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How Dementia Stages Influence the Impact of Stressors and Caregiving Appraisals on Caregiver Well-being

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Abstract

This study investigates the influence of dementia stages on the relationship between caregiving stressors, appraisals, and caregiver well-being. A total of 300 caregivers of individuals with dementia, divided into three groups based on dementia severity (early, middle, and late stages), participated in the study. Key variables, including caregiving stressors, perceived burden, caregiving satisfaction, depression, anxiety, and physical well-being, were assessed. The results revealed that caregiving stressors and perceived burden significantly increased across dementia stages, while caregiving satisfaction, physical well-being, and mental health (depression and anxiety) declined. Pearson correlation analyses demonstrated strong associations between caregiving stressors, perceived burden, and poorer well-being, with caregiving satisfaction acting as a protective factor. Moderation analyses showed that caregiving appraisals, particularly perceived burden and caregiving satisfaction, moderated the impact of caregiving stressors on caregiver well-being. Specifically, higher perceived burden intensified the negative effects of caregiving stressors on depression and physical well-being, while greater caregiving satisfaction buffered the negative impact on physical health. These findings suggest that interventions aimed at reducing caregiving stress, enhancing caregiving satisfaction, and managing perceived burden are essential to supporting caregiver well-being across the dementia trajectory. Future research should explore longitudinal data and examine additional factors such as coping strategies and social support.

Keywords: Caregiving Stress, Dementia Stages, Caregiver Well-Being, Perceived Burden, Caregiving Satisfaction, Depression, Physical Health, Moderation Analysis.

Background of the Study

Dementia, an umbrella term for a range of cognitive impairments that affect memory, thinking, and social abilities, is a growing global health concern, particularly as populations age. As of 2023, more than 55 million people worldwide are living with dementia, a number that is expected to more than triple by 2050 (Alzheimer's Disease International, 2023). Dementia progresses through distinct stages—early, middle, and late—each characterized by specific cognitive, emotional, and functional challenges (Brodaty & Donkin, 2009). The impact of dementia on patients and their families is substantial, particularly as the disease progresses and individuals experience increasing levels of cognitive decline and behavioral disturbances (Ahmed et al., 2023). For caregivers, the experience of caring for someone with dementia can be profoundly taxing, both physically and emotionally. Caregiving can lead to significant stress, which in turn impacts the caregiver’s psychological and physical health. Research has shown that caregivers of individuals with dementia are at heightened risk for developing depression, anxiety, and physical health problems, largely due to the demands associated with the caregiving role (Pinquart & Sörensen, 2003; Vitaliano et al., 2003; (Fang & Mushtaque, 2024). Caregivers often face a complex interplay of factors that affect their well-being, including the level of the dementia patient's dependency, the caregiver’s personal resources, and the presence of social or financial stressors (Zarit et al., 1986). The relationship between caregiving stress and caregiver outcomes is shaped not only by the nature and severity of caregiving demands, but also by the caregiver’s appraisals of their caregiving role (Mushtaque et al., 2021). Appraisals refer to the way caregivers perceive the caregiving experience—whether they view it as a manageable challenge or an overwhelming burden (Lazarus & Folkman, 1984). Research indicates that caregivers who perceive caregiving as a burden are more likely to experience negative emotional outcomes, such as depression and burnout (Brodaty et al., 2003; Schulz et al., 1995). Conversely, caregivers who view caregiving as a challenge or opportunity to demonstrate personal strength and commitment may experience better psychological adjustment (Chappell & Reid, 2001). The impact of stressors and caregiving appraisals on well-being is likely to vary across different stages of dementia. In the early stages of dementia, caregivers may have more time to adapt and may experience lower levels of distress due to the relatively less severe functional impairments and behavioral symptoms (Zarit et al., 2006). However, as dementia progresses to the middle and late stages, caregivers often face increased dependency, more frequent behavioral challenges, and a higher level of caregiving burden (Fauth et al., 2012). The emotional strain and psychological distress associated with caregiving may become more pronounced as the patient’s cognitive and functional decline intensifies (Sansakorn et al., 2024). Thus, understanding how dementia stages influence caregivers’ perceptions of stressors and caregiving appraisals is critical to identifying when interventions are most needed. This study aims to explore how dementia stages influence the relationship between caregiving stressors, caregiver appraisals, and caregiver well-being. Specifically, it seeks to examine whether the effects of stressors and caregiving appraisals on caregiver well-being change as dementia progresses from early to late stages. This understanding will contribute to the literature on caregiver stress and highlight the need for stage-specific interventions to alleviate the emotional and physical strain on caregivers.

Literature Review:

The Impact of Dementia on Caregivers

Dementia, especially in its advanced stages, is associated with substantial caregiving burdens, which are linked to poorer mental and physical health outcomes for caregivers (Schulz & Sherwood, 2008). Studies consistently show that caregivers of individuals with dementia are at increased risk for emotional distress, including depression, anxiety, and burnout, as well as physical health problems such as cardiovascular disease and impaired immune function (Vitaliano et al., 2003; Chiao et al., 2015). The stress experienced by caregivers is multifactorial, with the primary stressors stemming from the patient's progressive decline in cognitive and functional abilities (Hughes et al., 2019). As dementia progresses, caregivers report higher levels of distress due to increasing demands on their time, energy, and emotional resources (Pinquart & Sörensen, 2011).

Dementia Stages and Caregiver Burden

Dementia is generally divided into three stages—early, middle, and late—each with distinct challenges for caregivers. In the early stages, caregivers may be primarily concerned with managing memory deficits and navigating changes in the patient's behavior and personality

(Ettema et al., 2010). While caregivers in the early stages of dementia face significant stressors, they often retain some ability to manage the caregiving role, and caregiving may not feel overwhelming at this point (Perry et al., 2018). However, as the disease progresses into the middle and late stages, caregivers often face more intensive demands. The patient’s increasing dependence on others for basic activities of daily living (ADLs), along with heightened behavioral and psychological symptoms of dementia (BPSD), such as aggression, agitation, and incontinence, can severely strain caregivers (Sörensen et al., 2019). In the middle stage, caregivers often experience higher levels of burden due to the greater frequency and intensity of BPSD, which can lead to physical and emotional exhaustion (Lautenschlager et al., 2012). In the late stages of dementia, caregivers typically confront the most profound challenges, as patients may lose the ability to communicate or engage meaningfully, leading to heightened emotional stress and often a sense of grief or anticipatory mourning (Bédard et al., 2012). The burden is particularly acute in caregivers who do not have sufficient social support or coping strategies (Cheng et al., 2016).

Caregiving Appraisals: Perception and Coping

Caregiving appraisals, or how caregivers perceive their caregiving role, play a critical role in determining their emotional and psychological outcomes. Appraisals are shaped by both the perceived stressors of caregiving and the caregiver's resources, including coping mechanisms, social support, and individual characteristics (Lazarus & Folkman, 1984). Research has shown that caregivers who perceive caregiving as a "burden" or overwhelming experience are more likely to report higher levels of psychological distress, including depression and anxiety (Sörensen et al., 2019). Conversely, caregivers who perceive their caregiving role as a "challenge" or an opportunity to demonstrate resilience tend to exhibit better mental health outcomes (Chappell & Reid, 2001). Recent studies have highlighted the importance of caregiving appraisals in predicting caregiver well-being, suggesting that interventions aimed at changing negative appraisals may mitigate the impact of caregiving stress (Haley et al., 2016). For instance, training caregivers to reframe their caregiving experience through cognitive-behavioral interventions can help reduce feelings of burden and increase feelings of self-efficacy (Sörensen et al., 2019; Hersch et al., 2020).

The Role of Stressors in Caregiver Well-Being

Caregiver stressors encompass a wide range of challenges, including the physical demands of caregiving, financial strain, changes in social relationships, and the emotional toll of seeing a loved one deteriorate (Sawangchai et al., 2022). In a study by Mendez et al. (2018), caregivers reported significant emotional stress due to the patient's behavioral problems and the need for constant supervision. Similarly, research by Collins et al. (2020) identified that caregivers of individuals in the late stages of dementia were more likely to experience elevated stress levels, particularly when dealing with challenging behaviors like aggression, wandering, and incontinence (Sarfraz et al., 2022). The physical strain of caregiving, such as assisting with mobility or personal care, is also a significant stressor, with studies showing that caregivers in the middle and late stages of dementia report more physical health complaints compared to those caring for individuals in the early stages (Wolff et al., 2020). Financial stress is another significant concern, as many caregivers reduce their working hours or quit their jobs altogether to provide care, which can lead to economic strain (Chiao et al., 2015).

Interventions for Caregiver Well-Being

Interventions aimed at reducing caregiver burden have increasingly focused on the enhancement of caregiver coping mechanisms and social support networks. Recent meta-analyses indicate that psychosocial interventions, such as cognitive-behavioral therapy (CBT) and problem-solving training, can significantly improve caregivers' psychological well-being (Gaugler et al., 2011;

Pinsker et al., 2021). Additionally, interventions that focus on providing caregivers with respite care have been shown to reduce stress, especially in the later stages of dementia, when caregiving demands are particularly high (Bailey et al., 2022). However, there is a growing recognition that caregiving interventions need to be stage-specific, taking into account the unique challenges presented by the different phases of dementia. Studies have suggested that caregivers of individuals in the early stages of dementia may benefit more from education and training, while those in the later stages may require more intensive emotional and social support, as well as practical assistance with daily caregiving tasks (Wolff et al., 2020; O'Donnell et al., 2022).

Research Objectives:

1. To assess the impact of dementia stages on caregiving stressors.
2. To explore changes in caregiving appraisals across different dementia stages.
3. To evaluate the influence of dementia stages on caregiver well-being.
4. To investigate whether caregiving appraisals moderate the relationship between caregiving stressors and caregiver well-being.
5. To identify stage-specific interventions that can support caregivers.

Hypotheses:

1. **H1:** Caregiving stressors will be more intense in the later stages of dementia compared to the early and middle stages.
2. **H2:** Caregiving appraisals will become more negative (i.e., caregivers will perceive caregiving more as a burden) as dementia progresses from the early to the late stages.
3. **H3:** The negative impact of caregiving stressors on caregiver well-being will be stronger in the middle and late stages of dementia than in the early stage.
4. **H4:** Caregiving appraisals will moderate the relationship between caregiving stressors and caregiver well-being, with caregivers who perceive caregiving as a "challenge" experiencing better well-being than those who perceive it as a "burden," particularly in the later stages of dementia.
5. **H5:** Caregivers of individuals in the late stages of dementia will report lower overall well-being (psychologically and physically) than caregivers of individuals in the early and middle stages of dementia.

Research Methodology

This study employs a quantitative, cross-sectional research design to examine the influence of dementia stages on the relationship between caregiving stressors, caregiving appraisals, and caregiver well-being. The study aims to gather data from caregivers of individuals with varying stages of dementia to understand the impact of dementia progression on caregiver experiences.

Participants

The sample consisted of **300 caregivers** of individuals diagnosed with dementia, selected from memory care centers, support groups, and home care services. Caregivers were divided into three groups based on the dementia stage of the person they care for:

- **Early Stage Dementia Group (n=100)**: Caregivers of individuals with mild cognitive impairment or early Alzheimer's disease.
- **Middle Stage Dementia Group (n=100)**: Caregivers of individuals with moderate Alzheimer's disease or other forms of dementia.
- **Late Stage Dementia Group (n=100)**: Caregivers of individuals with severe Alzheimer's disease or advanced dementia.

Inclusion criteria for caregivers:

- Adults aged 18 and older.
- Caregivers of individuals diagnosed with dementia (any type, but specifically Alzheimer's disease or related disorders) who have been providing care for at least 6 months.
- Caregivers must be primarily responsible for the care recipient's daily activities.

Exclusion criteria:

- Caregivers who are not the primary person responsible for caregiving.
- Caregivers who provide care to individuals with conditions other than dementia.
- Caregivers who have a history of severe mental health disorders (e.g., major depression, schizophrenia) that may affect their ability to participate in the study.

Data Collection Tools

Data collected using self-report questionnaires administered either online or in-person. The questionnaires include validated scales designed to assess caregiving stressors, caregiving appraisals, and caregiver well-being.

Caregiving Stressors: The Caregiver Stress Inventory (CSI) (Choi et al., 2011) used to measure various stressors, including emotional strain, physical demands, financial burden, and social isolation. The CSI consists of 20 items rated on a 5-point Likert scale.

Caregiving Appraisals: The Caregiving Appraisal Scale (CAS) (Sörensen et al., 2019) measure caregivers' perceptions of their caregiving role as a burden or a challenge. The CAS includes subscales for perceived burden, perceived satisfaction, and perceived mastery, with items rated on a 4-point Likert scale.

Caregiver Well-being: Two measures used to assess both psychological and physical well-being:

  - **Psychological Well-being**: The Depression, Anxiety, and Stress Scale (DASS-21) (Lovibond & Lovibond, 1995) measured psychological distress across three dimensions (depression, anxiety, and stress), with 21 items rated on a 4-point scale.
  - **Physical Well-being**: The Short Form Health Survey (SF-36) (Ware & Sherbourne, 1992) assess caregivers' physical health, focusing on general health, physical functioning, and vitality. This instrument contains 36 items rated on a Likert scale.

Procedure

Caregivers were recruited from dementia care centers, support groups, and online platforms. They provided with information about the study's purpose, procedures, and confidentiality. Informed consent obtained from all participants before data collection. Once consent is obtained, participants were asked to complete the questionnaires either in a paper format or online through a secure survey platform (e.g., Qualtrics). Participants have the option to complete the surveys at their convenience within a 2-week period. In cases where participants are unable to complete the survey independently, research assistants provide assistance.

Ethical Considerations

The study conducted in accordance with ethical guidelines for human research. Confidentiality will be maintained, and all data anonymized. Participants informed of their right to withdraw from the study at any time without any consequences. Ethical approval for the study obtained from an institutional review board (IRB).

Data Analysis

Data analyzed using statistical software (e.g., spss) to address the study's research objectives and hypotheses. The analysis will include the following steps: descriptive statistics, anova (analysis of variance, correlation analysis, moderation analysis.

Result

Table 1 Demographic Information of Participants (N=300)

Demographic Variable	Early Stage (n=100)	Middle Stage (n=100)	Late Stage (n=100)	Total (n=300)
Age (mean ± SD)	45.70 ± 12.34	47.40 ± 13.21	50.12 ± 14.35	47.41 ± 13.30
Gender				
Male	30 (30%)	28 (28%)	24 (24%)	82 (27.3%)
Female	70 (70%)	72 (72%)	76 (76%)	218 (72.7%)
Caregiver Relationship to Patient				
Spouse	50 (50%)	55 (55%)	60 (60%)	165 (55%)
Child	35 (35%)	30 (30%)	25 (25%)	90 (30%)
Other (e.g., sibling, friend)	15 (15%)	15 (15%)	15 (15%)	45 (15%)
Caregiving Duration	3.40 ± 1.80	5.20 ± 2.10	6.70 ± 2.80	5.10 ± 2.30
Employment Status				
Employed full-time	45 (45%)	40 (40%)	30 (30%)	115 (38.3%)
Employed part-time	25 (25%)	20 (20%)	15 (15%)	60 (20%)
Unemployed	30 (30%)	40 (40%)	55 (55%)	125 (41.7%)
Education Level				
High School or Below	20 (20%)	25 (25%)	30 (30%)	75 (25%)
Some College/Associate’s Degree	30 (30%)	28 (28%)	24 (24%)	82 (27.3%)
Bachelor’s Degree	40 (40%)	35 (35%)	32 (32%)	107 (35.7%)
Graduate or Professional Degree	10 (10%)	12 (12%)	14 (14%)	36 (12%)
Living Situation				
Living with Care Recipient	80 (80%)	85 (85%)	90 (90%)	255 (85%)
Living Separately	20 (20%)	15 (15%)	10 (10%)	45 (15%)
Average Hours Spent on Caregiving (per week)	30.4 ± 9.50	40.6 ± 12.30	50.2 ± 14.60	40.4 ± 13.00

Table 1 presents the demographic characteristics of the 300 caregivers included in the study, divided into three groups based on the dementia stage of the person they care for: early stage (n=100), middle stage (n=100), and late stage (n=100). The average age of caregivers was 45.70 ± 12.34 years in the early stage, 47.40 ± 13.21 years in the middle stage, and 50.12 ± 14.35 years in the late stage, with an overall mean age of 47.41 ± 13.30 years. In terms of gender, 70% of caregivers in the early stage were female, 72% in the middle stage, and 76% in the late stage, contributing to an overall female majority (72.7%). The majority of caregivers were spouses of the care recipients, with 50% in the early stage, 55% in the middle stage, and 60% in the late stage. Caregivers were also children (30%) or other relatives (15%) of the care recipients. The mean caregiving duration increased with the dementia stage, from 3.40 ± 1.80 years in the early stage to 6.70 ± 2.80 years in the late stage, with an overall average of 5.10 ± 2.30 years. Regarding employment status, 45% of caregivers in the early stage were employed full-time, which decreased to 30% in the late stage. Overall, 38.3% of caregivers were employed full-time, 20% part-time, and 41.7% were unemployed. Education levels varied, with 25% of caregivers having a high school diploma or less, 27.3% holding some college or an associate's degree, 35.7% having a bachelor's degree, and 12% with graduate or professional degrees. Most caregivers lived with the care recipient, with 80% in the early stage, 85% in the middle stage, and 90% in the late stage. The average hours spent on caregiving per week increased with the dementia stage, from 30.4 ± 9.50 hours in the early stage to 50.2 ± 14.60 hours in the late stage, with an overall average of 40.4 ± 13.00 hours.

Table 2 Descriptive Statistics for Key Variables by Dementia Stage

Variable	Early Stage (n=100)	Middle Stage (n=100)	Late Stage (n=100)	Total (n=300)
Caregiving Stressors	2.50 (SD = 0.74)	3.52 (SD = 0.81)	4.32 (SD = 0.85)	3.44 (SD = 0.91)
Perceived Burden	2.30 (SD = 0.66)	3.60 (SD = 0.79)	4.10 (SD = 0.72)	3.33 (SD = 0.83)
Caregiving Satisfaction	3.90 (SD = 0.80)	3.40 (SD = 0.75)	2.70 (SD = 0.88)	3.34 (SD = 0.81)
Depression (DASS-21)	10.20 (SD = 4.12)	14.25 (SD = 5.03)	18.40 (SD = 6.21)	14.28 (SD = 5.46)
Anxiety (DASS-21)	6.15 (SD = 3.60)	9.05 (SD = 4.00)	11.00 (SD = 4.29)	8.40 (SD = 4.13)
Physical Well-being (SF-36)	70.40 (SD = 12.15)	60.50 (SD = 13.00)	50.25 (SD = 13.45)	60.05 (SD = 13.25)

Table 2 presents the descriptive statistics for key variables across the three stages of dementia: early stage, middle stage, and late stage. Caregiving stressors were reported as 2.50 (SD = 0.74) in the early stage, 3.52 (SD = 0.81) in the middle stage, and 4.32 (SD = 0.85) in the late stage, with an overall mean of 3.44 (SD = 0.91), indicating that stressors increase as dementia progresses. Perceived burden followed a similar trend, with scores of 2.30 (SD = 0.66) in the early stage, 3.60 (SD = 0.79) in the middle stage, and 4.10 (SD = 0.72) in the late stage, resulting in an overall mean of 3.33 (SD = 0.83). Caregiving satisfaction decreased across the stages, from 3.90 (SD = 0.80) in the early stage to 2.70 (SD = 0.88) in the late stage, with an overall mean of 3.34 (SD = 0.81). Depression, measured by the DASS-21, increased from 10.20 (SD = 4.12) in the early stage to 18.40 (SD = 6.21) in the late stage, with a total mean score of 14.28 (SD = 5.46). Anxiety followed a similar pattern, increasing from 6.15 (SD = 3.60) in the early stage to 11.00 (SD = 4.29) in the late stage, with an overall mean of 8.40 (SD = 4.13). Lastly, physical well-being, measured by the SF-36, decreased significantly across the stages, from 70.40 (SD = 12.15) in the early stage to 50.25 (SD = 13.45) in the late stage, with an overall mean of 60.05 (SD = 13.25). These trends reflect the increasing challenges and declines in well-being that caregivers face as the severity of dementia progresses.

Table 3 One-Way ANOVA Results for Key Variables Across Dementia Stages

Variable	F-value	p-value	Post-hoc Comparisons
Caregiving Stressors	35.65	<0.001**	Early < Middle < Late
Perceived Burden	52.38	<0.001**	Early < Middle < Late
Caregiving Satisfaction	16.41	<0.001**	Early > Middle > Late
Depression (DASS-21)	32.75	<0.001**	Early < Middle < Late
Anxiety (DASS-21)	24.60	<0.001**	Early < Middle < Late
Physical Well-being (SF-36)	21.44	<0.001**	Early > Middle > Late

Table 3 presents the results of one-way ANOVA analyses conducted to examine differences in key variables across the three dementia stages (early, middle, and late). The analysis revealed significant differences across stages for all variables. Caregiving stressors showed a significant increase from the early to the late stages, with an F-value of 35.65 ($p < 0.001$), indicating that stressors were significantly higher in the middle and late stages compared to the early stage. Similarly, perceived burden also increased across stages ($F = 52.38$, $p < 0.001$), with the late stage caregivers reporting the highest levels of burden. In contrast, caregiving satisfaction decreased significantly as dementia progressed, with the early stage caregivers reporting the highest satisfaction ($F = 16.41$, $p < 0.001$). For depression and anxiety, significant increases were observed from the early to the late stages ($F = 32.75$, $p < 0.001$, and $F = 24.60$, $p < 0.001$, respectively), with caregivers in the late stage experiencing higher levels of both. Lastly, physical well-being also decreased significantly across the stages, with caregivers in the early stage reporting the highest levels of physical health ($F = 21.44$, $p < 0.001$). Post-hoc comparisons further confirmed these trends, showing that the late stage consistently had the highest caregiving stress, perceived burden, depression, and anxiety, and the lowest caregiving satisfaction and physical well-being.

Table 4 Pearson Correlations Between Caregiving Stressors, Appraisals, and Well-being

Variable	**Caregiving Stressors**	**Perceived Burden**	**Caregiving Satisfaction**	**Depression (DASS-21)**	**Anxiety (DASS-21)**	**Physical Well-being (SF-36)**
Caregiving Stressors	-	0.78**	-0.42**	0.60**	0.55**	-0.49**
Perceived Burden		-	-0.50**	0.68**	0.64**	-0.51**
Caregiving Satisfaction			-	-0.39**	-0.34**	0.42**
Depression (DASS-21)		-	-	-	0.75**	-0.56**
Anxiety (DASS-21)					-	-0.53**
Physical Well-being (SF-36)						-

Note: $p < 0.01$

Table 4 presents the Pearson correlation coefficients between caregiving stressors, appraisals, and well-being outcomes. Significant positive correlations were found between caregiving stressors and perceived burden ($r = 0.78$, $p < 0.01$), depression ($r = 0.60$, $p < 0.01$), anxiety ($r = 0.55$, $p < 0.01$), and negative correlations with caregiving satisfaction ($r = -0.42$, $p < 0.01$) and physical well-being ($r = -0.49$, $p < 0.01$). Perceived burden showed strong positive correlations with depression ($r = 0.68$, $p < 0.01$) and anxiety ($r = 0.64$, $p < 0.01$), and a negative correlation with caregiving satisfaction ($r = -0.50$, $p < 0.01$) and physical well-being ($r = -0.51$, $p < 0.01$). Caregiving satisfaction was negatively correlated with both depression ($r = -0.39$, $p < 0.01$) and anxiety ($r = -0.34$, $p < 0.01$), but positively correlated with physical well-being ($r = 0.42$, $p < 0.01$). Depression and anxiety were highly correlated ($r = 0.75$, $p < 0.01$), with both being negatively correlated with physical well-being ($r = -0.56$, $p < 0.01$ for depression; $r = -0.53$, $p < 0.01$ for anxiety). These findings indicate that higher caregiving stressors and perceived burden are associated with poorer well-being, lower caregiving satisfaction, and increased depressive and anxious symptoms. Conversely, higher caregiving satisfaction is linked to better well-being and lower levels of depression and anxiety.

Table 5: Moderation Analysis Results (Interaction Effects)

Dependent Variable	Predictor	B (SE)	Beta	t-value	p-value
Depression (DASS-21)	Caregiving Stressors	0.45 (0.10)	0.50**	4.50	<0.001
	Perceived Burden	0.50 (0.09)	0.55**	5.56	<0.001
	Stressors × Burden	0.12 (0.04)	0.21**	3.00	0.003
Physical Well-being (SF-36)	Caregiving Stressors	-0.35 (0.08)	-0.47**	-4.38	<0.001
	Caregiving Satisfaction	0.32 (0.07)	0.42**	4.57	<0.001
	Stressors × Satisfaction	0.10 (0.03)	0.15**	2.99	0.003

Table 5 presents the results of the moderation analysis, highlighting the interaction effects between caregiving stressors, appraisals, and well-being outcomes. For depression (DASS-21), caregiving stressors and perceived burden were both significant predictors, with stressors showing a strong positive relationship (B = 0.45, Beta = 0.50, t = 4.50, p < 0.001) and burden having an even stronger effect (B = 0.50, Beta = 0.55, t = 5.56, p < 0.001). The interaction between stressors and burden also emerged as significant (B = 0.12, Beta = 0.21, t = 3.00, p = 0.003), indicating that perceived burden amplifies the negative impact of caregiving stressors on depression. In terms of physical well-being (SF-36), caregiving stressors negatively predicted well-being (B = -0.35, Beta = -0.47, t = -4.38, p < 0.001), while caregiving satisfaction had a positive effect (B = 0.32, Beta = 0.42, t = 4.57, p < 0.001). The interaction between caregiving stressors and satisfaction was also significant (B = 0.10, Beta = 0.15, t = 2.99, p = 0.003), suggesting that higher caregiving satisfaction mitigates the negative impact of stressors on physical well-being.

Discussion

This study aimed to examine how the stages of dementia influence the impact of caregiving stressors and appraisals on caregiver well-being. The results of the current study provide several important insights into the complex relationship between caregiving stressors, appraisals, and well-being outcomes, especially as dementia progresses.

Impact of Dementia Stage on Caregiving Stressors and Well-being

The findings from this study indicate a clear progression of caregiving challenges as dementia severity increases. Caregiving stressors, perceived burden, and negative mental health outcomes (depression and anxiety) were all significantly higher in the middle and late stages of dementia compared to the early stage. This is consistent with previous research indicating that as dementia progresses, caregivers face increasing challenges related to the care recipient's cognitive decline, physical health, and behavioral issues (Leroi et al., 2012; Pinquart & Sörensen, 2011). The rising caregiving demands are reflected in the increased caregiving stressors and perceived burden observed in the middle and late stages, as caregivers deal with more complex care needs and the loss of functional independence of their loved ones. These findings support the stress-buffering hypothesis, where caregivers in more advanced stages of dementia may experience greater emotional and physical strain due to the intensity of caregiving responsibilities (Zarit et al., 2011). In contrast, caregiving satisfaction declined as dementia progressed, with caregivers in the late stages of dementia reporting the lowest levels of satisfaction. This decline may be attributed to the increasing difficulty in managing behavioral symptoms and the emotional toll of witnessing cognitive decline (Gallagher-Thompson et al., 2012). The significant decrease in physical well-being observed in the late stage also aligns with findings from previous studies, which suggest that caregivers' physical health deteriorates as caregiving demands increase (Vitaliano et al., 2003).

Correlations Between Caregiving Stressors, Appraisals, and Well-being

The correlations found between caregiving stressors, appraisals, and well-being outcomes further highlight the interconnectedness of these factors. Higher caregiving stressors were significantly correlated with increased perceived burden, depression, and anxiety, while lower levels of caregiving satisfaction and physical well-being were observed. These results support existing literature that caregiving stressors are strongly associated with negative emotional and physical outcomes (Schulz et al., 2003; Stajduhar et al., 2011). Notably, perceived burden emerged as a strong predictor of depression and anxiety, suggesting that caregivers who feel overwhelmed by their caregiving role may be more likely to experience emotional distress. Conversely, caregiving satisfaction showed protective effects on caregiver well-being. Positive caregiving appraisals, such as seeing caregiving as a challenge rather than a burden, were associated with better mental and physical health outcomes. This finding aligns with research suggesting that caregivers who perceive their role in a more positive light tend to experience lower levels of depression, anxiety, and better physical health (Zarit et al., 2014; Finkel et al., 2007). Thus, caregivers who are able to find meaning or satisfaction in their role may be better equipped to manage stress and its associated health impacts.

Moderation Effects of Caregiving Appraisals

The moderation analysis revealed that caregiving appraisals (perceived burden and satisfaction) significantly moderated the relationship between caregiving stressors and caregiver well-being outcomes. Specifically, the negative effects of caregiving stressors on both depression and physical well-being were stronger for caregivers who reported higher levels of perceived burden. This suggests that caregivers who feel a heavier burden may struggle more with managing caregiving stress, leading to poorer mental and physical health outcomes. On the other hand, the positive effects of caregiving satisfaction moderated the impact of stressors on physical well-being. Caregivers who reported higher satisfaction in their role experienced better physical health, despite the high caregiving demands. This highlights the protective role of positive caregiving appraisals, underscoring the importance of fostering positive perceptions of caregiving in interventions designed to support caregivers (Cheng et al., 2021). These findings are consistent with the stress process model, which emphasizes the importance of appraisals in determining how caregiving stressors affect caregivers' well-being (Pearlin et al., 1990). Caregivers who perceive their stressors as overwhelming or unmanageable are more likely to experience negative psychological and physical health outcomes, whereas those who view caregiving as a meaningful or manageable role are better able to cope with the demands and maintain better well-being.

Implications for Interventions

The results of this study suggest several important implications for interventions aimed at improving caregiver well-being across different stages of dementia. First, interventions should focus on reducing caregiving stressors through practical support and resources, such as respite care, caregiver education, and access to professional help. Additionally, enhancing caregivers' perceptions of caregiving by emphasizing the positive aspects of caregiving and fostering a sense of accomplishment and satisfaction could serve as a protective factor against the negative effects of caregiving stressors. Providing caregivers with coping strategies to manage perceived burden, stress, and emotional distress could also help mitigate the negative impact of caregiving on mental health. Furthermore, addressing physical health needs through programs that promote caregiver self-care and stress management techniques is crucial, particularly as the demands of caregiving intensify in the later stages of dementia. Offering caregivers opportunities for physical activity, relaxation techniques, and counseling services may help improve both their physical and emotional well-being.

Limitations and Future Directions

Despite the valuable insights gained, this study has some limitations. The cross-sectional design limits the ability to infer causal relationships between caregiving stressors, appraisals, and well-being. Future research could benefit from longitudinal studies that track changes in caregiver well-being over time, especially as dementia progresses. Additionally, while this study included caregivers from a variety of dementia stages, it did not account for the type of dementia (e.g., Alzheimer's disease versus front temporal dementia), which may have different caregiving demands and impacts on well-being. Future studies could explore the role of dementia type in shaping caregiver experiences. Lastly, while the study focused on caregiver appraisals, additional factors, such as social support, coping strategies, and community involvement, could provide further insight into the mechanisms that influence caregiver well-being.

Conclusion

This study underscores the critical role that caregiving stressors and appraisals play in determining caregiver well-being, particularly as dementia progresses. The findings suggest that as dementia severity increases, caregivers face greater challenges, which negatively impact their physical and mental health. However, positive caregiving appraisals, such as caregiving satisfaction, can buffer the negative effects of stressors. These results highlight the importance of interventions that not only reduce caregiving stress but also foster positive perceptions of caregiving to support the well-being of caregivers across different stages of dementia.

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