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Research Article

Perceived Discrimination and Incident Dementia Among Older Adults in the United States: The Buffering Role of Social Relationships

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Abstract

Objectives: Recent studies have found that perceived discrimination as a chronic stressor predicts poorer cognitive health. However, little research has investigated how social relationships as potential intervening mechanisms may mitigate or exacerbate this association. Using a nationally representative sample of U.S. older adults, this study examined how the existence and quality of 4 types of relationships—with a partner, children, other family members, and friends—may modify the impact of perceived discrimination on incident dementia.

Methods: We analyzed data from the 2006 to 2016 Health and Retirement Study ($N = 12{,}236$) using discrete-time event history models with competing risks. We used perceived discrimination, social relationships, and their interactions at the baseline to predict the risk of incident dementia in the follow-ups.

Results: Perceived discrimination predicted a higher risk of incident dementia in the follow-ups. Although having a partner or not did not modify this association, partnership support attenuated the negative effects of discrimination on incident dementia. Neither the existence nor quality of relationships with children, other family members, or friends modified the association.

Discussion: Our findings imply that intimate partnership plays a critical role in coping with discrimination and, consequently, influencing the cognitive health of older adults. Although perceived discrimination is a significant risk factor for the incidence of dementia, better partnership quality may attenuate this association. Policies that eliminate discrimination and interventions that strengthen intimate partnerships may facilitate better cognitive health in late life.

Keywords: Cognitive health, Relationship strain, Social support, Stress

Perceived discrimination is a common everyday experience in U.S. society (Johnson et al., 2020; Kessler et al., 1999). Research shows that perceived discrimination based on, for example, race/ethnicity, gender, sexual orientation, age, weight, and disability is associated with poorer mental and physical health outcomes, although most of this research focuses on adolescents and young to middle-aged adults (National Academies of Sciences, Engineering, and Medicine, 2020; Pascoe & Richman, 2009; Sutin et al., 2015). A growing body of recent studies has begun to investigate how discrimination may affect cognitive health among older adults based on longitudinal designs (Shankar & Hinds, 2017; Sutin et al., 2019; Zahodne et al., 2020). However, most of these studies have emphasized psychological and biological mechanisms linking discrimination and cognitive decline, and few have explored how social environment may modify the effects of discrimination on older adults' cognitive health. Specifically, while social relationships as a coping mechanism may potentially buffer or exacerbate the harm of discrimination on health according to the stress process theory (Thoits, 2011), little empirical research has studied this process in the context of cognitive health.

Using longitudinal data from the Health and Retirement Study (2006–2016), the current study examines how social support and strain from four relationship types—partnership and relationships with adult children, family, and friendship—may mitigate or exacerbate the impact of perceived discrimination on incident dementia among a nationally representative sample of older Americans.

Background

Discrimination and Cognitive Health

A prominent framework for understanding the link between discrimination and health is the stress process theory (Pearlin et al., 1981). Perceived discrimination, a major source of chronic stress, may increase cortisol levels and heighten inflammation that leads to vascular diseases and/or degenerative changes in the brain structure, thereby causing cognitive impairment such as memory loss and dementia (Bancks et al., 2023; Barnes et al., 2012; Juster et al., 2010; R. Chen et al., 2022; Zahodne et al., 2020). Discrimination may also reduce cognitive functioning indirectly through shaping

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biopsychological and behavioral factors, such as increasing depressive symptoms that disrupt or inhibit health-promoting behaviors including physical activity and sleep (Barnes et al., 2012; R. Chen et al., 2022; Zahodne et al., 2019).

The empirical evidence on the association between perceived discrimination and cognitive health outcomes is, however, mixed. Although many studies have found that perceived discrimination is associated with poor cognitive functioning in multiple domains and a higher risk of incident dementia (e.g., Bancks et al., 2023; Barnes et al., 2012; Sutin et al., 2019, 2020; Zahodne et al., 2020), others have not identified similar associations (e.g., Dark et al., 2023; Sutin et al., 2015). Surprisingly, a recent cross-sectional study has shown a positive association between major lifetime discrimination and cognitive functioning among Blacks and U.S.-born individuals (Meza et al., 2022). The mixed findings may be attributed to differences in study design (e.g., longitudinal vs cross-sectional and regional vs national) as well as measurement of discrimination.

Social Relationships as Potential Moderators Between Discrimination and Cognitive Health

Recent studies have shown that characteristics of social relationships are associated with cognitive health (Huang et al., 2023; Kuiper et al., 2015; Penninkilampi et al., 2018; Zhang et al., 2021). The majority of this scholarship indicates that having no close social ties (e.g., being unpartnered and lacking a close friend), participating in fewer social activities, and living alone predict an increased risk of incident dementia. Some studies have further noted that the quality of relationships matters: social support such as feeling understood by family and friends predicts a lower risk of cognitive decline or dementia whereas relationship strain such as feeling criticized predicts a higher dementia risk (Gow et al., 2013; Khondoker et al., 2017; Marioni et al., 2015). Little research, however, has examined how characteristics of social relationships may modify—either reduce or aggravate—the impact of discrimination on cognitive health.

Social support can serve a buffering role in lowering the negative impact of stressors on health outcomes (House et al., 1988; Thoits, 2011; Umberson & Montez, 2010). Many studies on mental health have demonstrated that social support not only is directly linked to better mental health but also indirectly mitigates the negative health consequences of stressors (Ajrouch et al., 2010; Donnelly et al., 2019; Lee & Waters, 2021; Pascoe & Richman, 2009; Pauly et al., 2018). For example, Donnelly et al. (2019) showed that experience of discrimination was associated with more depressive symptoms, but greater spousal support lowered the strength of this association. Similarly, Ajrouch et al. (2010) found a positive relationship between discrimination and psychological distress, but social support reduced the strength of this association. Specifically, in the face of discrimination, supportive relationships can help individuals cope through various means, for example, by showing empathy and understanding, enhancing self-esteem rather than self-blame, and/or offering guidance to manage the consequences of discrimination (e.g., finding legal or institutional support) and to avoid possible future incidents that could amplify the present distress/trauma (Ayres & Leaper, 2013; Thoits, 2011). Although relationship strain or negative social interaction is also an essential aspect of social relationships, much less scholarship has examined its influences on health (Song et al., 2021), particularly how it might aggravate the impact of discrimination on health. As research has noted, social support and relationship strain are related but distinct constructs; they may coexist and affect health and well-being independently and synergistically (Hsieh & Hawkley, 2018; Y. Chen & Feeley, 2014).

Although few studies have examined how social support and relationship strain may moderate the association between discrimination and cognitive health, the stress process model has led us to theorize that these relationship qualities may mitigate or exacerbate the negative impact of discrimination on cognitive functioning. Notably, perceived discrimination, a major source of chronic stress, may activate the hypothalamic–pituitary–adrenal (HPA) axis and elevate allostatic load, both of which have been linked to a decline in cognitive functioning (McEwen, 2012). Social support may reduce the perceived threat of stressors and mitigate the physiological response to stress, such as dampening the activation of the HPA axis and reducing the increase in allostatic load (Ditzen & Heinrichs, 2014; Juster et al., 2010). Moreover, chronic stress from discrimination may also lead to depression and anxiety, both of which have been identified as significant risk factors for prodromal symptoms of dementia (Byers & Yaffe, 2011; Gulpers et al., 2016; Hsieh et al., 2021). Research has shown that social support may serve as resources that help individuals cope with stressful situations and build resilience (Thoits, 2011), thereby weakening the link between discrimination and mood disorders or psychological distress (Ajrouch et al., 2010; Donnelly et al., 2019). Accordingly, it is likely that social support may reduce the strength of the association between discrimination and cognitive impairment through shaping mental health. It is also critical to assess how other qualities of relationships, including relationship strain, may promote or inhibit coping with discrimination and its cognitive health consequences.

Furthermore, social relationships consist of different types, such as with a partner, children, other family members, and friends, and the levels of contact frequencies, support exchanges, and reciprocal obligations vary across types (Antonucci et al., 2014; Hsieh & Liu, 2021). Their roles in buffering or exacerbating the impact of discrimination may thus differ. Intimate partnership is often considered the most important relationship that shapes one's access to social support and health in adulthood (Liu & Waite, 2014). It is a key source of instrumental and emotional support that may facilitate coping with the negative health impact of stressors such as discrimination experiences (Donnelly et al., 2019). Meanwhile, a strained partnership (e.g., one with greater demand or conflict), a stressor on its own, may intensify the negative impact of other existing stressful life events (Hsieh & Hawkley, 2018; Warner & Adams, 2012).

Adult children can also play a critical role in parents' aging lives, providing assistance and care to their parents, particularly during hardships such as illness, widowhood, and poverty. Some research indicates that compared to parents, childless older adults may be more likely to have smaller social networks, less social support, or greater loneliness (Penning et al., 2022; Zoutewelle-Terovan & Liefbroer, 2018), which in turn may lead to poorer cognitive health (Penninkilampi et al., 2018). Losing a child prior to midlife also predicts a greater risk of dementia in late life (Umberson et al., 2020). Similarly, other family members may offer companionship, socializing opportunities, and support in difficult times although some studies suggested that they may be less central or influential to older adults' social life and health compared to partners or adult children (Antonucci et al., 2014; Hsieh & Liu, 2021; Warner & Adams, 2012).

Finally, friendship may provide additional comfort and support in the face of stressful experiences. Although few studies have examined whether the existence or quality of friendship may buffer/exacerbate the negative effects of stressors on cognitive decline, research on friendship and some risk factors for dementia (e.g., cardiovascular functioning and depressive symptoms) have led us to expect that friendship may also modify the association between stressors and dementia incidence. For example, having a friend confidant helped buffer the impact of widowhood, a major stressor, on depressive symptoms over 12 years (Bookwala et al., 2014). In a controlled experimental design (Holt-Lunstad et al., 2007), participants showed higher systolic blood pressure when interacting with a friend whom they felt ambivalent toward (i.e., a friendship with both positive and negative qualities) than a supportive friend in the context of discussing a stressful event.

Overall, the literature indicates that social relationships play a critical role in shaping health outcomes, including cognitive health. However, little research has explored how different characteristics and types of social relationships may modify the impact of discrimination on cognitive health. Moreover, most studies investigating the link between discrimination, social relationships, and health rely on cross-sectional data that cannot handle concerns about reverse causation and selection bias. This study uses longitudinal data from a nationally representative sample of older adults to address these important knowledge gaps in the literature.

Hypotheses

To examine the roles of social relationships in modifying the link between perceived discrimination and cognitive health, we test a series of hypotheses. First, given that discrimination as a source of stress may reduce cognitive functioning through changing biological, psychological, and/or behavioral processes, we hypothesize that:

> *H1*: Higher frequency of perceived discrimination predicts higher risk of incident dementia over time.

Second, given previous literature suggesting that social relationships can provide companionship, reduce isolation/loneliness, and facilitate coping with stress from discrimination, we hypothesize that:

> *H2*: Having any partner, adult children, other family members, and friends mitigates the effects of perceived discrimination on dementia incidence.

Third, because emotional, informational, and/or instrumental support from a relationship can facilitate coping with stress from discrimination, we hypothesize that:

> *H3*: Relationship support from the partner, adult children, other family members, and friends mitigates the effects of perceived discrimination on dementia incidence.

Fourth, previous studies suggest that relationship strain can be a stressor on its own that intensifies the negative health impact of existing stress from discrimination. Therefore, we hypothesize that:

> *H4*: Relationship strain with the partner, adult children, other family members, and friends exacerbates the effects of perceived discrimination on dementia incidence.

Data and Methods

Data and Sample

This study used data from the 2006 to 2016 Health and Retirement Study (HRS), a longitudinal survey on a nationally representative sample of noninstitutionalized adults aged 50 and older in the United States. Since 1992, the HRS has studied the aging processes, health, and economic well-being among older Americans biennially, and cognitive assessment has been included from the beginning (Crimmins et al., 2011). Starting in 2006, the HRS has included a psychosocial questionnaire in its survey and collected information about life circumstances and subjective well-being, including perceived discrimination and relationship quality, from a rotating 50% of the core panel participants who completed the enhanced face-to-face interview (Smith et al., 2017). Specifically, a random half of the participants were invited to complete this questionnaire in 2006, and the other half were invited in 2008 (thereafter, each subsample was followed up every 4 years for the psychosocial questionnaire). The response rate for the psychosocial questionnaire among eligible participants was 87.7% in 2006 and 83.7% in 2008. We treated the 2006 and 2008 data as our baseline and restricted the analytic sample to those who did not have dementia and who were at least 50 years old in the baseline ($N = 12{,}236$ persons or 51,647 person-periods). The sample selection process is shown in Supplementary Figure E1, and the descriptive statistics of the analytic and excluded samples are shown in Supplementary Table E1. The full analytic sample was used for the analysis of how the existence of social relationships predicts dementia incidence. For the analysis of how relationship quality predicts dementia incidence, the sample size varied by relationship type because the measurement of relationship quality was contingent on the existence of a relationship.

Variables

Dementia

Dementia was primarily measured by the modified version of the Telephone Interview of Cognitive Status (TICS), which assessed participants' capability of immediate and delayed word recall, serial 7s subtraction, and backward counting. Following the Langa–Weir classification of cognitive function (Langa et al., 2020), we identified individuals as demented when they scored 0–6 on the 27-point scale. Proxy reports were used to classify dementia status for those who were unable to participate in the TICS; they were based on a proxy assessment of memory, instrumental activities of daily living, and interviewer assessment of cognitive impairment. To account for selection bias resulting from death or loss of follow-up in a longitudinal study, we incorporated these competing events into our analysis, and thus the outcome variable included four categories: no dementia (reference), dementia, loss of follow-up, and death. Table 1 shows the changing distribution of these competing events over five periods in both unweighted frequencies and weighted percentages. It shows that the share of participants with no dementia declined while that of other competing events increased.

Perceived discrimination

Perceived discrimination was assessed by the average frequency of the following experiences in the baseline: being treated with less courtesy or respect, receiving poorer service than others, people acting as if you are not smart, people

Table 1. Distribution of Dementia Status in Each Study Period (*N* = 12,236 Persons)

Variable	Period 1 (2006–2008)	Period 2 (2008–2010)	Period 3 (2010–2012)	Period 4 (2012–2014)	Period 5 (2014–2016)
Unweighted frequency					
No dementia	12,236	10,866	9,857	8,957	7,827
Dementia	0	416	522	573	587
Loss of follow-up	0	376	646	844	1,210
Death	0	578	1,211	1,862	2,612
Weighted %					
No dementia	100.0	89.9	82.4	75.8	67.2
Dementia	0.0	2.8	3.5	3.9	3.9
Loss of follow-up	0.0	3.2	5.8	7.4	10.6
Death	0.0	4.1	8.5	13.0	18.2

acting as if they are afraid of you, and being threatened or harassed (from 0 = *never* to 5 = *almost everyday*).

Social relationships

Social relationships included measures of both baseline relationship status and relationship quality. *Relationship status* indicated the existence of relationships and included four variables indicating whether the respondent had a marital or cohabiting partner (partner thereafter), living children, other family members, or friends, respectively (*yes* = 1, *no* = 0). *Relationship quality* included eight variables on social support and relationship strain from a partner, children, family members, and friends, respectively (conditional upon the existence of the relationship). For each relationship type, the support and strain variables were measured via seven items (all on a 4-point scale from 1 = *not at all* to 4 = *a lot*) about how much the respondent can (1) rely on and (2) open up to their partner/children/family/friends and how much the partner/children/family/friends (3) can really understand the way they feel about things, (4) make too many demands on them, (5) criticize them, (6) let them down when they are counting on them, and (7) get on their nerves. Partner support and strain included an additional item on relationship closeness (also measured on a 4-point scale). Considering that these items had moderate to high correlation in each relationship type (Cronbach's alphas ranged from 0.70 to 0.85), we used exploratory factor analysis with oblique rotation to calculate the support and strain scores for each relationship type following the same steps used by previous research on relationship quality among older adults (Hsieh & Liu, 2021; Liu & Waite, 2014). Higher (or more positive) values indicate more support or strain, while lower (or more negative) values indicate less support or strain. Details about the exploratory factor analysis are shown in Supplementary Table E2.

Control variables

Control variables included baseline *age* (in years), *binary gender* (women and men), *race/ethnicity* (non-Hispanic White, non-Hispanic Black, Hispanic, and non-Hispanic other race), *education* (in years), *highest parental education among the parents* (0–11, 12, 13–15, 16+, and missing years), *logged household income*, and *logged household wealth (net assets)*. We also adjusted for baseline *number of living children* and *household size* in the analysis of relationship quality, but not in the analysis of relationship status due to collinearity issues. Additionally, baseline health condition and behavior variables were included to account for their potential confounding effects on the estimated associations between discrimination, social relationships, and dementia. A *number of chronic conditions* was measured by a count of the following eight conditions ever diagnosed by a health professional: hypertension, diabetes, cancer, lung disease, heart problems, stroke, emotional/psychiatric problems, and arthritis. *Memory disease* indicated whether the respondent has ever had a diagnosis of memory-related disease (*yes* = 1, *no* = 0). *Center for Epidemiological Studies Depression* was a summary of eight items indicating the respondent's emotional well-being in the past week, such as feeling depressed, having restless sleep, and feeling lonely. *Physical activity* was measured by the frequency of moderate exercise (never, less than once a month, 1–3 times a month, 1–2 times a week, and 3+ times a week). *Drinking* was measured by the average number of days of drinking per week in the past three months. *Smoking* indicated whether the respondent was a current smoker (*yes* = 1, *no* = 0). *Body mass index* was estimated by dividing weight (in kilograms) by squared height (in meters). Finally, *time period* (coded as 1 to 5) was included to account for the time trend.

Analytic Strategy

Discrete-time event history analysis with competing risks was used to analyze the longitudinal data (Allison, 2014). Person-periods (in 2-year intervals from 2006 to 2016) were generated as the analytic unit, and multinomial logistic regression modeling was employed to account for the competing risks of death and loss of follow-up. Other recent studies have employed this strategy to handle estimation biases from sample attrition/selection (Umberson et al., 2020; Zhang et al., 2021). To address concerns about reverse causality, particularly cognitive decline leading to poor assessment of both discrimination and relationship status/quality, we used perceived discrimination and relationship variables at the baseline (2006/2008) to predict dementia incidence in the follow-ups, controlling for the effects of baseline sociodemographic factors, health conditions and behaviors, and time periods. In supplementary analyses, we also tested using time-varying discrimination and relationship variables to predict dementia incidence, and the results were similar (available upon request).

To accurately examine interaction effects in nonlinear models (e.g., how partner support mitigates the effects of discrimination on dementia), we assessed predicted probabilities of dementia at different levels of discrimination and relationship status/quality rather than simply relying on the significance tests of their product terms, which may be misleading (Mize, 2019). All analysis was weighted using the baseline weight for the HRS leave-behind study and adjusted for household-level clustering for robust standard errors.

Results

Descriptive Findings

Table 2 shows the weighted descriptive statistics of all the independent variables at the baseline by dementia status. Perceived discrimination did not vary much by dementia status except that those who died reported lower discrimination than those with no dementia by the end of the study period. In terms of relationship status, those with dementia and those who died were less likely to have any partner, other family members, and friends than those with no dementia. Relationship quality also varies. Those with dementia and those who died both reported more support and less strain from children than those with no dementia. Additionally, those who died also reported less family and friend strain as well as less friend support than those with no dementia.

There are several notable variations in sociodemographic characteristics by dementia status. Compared to those with no dementia, those with dementia were older and more likely to be female and Black or Hispanic, and they also had lower socioeconomic status on different dimensions, including personal and parental education, household income, and household assets. Expectedly, those with dementia had poorer health outcomes including experiencing chronic conditions, memory disease, and depression more often than those with no dementia. Some of these disparity patterns were also found among those who died.

Regression Findings: Associations Between Relationship Status and Dementia Incidence

In support of Hypothesis *H1*, our findings in Table 3 show that older adults who perceived more frequent day-to-day discrimination at the baseline had higher risks of incident dementia over time (relative risk ratio [RRR] = 1.12, $p < .05$). Meanwhile, older ages, male identity, Black identity, less education, lower income and wealth, a greater number of diagnosed chronic conditions, memory-related disease ever diagnosed, more depressive symptoms, lower frequency of physical activity and drinking, being a smoker, lower BMI are all associated with higher risks of incident dementia.

Table 3 also shows whether having any partner, children, family members, or friends predicts dementia incidence. Results suggest that the existence of family relationships (RRR = 0.64, $p < .01$) predicts lower risks of incident dementia whereas having a partner, children or friends does not. Meanwhile, none of these relationships appear to mitigate the effects of perceived discrimination on dementia incidence according to their insignificant interaction effects with perceived discrimination (results not shown but available upon request). Therefore, we do not find support for Hypothesis *H2*.

Regression Findings: Associations Between Relationship Quality and Dementia Incidence

We estimated the effects of relationship quality on incident dementia in separate models as the sample varied according to the existence of the specific relationship. Most of the qualities of social relationships—both support and strain—are not directly associated with dementia incidence (Table 4). The only exception is family strain, which predicts higher risks of incident dementia (Model 3, RRR = 1.13, $p < .01$). None of the support or strain from a partner, children, and friends is directly linked to dementia incidence.

Nonetheless, our results in Table 5 show that partner support reduces the impact of discrimination on risk of dementia incidence, as indicated by the interaction effect between partner support and discrimination (Panel A, RRR = 0.89, $p < .01$). To better illustrate this interaction effect, we plotted the predicted probabilities of incident dementia by levels of perceived discrimination and partner support in Supplementary Figure E2. As Supplementary Figure E2 demonstrates, although more frequent experience of discrimination is generally associated with higher probabilities of incident dementia, this association is much stronger when the level of partner support is low. With median and high levels of partner support, the harmful effect of discrimination on incident dementia is largely mitigated. However, the effect of discrimination on incident dementia is not significantly exacerbated as partner strain increases. Meanwhile, the qualities of relationships with children, family, or friends do not significantly mitigate or exacerbate the impact of discrimination on incident dementia over time (see Panels B–D in Table 5; figures of no interaction are available upon request). Together, these findings provide some support for Hypotheses *H3* but not for *H4*, highlighting the more important role of partnership than other relationships in protecting cognitive health when older adults are faced with discrimination in late life.

Discussion

Prior research has shown that perceived discrimination is associated with a variety of poorer mental and physical health outcomes based primarily on evidence among adolescents and young to middle-aged adults (National Academies of Sciences, Engineering, and Medicine, 2020; Pascoe & Richman, 2009; Sutin et al., 2015). Although some recent studies have also found an association between discrimination and poorer cognitive health outcomes among older adults (Shankar & Hinds, 2017; Sutin et al., 2019; Zahodne et al., 2020), few of them have explored how social relationships may modify this association. Building on the stress process framework, the current study is one of the first to examine how social relationships, including the existence of a partner, children, other family members, and friends and the quality of these relationships, may mitigate or exacerbate the impact of perceived discrimination on the risk of dementia incidence in late life using a nationally representative longitudinal sample of older adults in the United States.

Our findings highlight that perceived discrimination at the baseline predicts a higher risk of incident dementia in the follow-ups, confirming findings from other recent studies based on longitudinal designs (Bancks et al., 2023; Sutin et al., 2019; Zahodne et al., 2020). Moreover, our study goes beyond previous studies to show that the negative effect of perceived discrimination on dementia incidence is stronger

Table 2. Weighted Descriptive Statistics of Independent Variables in Baseline by Dementia Status (*N* = 12,236 Persons)

Variable	No dementia[a]		Dementia[b]		Loss of follow-up[c]		Death[d]	
	Mean/%	*SD*	Mean/%	*SD*	Mean/%	*SD*	Mean/%	*SD*
Perceived discrimination (range: 0–5)	0.68	0.67	0.65	0.89	0.64	0.63	0.62*	0.79
Having any partner (%)	72.07		50.59*		68.22		53.01*	
Having any children (%)	90.10		89.87		87.92		89.94	
Having any other family (%)	95.88		90.04*		94.08		92.09*	
Having any friends (%)	94.07		90.99*		91.62		90.55*	
Partner support (range: −3.66 to 0.89)	0.05	0.79	−0.04	0.97	0.05	0.83	0.02	0.95
Partner strain (range: −1.33 to 2.81)	−0.01	0.76	0.06	0.95	−0.08	0.78	0.00	0.90
Support from children (range: −2.97 to 1.00)	−0.07	0.83	0.08*	0.94	−0.06	0.84	0.03*	0.91
Strain from children (range: −1.03 to 3.30)	0.07	0.80	−0.02*	0.93	−0.04*	0.78	−0.06*	0.92
Family support (range: −2.15 to 1.31)	−0.05	0.84	0.03	0.99	−0.02	0.81	−0.03	0.96
Family strain (range: −0.89 to 3.47)	0.04	0.81	0.03	1.00	0.03	0.78	−0.08*	0.87
Friend support (range: −2.66 to 1.32)	0.03	0.80	−0.04	1.00	0.00	0.81	−0.07*	0.98
Friend strain (range: −0.79 to 4.53)	0.02	0.76	0.02	0.95	−0.01	0.75	−0.06*	0.86
Age (range: 50–100)	63.33	7.22	74.50*	10.77	64.26*	7.80	74.09*	10.94
Gender (%)								
Women	55.30		60.71*		53.81		50.44*	
Men	44.70		39.29*		46.19		49.56*	
Race/ethnicity (%)								
Non-Hispanic White	83.27		72.15*		84.63		86.16*	
Non-Hispanic Black	7.68		15.26*		6.88		7.22	
Hispanic	6.70		10.36*		5.69		5.28	
Non-Hispanic other race	2.35		2.23		2.80		1.34	
Years of education (range: 0–17)	13.48	2.39	11.19*	3.65	13.19*	2.34	12.39*	2.86
Parental education (%)								
0–11 years	33.97		60.64*		34.55		57.20*	
12 years	34.88		17.42*		35.73		22.04*	
13–15 years	10.62		3.63*		8.66		5.41*	
16+ years	14.00		4.14*		12.18		5.20*	
Missing	6.53		14.17*		8.87		10.15*	
Logged household income (range: 0–16.42)	10.81	1.14	9.99*	1.37	10.78	1.07	10.24*	1.19
Logged household wealth (range: 0–17.60)	14.80	0.23	14.72*	0.18	14.80	0.21	14.73*	0.60
Number of living children (range: 0–11)	2.89	1.68	3.28*	2.28	2.82	1.76	3.05*	2.07
Household size (range: 1–13)	2.28	1.02	2.04*	1.28	2.14*	0.97	1.95*	1.07
Number of chronic conditions (range: 0–8)	1.66	1.17	2.34*	1.57	1.65	1.18	2.78*	1.51
Memory disease (%)	1.74		7.90*		1.70		4.08*	
CES-D (range: 0–8)	1.22	1.67	1.99*	2.27	1.22	1.59	1.84*	2.13
Physical activity (%)								
Never	12.79		31.60*		15.64		38.07*	
Less than once a month	9.28		9.27		9.55		8.45	
1–3 times a month	15.54		15.10		16.17		13.08	
1–2 times a week	50.62		33.43*		46.73		31.65*	
3+ times a week	11.76		10.60		11.91		8.75*	
Drinking days per week (range: 0–7)	1.33	1.97	0.77*	1.87	1.30	1.90	1.15*	2.28
Smoking (%)	12.78		12.97		13.97		19.07*	
BMI (range: 10.6–68.7)	28.75	5.32	27.12*	5.82	27.96*	4.90	27.66*	6.66

Notes: BMI = body mass index; CES-D = Center for Epidemiological Studies Depression; *SD* = standard deviation.
[a] Never had dementia.
[b] Had dementia in Periods 2–5.
[c] Loss of follow-up in Period 5 (never had dementia).
[d] Death in Period 5 (never had dementia).
*Significantly different from the no dementia group at the $p < .05$ level.

Table 3. Discrete-time Event History Model of Perceived Discrimination and Incident Dementia with Competing Risks (Relative Risk Ratios/RRR, *n* = 51,647 Person-periods)

Variable	Dementia (vs no dementia)	
	RRR	*SE*
Perceived discrimination	1.12*	(0.05)
Age	1.11***	(0.01)
Female (ref: men)	0.86*	(0.06)
Race/ethnicity (ref: White)		
Black	2.29***	(0.23)
Hispanic	1.07	(0.16)
Other race/ethnicity	1.18	(0.32)
Years of education	0.87***	(0.01)
Parental education (ref: 0–11 years)		
12 years	1.00	(0.10)
13–15 years	0.71^{+}	(0.13)
16+ years	0.81	(0.14)
Missing	1.28*	(0.14)
Logged household income	0.90***	(0.02)
Logged net assets	0.75***	(0.06)
Number of chronic conditions	1.07*	(0.03)
Memory disease	2.90***	(0.44)
CES-D	1.09***	(0.02)
Physical activity (ref: never)		
Less than once a month	0.75*	(0.10)
1–3 times a month	0.85	(0.10)
1–2 times a week	0.69***	(0.06)
3+ times a week	0.79^{+}	(0.10)
Drinking days per week	0.95**	(0.02)
Smoking	1.36**	(0.16)
BMI	0.97***	(0.01)
Time period	1.64***	(0.04)
Having any partner	1.08	(0.09)
Having any children	0.91	(0.11)
Having any other family	0.64***	(0.08)
Having any friends	1.00	(0.13)
Constant	0.02**	(0.02)

Notes: BMI = body mass index; CES-D = Center for Epidemiological Studies Depression; *SE* = standard error.
Results for the competing risks of loss of follow-up and death are not shown but available upon request.
$^{+}p < .1$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

among older adults with lower partner support compared to those with greater partner support. These findings support the stress process model theorizing that stressors experienced in life may arouse physiological responses detrimental to health and that social relationships, in particular partnerships, as coping mechanisms may modify the impact of stressors on health outcomes (House et al., 1988; Pearlin et al., 1981; Thoits, 2011). They also extend prior evidence that social support buffers the negative effects of stressors (including experiences of discrimination) on mental health to cognitive health (Ajrouch et al., 2010; Donnelly et al., 2019; House et al., 1988). By contrast, having a partner or not per se does not modify the link between perceived discrimination and incident dementia. This finding implies that quality matters more than quantity in social connection (Pinquart & Sorensen, 2001) and that relationship quality likely plays a more important role in buffering discrimination-related stress than relationship status.

To our surprise, our analysis indicates that neither support nor strain from children, other family members, or friends shapes the association between perceived discrimination and the risk of incident dementia. Although previous studies have found that these relationships may offer emotional and/or instrumental support for older adults, thereby enhancing their health and well-being (Antonucci et al., 2014; Bookwala et al., 2014; Hsieh & Liu, 2021), our findings note that the existence or quality of these relationships does not significantly mitigate or exacerbate the negative impact of discrimination on cognitive health. It may be that these relationships tend to be relatively more peripheral than intimate partnerships (Antonucci et al., 2014; Hsieh & Liu, 2021) and that perceived discrimination, a sensitive issue that requires more intimacy, trust, and emotion work to process, is better coped with by intimate partnership. Furthermore, intimate partners are more often engaged in frequent daily interactions than ties in other types of social relationships, thereby providing a greater amount of emotional, informational, or instrumental support (Antonucci et al., 2014; Y. Chen & Feeley, 2014), such as comfort, encouragement, and advice to manage day-to-day discrimination. These findings highlight that intimate partnership is particularly influential in coping with life stressors and, consequently, the health and well-being of older adults (Donnelly et al., 2019; Liu & Waite, 2014).

Our study has several limitations. First, the measure of dementia is based on cognitive tests and proxy reports rather than clinical diagnosis. Although previous research using HRS has verified that the use of cognitive tests and proxy reports can correctly classify 74% and 86%, respectively, of the HRS respondents into clinical diagnosis categories of normal versus demented cognition (Crimmins et al., 2011), the issue of misclassification cannot be ignored. Relatedly, classification tools may have difficulty in handling borderline cases, which likely travel between classes from time to time. In our analysis based on the Langa–Weir classification, 32% of those with a dementia incidence in Period 2 had a "reversed" status in Period 3, but this rate dropped to 17% in Period 5. As noted in other studies using HRS data, transitions from dementia to a dementia-free state may reflect the inconsistencies between the neuropathology of dementia and cognitive functioning (Farina et al., 2020). For instance, individuals may experience improvement in cognitive functioning after surgery or recovery from a stroke. However, the general trend of cognitive decline remains clear, and individuals with cognitive impairment, not dementia are at high risk of progressing to dementia (Plassman et al., 2011). Moreover, although we build our research hypotheses based on causal implications from previous studies, our analysis is to document general associations rather than to determine causality. Our study design based on a longitudinal data set and an appropriate time order of variables (i.e., using perceived discrimination and social relationships at the baseline to predict risk of incident dementia in the follow-ups) helps inform causal inferences. To address concerns about reverse causality, we have also tested lagged models with time-variant covariates. Unfortunately, these models would lose more than 60% of the observations due primarily to missing values in key independent variables such

Table 4. Effects of Perceived Discrimination and Relationship Quality on Risk of Incident Dementia (Relative Risk Ratios/RRR)

Variable	Model 1 *N*[a] = 35,990		Model 2 *N* = 48,096		Model 3 *N* = 49,434		Model 4 *N* = 49,084	
	RRR	*SE*	RRR	*SE*	RRR	*SE*	RRR	*SE*
Perceived discrimination	1.20**	(0.07)	1.16**	(0.06)	1.07	(0.06)	1.11*	(0.06)
Partner support	1.06	(0.07)						
Partner strain	0.96	(0.07)						
Support from children			1.06	(0.06)				
Strain from children			1.05	(0.06)				
Family support					1.02	(0.04)		
Family strain					1.13**	(0.05)		
Friend support							1.06	(0.04)
Friend strain							1.05	(0.05)

Notes: BMI = body mass index; CES-D = Center for Epidemiological Studies Depression; *SE* = standard error.
All models are based on discrete-time event history analysis that uses multinomial logistic regression to account for the competing risks of death and loss of follow-up. All models control for age, binary gender, race/ethnicity, education, parental education, number of chronic conditions, memory disease, CES-D, physical activity, drinking, smoking, BMI, number of living children, household size, and time trend. The relative risk ratios for death and loss of follow-up and the coefficients of control variables are not shown but are available upon request.
[a] *N* (person-periods).
$^{+}p < .1$; $^{*}p < .05$; $^{**}p < .01$.

Table 5. Summary of Main and Interaction Effects of Perceived Discrimination and Relationship Quality on Risk of Incident Dementia (Relative Risk Ratios/RRR)

Variable	RRR	*SE*
A. Partnership (*n* = 35,990 person-periods)		
Discrimination	1.12	(0.08)
Partner support	1.20*	(0.09)
Discrimination × Partner support	0.89**	(0.04)
Discrimination	1.15*	(0.08)
Partner strain	0.90	(0.07)
Discrimination × Partner strain	1.07	(0.05)
B. Relationship with children (*n* = 48,096 person-periods)		
Discrimination	1.16**	(0.06)
Support from children	1.07	(0.07)
Discrimination × Support from children	0.99	(0.04)
Discrimination	1.16**	(0.07)
Strain from children	1.05	(0.06)
Discrimination × Strain from children	1.00	(0.04)
C. Family (*n* = 49,434 person-periods)		
Discrimination	1.07	(0.05)
Family support	0.98	(0.05)
Discrimination × Family support	1.05	(0.06)
Discrimination	1.06	(0.06)
Family strain	1.11^{+}	(0.06)
Discrimination × Family strain	1.02	(0.04)
D. Friendship (*n* = 49,084 person-periods)		
Discrimination	1.10^{+}	(0.06)
Friend support	1.07	(0.06)
Discrimination × Friend support	0.98	(0.05)
Discrimination	1.11^{+}	(0.06)
Friend strain	1.05	(0.06)
Discrimination × Friend strain	1.00	(0.03)

Notes: BMI = body mass index; CES-D = Center for Epidemiological Studies Depression; *SE* = standard error.
All models are based on discrete-time event history analysis that uses multinomial logistic regression to account for the competing risks of death and loss of follow-up. All models control for age, binary gender, race/ethnicity, education, parental education, number of chronic conditions, memory disease, CES-D, physical activity, drinking, smoking, BMI, number of living children, household size, and time trend. The relative risk ratios for death and loss of follow-up and the coefficients of control variables are not shown but are available upon request.
$^{+}p < .1$; $^{*}p < .05$; $^{**}p < .01$.

as relationship qualities in the follow-up periods. We recognize that this data limitation is an obstacle to the use of more advanced approaches that could better identify causation, and we encourage future research to continue exploring methods that could effectively address significant missingness in longitudinal data.

Despite these limitations, the current study fills important gaps in the literature on discrimination and cognitive health—an emerging public health concern in a rapidly aging society—by examining the roles of social relationships in mitigating or exacerbating the impact of discrimination on dementia incidence. Our findings show that while perceived discrimination is a significant risk factor for dementia, better partnership quality may attenuate this association. Accordingly, both policies that reduce or eliminate discrimination and interventions that strengthen intimate partnerships may lower the incidence of dementia. Future studies should continue to explore how social relationships may modify the association between specific types of discrimination and cognitive health.

Supplementary Material

Supplementary data are available at *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences* online.

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Conflict of Interest

None.

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