variables in this study were drawn from validated scales administered as part of the original survey.¹⁹ Caregiver stress was measured using the Kingston Caregiver Stress Scale,²⁰ a validated 10-item instrument measuring stress related to caregiving responsibilities, family dynamics, and financial strain ($\alpha = .89$). Resilience was measured using the Brief Resilience Scale,²¹ a 6-item scale assessing perceived ability to recover from stress (α range = .80–.91). Emotional distress (anxiety, depression, anger) was evaluated using validated PROMIS Short Forms,²² each demonstrating high internal consistency ($\alpha = .90–.95$).

Three separate mediation models were conducted to test the three overarching hypotheses for each emotional distress outcome (anxiety, depression, anger). Specifically, each mediation model evaluated:

- (1) Whether resilience significantly predicts caregiver stress,
- (2) Whether caregiver stress significantly predicts anxiety, anger, and depression, and
- (3) Whether caregiver stress mediates the relationship between resilience and the emotional distress outcome.

Thus, the same three hypotheses were consistently tested across each mediation model, with results reported separately by emotional outcome.

The mediation analyses were conducted using Hayes' PROCESS macro (Model 4) in SPSS. Resilience was entered as the independent variable, caregiver stress as the mediator, and each emotional distress outcome (anxiety, depression, and anger) was examined in separate models as the dependent variable. Covariates included gender, racial identity (White vs. non-White), and healthcare occupation. Bootstrapping (5,000 samples) was used to estimate confidence intervals for indirect effects. Mediation was considered significant if the 95% confidence interval for the indirect effect did not include zero.

Results

A majority of caregivers were female ($n = 138$; 55.42%), White ($n = 175$; 70.28%), and employed full-time in non-healthcare occupations ($n = 113$; 87.15%), with a mean age of 44 years. Participants reported moderate levels of anxiety ($M = 9.72$, $SD = 4.73$), depression ($M = 9.63$, $SD = 5.30$), and anger ($M = 14.69$, $SD = 5.93$). Additionally, caregiver stress levels were moderate ($M = 24.10$, $SD = 10.40$), and participants showed moderate resilience ($M = 3.30$, $SD = 0.84$) (Table 1).

Table 1 Descriptive statistics on core measures

Construct	M	SD	Min	Max	Skewness	Kurtosis
PROMIS emotional distress						
Anxiety	9.72	4.73	4	20	0.48	-0.74
Depression	9.63	5.30	4	20	0.48	-1.06
Anger	14.69	5.93	5	25	-0.19	-0.98
Kingston caregiver stress						
Stress	24.10	10.40	10	50	0.67	-0.11
Brief resilience scale						
Resilience	3.30	0.84	1	5	-0.01	-0.05

Anxiety mediation model

The first mediation model examined whether caregiver stress mediated the relationship between resilience and anxiety. There was a significant total effect between resilience and anxiety ($\beta = -3.39$, $SE = 0.29$, $p < .001$), indicating that higher levels of resilience were associated with lower levels of anxiety. Additionally, resilience significantly predicted lower caregiver stress ($\beta = -5.83$, $SE = 0.72$, $p < .001$), and caregiver stress significantly predicted greater anxiety ($\beta = 0.21$, $SE = 0.02$, $p < .001$). Both the direct effect ($\beta = -2.19$, $SE = 0.28$, $p < .001$) and the indirect effect through caregiver stress ($\beta = -1.20$, 95% CI [-1.64, -0.80]) were significant, supporting partial mediation (Table 2).

Table 2 Results of mediation analysis for the effect of resilience on anxiety through stress

Path	β	SE	95% CI	t	p
Resilience → Stress	-5.83	.72	[-7.26, -4.41]	-8.06	< .001
Stress → Anxiety	.21	.02	[.16, .25]	9.39	< .001
Resilience → Anxiety	-2.19	.28	[-2.74, -1.64]	-7.89	< .001
Direct effect	-2.19	.28	[-2.74, -1.64]	-7.89	< .001
Indirect effect	-1.20	.22	[-1.64, -.80]		
Total effect	-3.39	.29	[-4.00, -2.74]	-11.78	< .001

Note. SE = Standard Error; CL = Confidence Interval

Depression mediation model

The second mediation model showed that resilience significantly predicted lower depression both directly and indirectly. As shown in Table 3, the total effect was significant ($B = -3.39$, $SE = .32$, $p < .001$), and the direct effect of resilience on depression remained significant after accounting for stress ($B = -2.73$, $SE = .32$, $p < .001$). The indirect effect of resilience on depression through stress was also statistically significant ($B = -1.19$, 95% CI $[-1.65, -.76]$). Stress positively predicted depression ($B = .20$, $SE = .02$, $p < .001$). Thus, stress partially mediated the relationship between resilience and depression (Table 3).

Table 3 Results of mediation analysis for the effect of resilience on depression through stress

Path	β	SE	95% CI	t	P
Resilience → Stress	-5.83	0.72	[-7.26; -4.41]	-8.06	< .001
Stress → Depression	0.20	0.02	[0.15; 0.25]	8.17	< .001
Resilience → Depression	-2.73	0.32	[-3.36; -2.11]	-8.64	< .001
Direct effect	-2.73	0.32	[-3.36; -2.11]	-8.64	< .001
Indirect effect	-1.19	0.23	[-1.65; -0.76]		
Total effect	-3.39	0.32	[-4.54; -3.29]	-12.36	< .001

Anger mediation model

The final mediation model indicated that resilience significantly predicted lower levels of anger both directly ($B = -2.59$, $SE = .40$, $p < .001$) and indirectly through caregiver stress. As shown in Table 4, the total effect of resilience on anger was also significant ($B = -3.83$, $SE = .38$, $p < .001$), and the indirect effect via stress was significant ($B = -1.23$, 95% CI $[-1.75, -.77]$). Caregiver stress was positively associated with anger ($B = .211$, $SE = .03$, $p < .001$). These results demonstrate that caregiver stress partially mediated the relationship between resilience and anger (Table 4).

Table 4 Results of mediation analysis for the effect of resilience on anger through stress

Path	β	SE	95% CI	t	P
Resilience → Stress	-5.83	.72	[-7.26; -4.41]	-8.06	< .001
Stress → Anger	0.211	0.03	[0.15; 0.27]	6.76	< .001
Resilience → Anger	-2.59	0.40	[-3.38; -1.81]	-6.52	< .001
Direct effect	-2.59	0.40	[-3.38; -1.81]	-6.52	< .001
Indirect effect	-1.23	0.25	[-1.75; -0.77]		
Total effect	-3.83	0.38	[-4.59; -3.07]	-9.95	< .001

Discussion

This study examined the mediating role of caregiver stress in the relationship between resilience and emotional distress, specifically anxiety, depression, and anger, among caregivers during the COVID-19 pandemic. Building upon prior research that examined resilience as a moderator,¹⁷ the current analysis reframed resilience as a trait-level predictor and explored caregiver stress as a psychological mechanism through which resilience influences emotional outcomes. The findings supported the proposed mediation model across all three domains of emotional distress, offering a novel contribution to the literature on caregiving stress and resilience. These findings highlight the dual role of resilience in shaping emotional wellbeing both directly and indirectly by moderating perceptions and experiences of stress.

The present findings align with prior research highlighting resilience as a critical psychological resource capable of mitigating

emotional distress in stressful contexts.^{15,16} Our findings further support the hypothesis that caregiver stress significantly mediates the relationship between resilience and emotional distress, offering empirical confirmation for the role of cognitive appraisal processes within caregiving contexts. As caregivers with higher resilience likely perceive caregiving demands as less overwhelming, they subsequently experience lower stress levels. Consequently, these reduced stress levels diminish caregivers' susceptibility to anxiety, depression, and anger, aligning with the theoretical predictions of stress and coping models. Moreover, the distinct mediation effects observed across anxiety, depression, and anger outcomes contribute nuanced understanding of caregiver emotional distress during the COVID-19 pandemic. While resilience consistently provided protective effects against each distress outcome, caregiver stress emerged as a significant intermediary factor, indicating targeted interventions might effectively mitigate multiple forms of emotional distress simultaneously by reducing stress perception.

The findings from this study suggest that interventions aimed at caregivers should integrate resilience-building and stress-management techniques. Several evidence-based interventions have been shown to enhance resilience among caregivers, including cognitive-behavioral training, mindfulness-based stress reduction, and psychoeducational programs.²³ Further, programs specifically designed for caregivers, like the REACH-II intervention (Resources for Enhancing Alzheimer's Caregiver Health), hold promise for reducing the psychological strain associated with caregiving.^{24,25} Such interventions emphasize practical coping strategies, social support enhancement, and self-care, which are directly associated with reducing caregiver stress and emotional distress.

Despite the strengths, this study has several limitations. First, the cross-sectional nature of the archival data precludes causal inference regarding the temporal order of resilience, stress, and emotional distress. Longitudinal research would help clarify these relationships over time. Second, the reliance on self-report measures introduces potential biases such as social desirability or recall inaccuracies. Future studies could benefit from multi-method approaches integrating objective measures of stress and emotional distress. Additionally, the study's demographic homogeneity (e.g., predominantly White, female caregivers) limits the generalizability of results, suggesting the need for replication in diverse caregiver populations. Further investigation is needed to explore how the mediating role of stress varies across demographic subgroups and caregiving contexts. Finally, given the global scope of caregiving challenges during the pandemic, cross-cultural studies may help uncover how sociocultural factors influence the stress-resilience-distress pathway.

Conclusion

This study advances our understanding of how resilience influences emotional health in caregivers by highlighting the mediating role of caregiver stress. Rather than functioning solely as a static buffer, resilience may actively reduce emotional distress by altering how stress is perceived and internalized. These findings offer a more dynamic and actionable model of caregiver adaptation, one that emphasizes the interplay between psychological traits and subjective stress experiences. As the caregiving population continues to grow amid ongoing global health challenges, this research provides a foundation for more targeted and effective interventions that address not only what caregivers endure but how they experience it.

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Conflict of interest

The authors declare that they have no conflicts of interest relevant to this manuscript.

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