Health Impacts of Intergenerational Caregiving Among Pre-Retirement-Aged Adults in the United States

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Abstract

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This project investigates the physical health consequences of dual caregiving—simultaneously caring for children and aging parents—among U.S. adults aged 51 to 64. Grounded in the stress process model, this study leverages nationally representative longitudinal data from the RAND Health and Retirement Study (HRS) and RAND Family Files (1998–2018) to assess how dual caregiving status relates to self-rated health and the number of chronic conditions over time. Descriptive analyses tracked changes in health outcomes across 11 waves, highlighting consistent disparities between dual and non-dual caregivers, with the gap widening in recent years. Mixed-effects linear regression models were employed to evaluate these associations while adjusting for key covariates: age, gender, education, household income, employment status, and survey wave. Sensitivity analyses incorporated birth cohort as a substitute for age to account for generational health differences. Findings indicate that dual caregivers experience significantly poorer self-rated health and a higher burden of chronic disease, even after adjusting for socioeconomic and demographic factors. The effects remained robust in cohort-adjusted models, confirming the independent health risks associated with dual caregiving. These results point to a cumulative physiological toll likely driven by overlapping care demands, time scarcity, and financial stress. This research contributes to the public health literature by identifying dual caregivers as a distinct, high-risk population within the broader context of aging and caregiving in the United States. Policy implications include the urgent need for expanded access to paid family leave, workplace flexibility, and caregiver health monitoring—supports currently available in only 13 states. Interventions tailored to the unique pressures of dual caregiving could reduce health disparities and support aging-in-place strategies for both caregivers and care recipients.

Introduction

In the evolving demographic landscape of the United States, a growing number of adults are finding themselves at the convergence of two demanding roles: supporting aging parents while simultaneously raising or providing for dependent children. This "sandwich generation"—particularly those at pre-retirement age (mostly between ages 51 to 64)—has become symbolic of the intergenerational caregiving crisis shaped by longer life expectancy, delayed parenthood, and fraying public support systems. At this pivotal stage in life, individuals are not only navigating their own aging and approaching retirement but also absorbing the compounding pressures of dual caregiving, often without sufficient institutional or societal support.

Although caregiving is frequently rooted in familial love, cultural obligation, or reciprocal care, it can also function as an unrelenting source of physical and emotional strain. The dual caregiving scenario complicates this burden further by intersecting upward and downward obligations—each with its own temporal, financial, and emotional demands.

Existing research has shown that informal caregivers frequently report elevated stress, reduced well-being, and increased risk of chronic illness (Do et al., 2014; Janson et al., 2022). Yet, the sandwich generation remains understudied as a distinct population—particularly with regard to physical health outcomes. Recent evidence from Lei et al. (2023) and Cheng and Santos-Lozada (2024) highlights that dual caregivers are not only more likely to experience emotional and financial strain but also represent a demographically diverse group whose health vulnerabilities are shaped by socioeconomic status, race, employment patterns, and family structure.

Despite growing scholarly interest, the physical health consequences of dual caregiving remain inadequately quantified, especially for pre-retirement-aged adults. This omission is critical: these years are not only formative for aging trajectories but also serve as a narrow window for preventive intervention.

This thesis explores a pivotal question: To what extent is providing simultaneous care to elderly parents and dependent children associated with physical health outcomes—specifically self-rated health and chronic condition burden—among adults aged 51 to 64 in the United States?

Literature Review

A growing body of literature has examined the health consequences of informal caregiving, but relatively few studies have isolated the unique experience of dual caregivers—those simultaneously responsible for elderly parents and dependent children. This overlap in

caregiving obligations introduces complex stress dynamics that compound over time and are shaped by socioeconomic context, gender, and employment status.

Do et al. (2014), drawing from the Behavioral Risk Factor Surveillance System, demonstrated that caregivers with multiple children and lower income were significantly more likely to report poor self-rated health, suggesting that demographic factors modulate caregiving's health toll. Building on this, Lei et al. (2023) offered one of the most comprehensive national profiles of sandwich generation caregivers. They found that dual caregivers report more emotional distress and financial hardship than single-generation caregivers, while also being more likely to remain in the labor force—intensifying time conflict and physical burden.

A broader meta-perspective is provided by Janson et al. (2022), whose systematic review concluded that informal caregivers experience elevated rates of morbidity and mortality compared to non-caregivers. However, the review noted a striking lack of focus on dual caregivers specifically, reinforcing the need for population-differentiated studies. Cheng and Santos-Lozada (2024) expanded this lens by showing that health outcomes among sandwich generation adults vary widely. They identified that working-class women and caregivers with limited social support networks experience the steepest declines in both mental and physical health, reinforcing the intersectional nature of caregiving burdens.

Longitudinal evidence from Chassin et al. (2010) complements these findings by emphasizing behavioral deterioration. Over time, sandwich generation caregivers exhibited increases in smoking and alcohol use and decreases in physical activity—trends that subtly, but powerfully, contribute to worsening health. These behavioral adaptations, the authors argue, may reflect the chronic nature of stress exposure more than acute strain.

Together, these studies paint a vivid and multifaceted picture: the sandwich generation is not only growing in size but is also marked by disproportionate health risks—particularly physical ones. And yet, despite mounting evidence, the field still lacks rigorous, longitudinal analyses that center pre-retirement-aged dual caregivers as a distinct analytic group.

Conceptual model

This thesis is anchored in the stress process model introduced by Pearlin et al. (1990), a widely utilized framework in caregiving research. The model conceptualizes stress as a dynamic process that unfolds across interrelated domains. Specifically, it differentiates between primary stressors—the direct demands of caregiving—and secondary stressors, which arise from the caregiver’s broader social roles or internal responses. These may include role overload, time scarcity, financial strain, and intrapsychic burdens such as loss of self or diminished mastery. When these stressors compound without sufficient buffers, they erode the caregiver’s physical and psychological health.

Building upon this foundation, this thesis adapts Pearlin's model to the context of dual caregiving in the pre-retirement life stage, a population experiencing upward and downward care responsibilities simultaneously. In this framework, caregiving for aging parents and dependent children are conceptualized as dual primary stressors, each demanding distinct time, financial, and emotional resources. As depicted in Figure 1, these concurrent roles generate a caregiving burden specific to the sandwich generation, particularly for adults aged 51–64.

This burden does not exist in a vacuum. It gives rise to secondary stressors, including role conflict (e.g., tension between caregiving and employment), time demands (e.g., reduced leisure and sleep), and financial strain (e.g., out-of-pocket support for both generations). These secondary stressors reduce capacity for self-care and amplify cumulative stress exposure—mechanisms that can lead to physical health deterioration over time. Importantly, the model also incorporates moderating factors: informal support (such as help from family or friends) and formal support (such as workplace flexibility or access to respite care) may serve as buffers that mitigate stress intensity or slow its physiological effects.

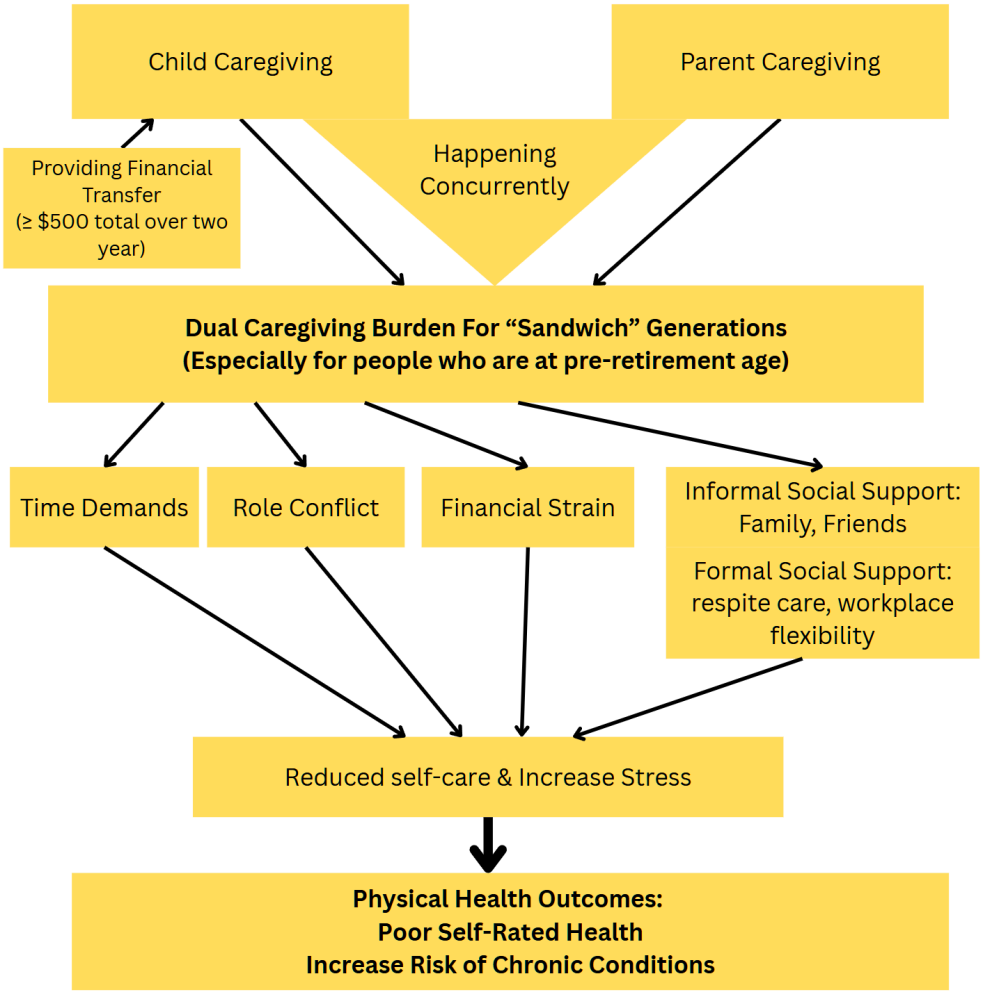
The conceptual diagram also captures the hypothesized pathway from stress exposure to physical health outcomes—specifically, self-rated health and the number of chronic conditions. These outcomes were selected for their relevance in aging and public health literature and their availability in the Health and Retirement Study (HRS) dataset. Arrows in the figure indicate hypothesized directions of influence among caregiving inputs, mediators, and outcomes.

This framework leads to two key expectations:

1. Primary hypothesis: Adults providing care to both elderly parents and children will experience poorer physical health outcomes than those with fewer caregiving responsibilities.
2. Secondary hypothesis: This relationship will be exacerbated in individuals with fewer support resources—such as low income, unmarried status, or full-time employment—due to the intensification of secondary stressors.

In sum, this conceptual model provides a theoretically grounded yet empirically flexible structure for analyzing how dual caregiving burden translates into measurable physical health disparities among pre-retirement adults.

Figure.1 Stress Process Model of Dual Intergenerational Caregiving



Methods

Data and Sample

This study draws on longitudinal data from the Health and Retirement Study (HRS), a nationally representative biennial panel survey of U.S. adults over the age of 50. Specifically, the analysis uses merged files from the RAND HRS Longitudinal File and the RAND Family File, which together offer harmonized demographic, health, and intergenerational relationship variables across survey waves.

The analytic sample includes respondents aged 51 to 64, drawn from Wave 4 (1998) through Wave 14 (2018)—the period during which consistent dual caregiving and health measures are available. Dual caregiving is defined as concurrently meeting two conditions within the same wave: (1) reporting financial assistance of $500 or more to a child over the past two years, and (2) reporting personal or instrumental caregiving to a parent or in-law.

After excluding respondents with missing data on caregiving status, physical health outcomes, or key socio-demographic covariates, the final dataset includes 28,605 person-wave observations, representing n = 28,605 unique respondents.

The unit of analysis is the person-wave. All statistical models account for repeated measures by clustering on respondent ID (hhidpn). The merged analytic file contains up to 20,723 variables, reflecting the integration of RAND HRS and RAND Family data across 11 waves.

Variables

This study investigates how dual caregiving responsibilities relate to physical health outcomes among pre-retirement adults. The primary independent variable is a binary indicator of dual caregiving status, defined as meeting two concurrent criteria within the same wave. Respondents who satisfied both conditions were coded as dual caregivers; all others were classified as non-dual caregivers.

Two dependent variables serve as health outcomes. The first is self-rated health, a widely used subjective health measure captured on a five-point ordinal scale in the HRS: 1 = *Excellent*, 2 = *Very Good*, 3 = *Good*, 4 = *Fair*, and 5 = *Poor*. Higher scores reflect poorer perceived health. The second outcome is a count of chronic conditions, constructed from HRS items asking respondents whether a doctor has ever told them they had any of eight specific health problems: hypertension, diabetes, cancer (excluding skin cancer), chronic lung disease, heart problems, stroke or transient ischemic attack, arthritis or rheumatism, and psychiatric problems or depression. Each condition is coded as present (1) or absent (0), and responses are summed to create a total morbidity index ranging from 0 to 8.

To account for potential confounding, a series of linear mixed-effects models were estimated using the lmer() function in R. All models included a random intercept for individual respondents ((1 | hhidpn)) to account for within-person correlation over time. Covariates were introduced sequentially in domain-specific blocks—age, gender, education, income (log-transformed), employment status, and birth cohort—to observe how associations between dual caregiving and health outcomes were affected by each adjustment. Fully adjusted models included all covariates simultaneously.

These covariates are selected based on their established associations with both caregiving status and health outcomes and reflect demographic, socioeconomic, and life-course positioning relevant to the stress process model.

Analytical approach

This study applied a multi-phase analytical strategy beginning with descriptive analyses to explore differences in self-rated health and chronic disease burden between dual and non-dual caregivers across 11 HRS waves (1998–2018). Visualizations captured longitudinal trends by caregiving status and birth cohort, and summary statistics at Wave 10 provided a snapshot of health disparities at mid-study.

Inferentially, a series of linear mixed-effects models were estimated to quantify associations between dual caregiving and physical health outcomes. All models included individual-level random intercepts to account for repeated measures, and covariates were entered in sequential blocks to assess their impact on the caregiving-health relationship. Fully adjusted models included sociodemographic, economic, and employment variables, with cohort-adjusted sensitivity models included to test robustness. Model diagnostics and coefficient plots were used to assess significance and interpretability.

Together, the approach with descriptive and multivariable modeling provided a comprehensive examination of how dual caregiving responsibilities relate to physical health outcomes in adults at pre-retirement age.

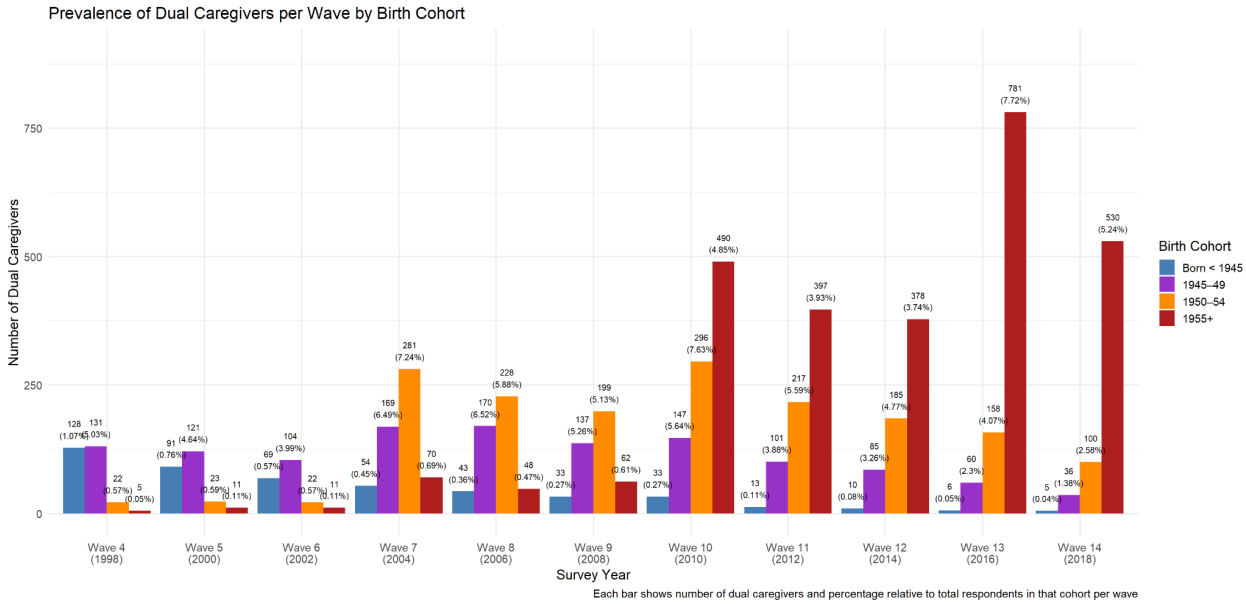
Results

The descriptive analysis reveals a dynamic and cohort-sensitive progression in the prevalence of dual caregiving among adults in the pre-retirement stage. As shown in Figure 2, the total number and percentage of dual caregivers vary substantially across survey waves and birth cohorts. Earlier waves (1998–2004) are dominated by older cohorts — particularly those born before 1945 and between 1945–49 — with relatively small counts and low caregiving prevalence (e.g., 128 dual caregivers from the “Born < 1945” cohort in Wave 4, comprising 1.07% of their cohort at that wave).

However, as later-born cohorts age into caregiving roles, a distinct upward trend emerges. The 1950–54 cohort reaches its caregiving peak in Wave 10 (2010), with 296 dual caregivers comprising 7.63% of that cohort at the time. Even more striking, the 1955+ cohort surpasses all others in later waves: by Wave 13 (2016), dual caregiving prevalence climbs to 7.72%, with 781 respondents meeting the dual caregiving criteria — the highest count observed across the entire study period.

These patterns underscore the importance of distinguishing birth cohort effects from simple temporal trends. The steady rise in dual caregiving is not simply a reflection of time passing; it reflects a structural demographic shift as younger cohorts encounter the combined pressures of aging parents and financially dependent children. This intensification appears to be both cumulative and generational, suggesting that the caregiving burden is not only growing, but also concentrating disproportionately in specific population segments.

Figure 2. Prevalence of Dual Caregivers per Wave by Birth Year Cohort.

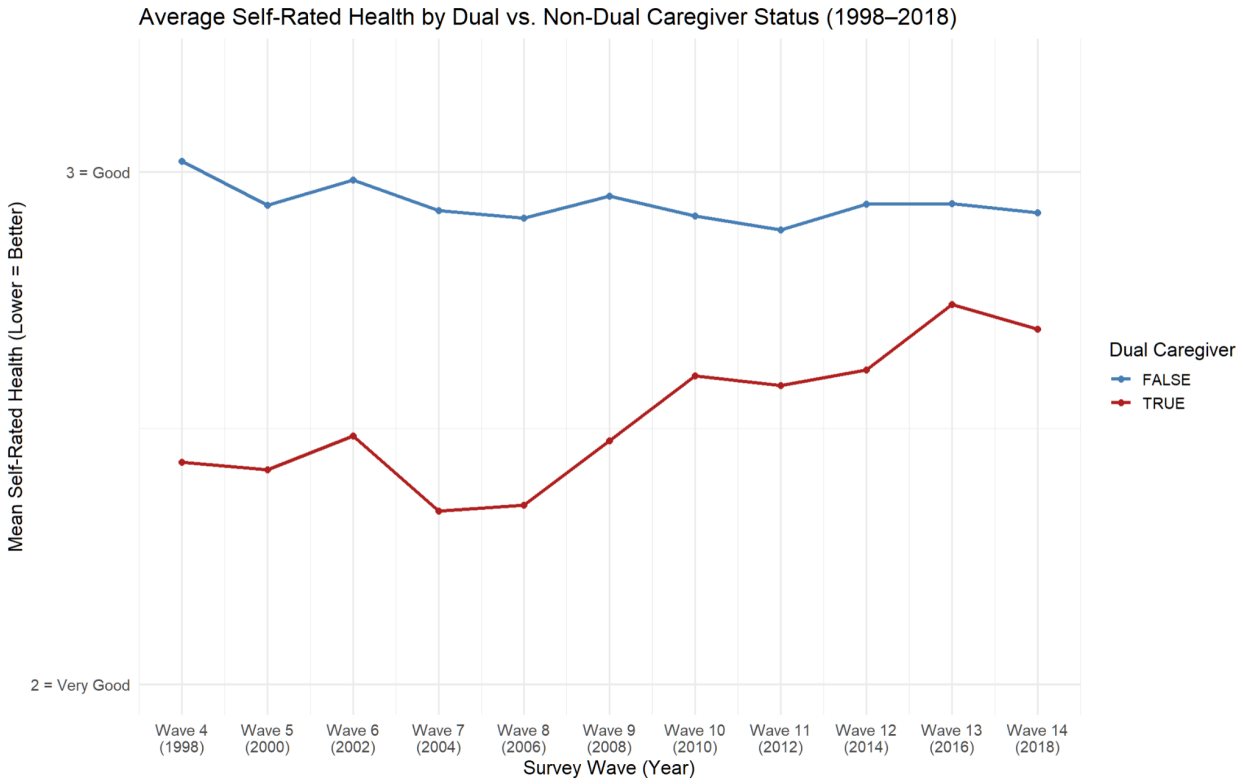


As shown in Figure 3, a growing disparity in self-rated health (SRH) emerges between caregivers with dual responsibilities and those with single-generation or other caregiving roles. Dual caregivers report persistently poorer health across all waves — and notably, their SRH scores deteriorate over time. From Wave 4 (1998) to Wave 14 (2018), mean SRH for dual caregivers increases (i.e., worsens) from below 2.9 to over 3.2, reflecting a decline from *very good* to just above *good* health on average. In contrast, non-dual caregivers show remarkable stability, with average SRH remaining around 2.8 across the same period.

This divergence highlights the cumulative burden of dual caregiving — a slow and steady erosion of perceived health that appears distinct from the experience of caregivers with more

limited responsibilities. Importantly, the reference group in this figure includes individuals who are caregivers but do not simultaneously care for both a parent and a child. As such, the observed trend likely understates the difference between dual caregivers and non-caregivers altogether.

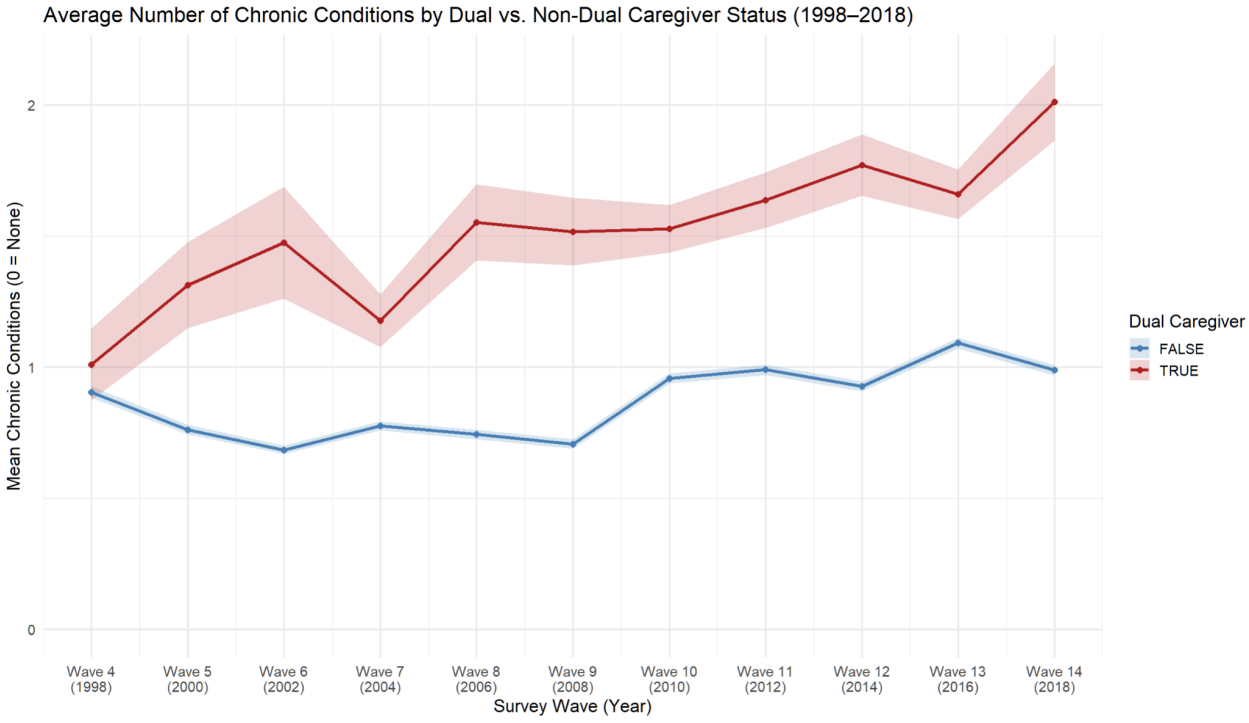
Figure 3. Average Self-Rated Health by Dual vs. Non-Dual Caregiver Status (1998–2018)



As shown in Figure 4, dual caregivers report consistently higher average chronic condition counts than their non-dual-caregiving peers, with the disparity widening over time. By Wave 14 (2018), dual caregivers report an average of over two chronic conditions compared to fewer than 1.2 among non-dual caregivers — a gap that has more than doubled since Wave 4.

It is important to note that these figures reflect unadjusted means, and may partially capture underlying compositional differences between caregiving groups (e.g., age, income, education). To address this, the regression models presented below introduce covariate adjustments to isolate the independent association between dual caregiving and health status.

Figure 4. Average Number of Chronic Conditions by Dual vs. Non-Dual Caregiver Status (1998–2018)



To further examine chronic health disparities between dual and non-dual caregivers, a summary table of distributional statistics was generated for Wave 10 — the midpoint of the study period and a peak year for dual caregiving prevalence. As shown in Table 1, dual caregivers reported an average of 1.53 chronic conditions (SD = 1.44), compared to 0.96 conditions among non-dual caregivers. While both groups shared the same lower-end distribution — with a minimum of zero and identical 25th percentile and median values (0) — the distribution among dual caregivers was more consistently shifted upward. The mean number of chronic conditions was higher (1.53 vs. 0.96), and a greater share of dual caregivers had two or more conditions, as reflected in the 75th percentile (2 in both groups, but more densely clustered in dual caregivers). Although the maximum number of conditions was slightly higher among non-dual caregivers (15 vs. 13), this likely reflects isolated outliers rather than a broader pattern.

It is also important to note that the dual caregiver group (n = 966) was substantially smaller than the non-dual caregiver group (n = 27,327) at Wave 10. This imbalance, while reflective of population patterns, should be kept in mind when interpreting the distributional differences. The larger sample size among non-dual caregivers may smooth variability, whereas the smaller dual caregiver group may more clearly reveal shifts in central tendency and dispersion, especially given the pronounced stress-related burden theorized in this population.

These findings reveal a meaningful rightward shift in the distribution of chronic illness burden among dual caregivers. Not only are chronic conditions more prevalent on average, but a greater proportion of dual caregivers experience multiple coexisting health problems — a pattern that aligns with the cumulative burden hypothesis embedded in the stress process framework.

Table 1. Summary Statistics for Chronic Conditions by Caregiver Status, Wave 10 (2010)

Dual Responsibility	n	mean	sd	min	p25	median	p75	max
Non-Dual Caregiver	27327	0.96	1.56	0	0	0	2	15
Dual Caregiver	966	1.53	1.44	0	0	1	2	13

The results from two fully adjusted mixed-effects regression models are presented in Figure 5 and Figure 6, illustrating the independent association between dual caregiving and both subjective and objective physical health outcomes.

As shown in Figure 5, dual caregiving was significantly associated with poorer self-rated health. After controlling for age, gender, education, log-transformed household income, employment status, and survey wave, dual caregivers reported a 0.03-point increase in SRH scores ($p = 0.010$). Since the HRS SRH scale is reverse-coded (higher scores reflect poorer health), this effect represents a small but statistically meaningful deterioration in perceived health attributable to dual caregiving. Other covariates showed expected relationships: older age and higher wavenumber were associated with worse SRH, while higher education, higher income, and being employed were associated with better perceived health.

In Figure 6, dual caregiving was also significantly associated with a higher number of chronic conditions. Dual caregivers experienced an average increase of 0.08 chronic conditions ($p < 0.001$) relative to non-dual caregivers, holding other covariates constant. This effect persisted alongside strong associations with age ($\beta = 0.48$), wave ($\beta = 0.06$), and socioeconomic factors such as education and employment. The magnitude and statistical significance of the dual caregiving effect, despite the presence of powerful covariates, reinforces its importance as an independent health risk factor.

These results confirm that the disparities identified in descriptive analyses remain robust under multivariable adjustment. Taken together, the evidence supports the conclusion that dual caregiving independently contributes to both perceived and clinically measurable physical health decline.

Figure 5. Adjusted mixed-effects model predicting self-rated health

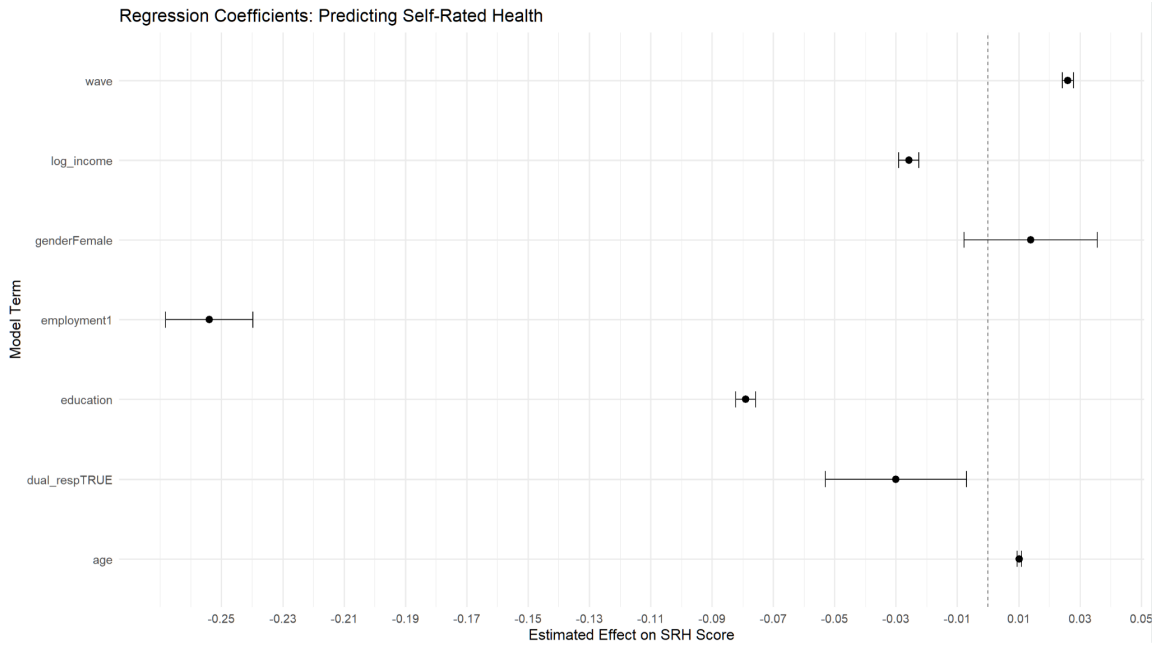
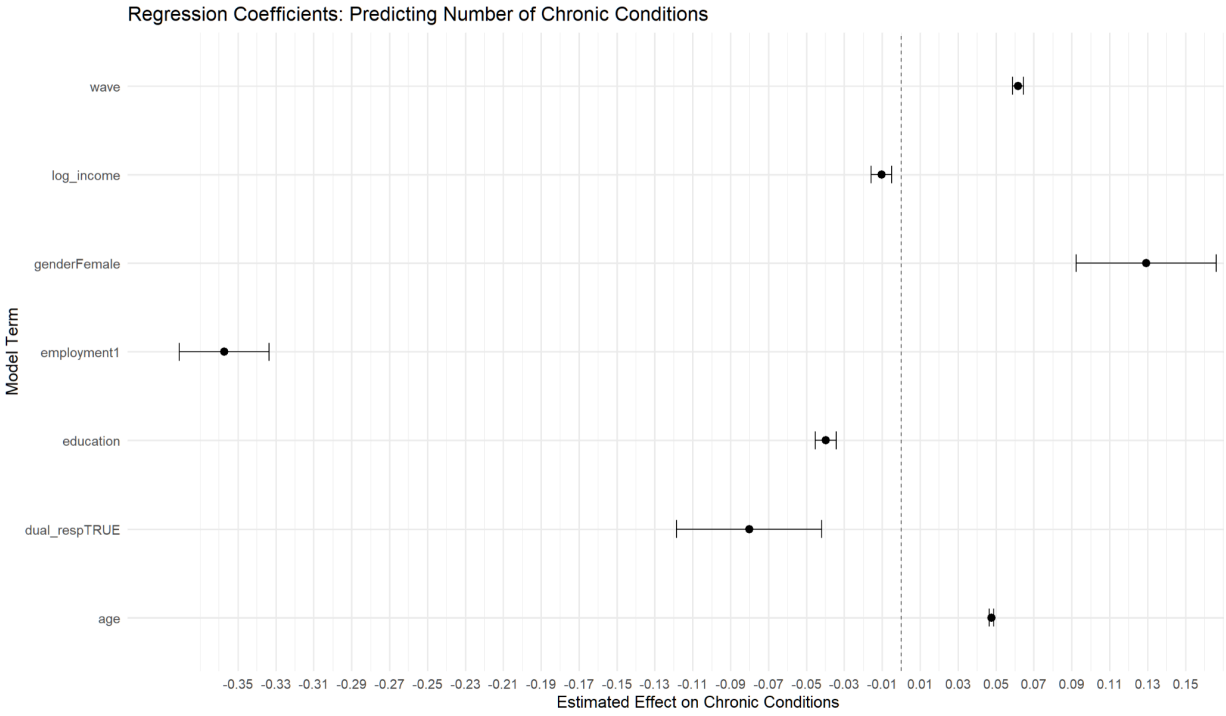


Figure 6. Adjusted mixed-effects model predicting the Number of Chronic Conditions



To test the robustness of the primary regression results, an alternative set of mixed-effects models was estimated substituting the birth cohort for age. This adjustment accounts for generational differences in health exposures and life-course conditions. The cohort-adjusted model results are presented in Figure 7 (self-rated health) and Figure 8 (number of chronic conditions).

In the self-rated health model (Figure 7), dual caregiving remained a statistically significant predictor of poorer perceived health. Specifically, dual caregivers had a 0.034-point increase in SRH score relative to non-dual caregivers ($\beta = 0.034$, $p = 0.004$), indicating worse self-rated health even after adjusting for cohort, wave, gender, education, income, and employment. Across cohort groups, individuals born in 1945–49, 1950–54, and 1955+ all showed significantly better health than the pre-1945 reference group, with coefficients ranging from $\beta = -0.28$ to -0.25 ($p < 0.001$ for all).

A similar pattern was observed in the chronic condition model (Figure 8). Dual caregivers reported a 0.083 increase in the number of chronic conditions ($\beta = 0.083$, $p < 0.001$), even after adjusting for cohort and socioeconomic covariates. The protective effect of younger cohorts was even more pronounced: respondents born in 1945–49, 1950–54, and 1955+ exhibited 0.97, 1.26, and 1.79 fewer chronic conditions, respectively, than those born before 1945 (all $p < 0.001$).

These findings indicate that cohort differences do explain some variance in health outcomes, with later-born individuals consistently exhibiting better health. However, the effect of dual caregiving remains statistically significant and directionally consistent across both models. This reinforces the conclusion that dual caregiving is an independent risk factor for physical health decline, robust to alternative temporal specifications.

Figure 7. Adjusted mixed-effects model predicting self-rated health, including birth cohort as covariate.

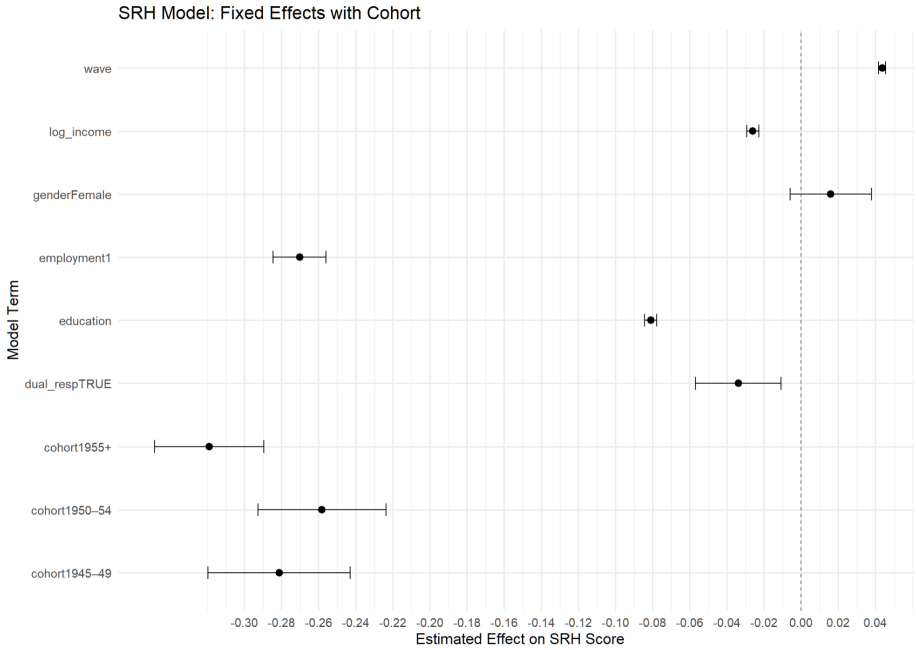
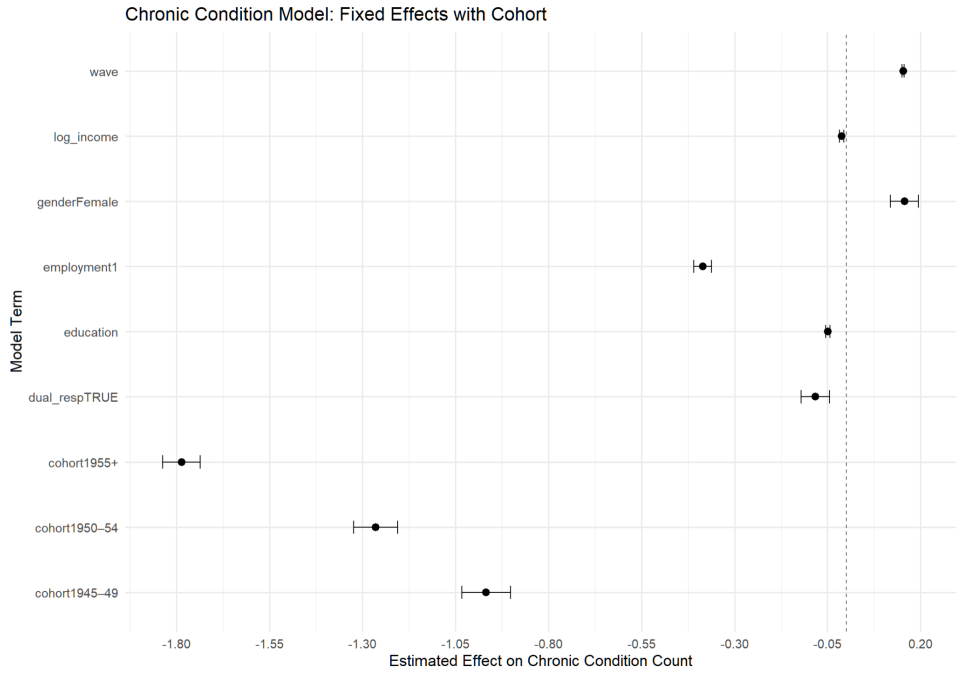


Figure 8. Adjusted mixed-effects model predicting number of chronic conditions, including birth cohort as covariate.



Discussion

This study contributes new insights to the growing body of literature on caregiver burden by focusing specifically on the physical health outcomes associated with dual caregiving — that is, providing care to both aging parents and dependent children. Using longitudinal data from the Health and Retirement Study (HRS), this research finds that dual caregivers in the pre-retirement age group (51–64) report significantly worse self-rated health and a higher burden of chronic conditions than non-dual caregivers, even after adjusting for age, gender, income, education, employment, and survey wave.

These results extend prior work demonstrating negative health impacts associated with caregiving (Do et al., 2014; Lei et al., 2023; Janson et al., 2022). However, this study makes a novel contribution by isolating the independent effect of dual caregiving, a compounded form of caregiving stress. The persistence of these effects across both descriptive and fully adjusted models — and their robustness to cohort-adjusted sensitivity analyses — underscores the distinctive vulnerability of dual caregivers.

Importantly, the inclusion of the birth cohort as a sensitivity check confirmed that the caregiving effect was not simply a generational artifact. While younger cohorts (1955+ especially) reported better overall health, the burden of dual caregiving remained significant across all models. This reinforces theoretical frameworks such as the stress process model (Pearlin et al., 1990), which positions caregiving role multiplicity as a chronic strain with cumulative physiological consequences.

Strengths and Limitations

Key strengths of this study include its large sample size, use of longitudinal panel data, and the availability of rich covariates capturing sociodemographic and economic characteristics. The use of mixed-effects modeling allowed for within-person variation to be modeled alongside between-person predictors, strengthening internal validity.

Nevertheless, several limitations warrant caution. All health outcomes were self-reported, raising concerns about reporting bias. Additionally, caregiving was defined based on transfer behavior and may be subject to misclassification or unmeasured heterogeneity (e.g., caregiving intensity, co-residence, emotional strain). Finally, the observational nature of the study precludes definitive causal inference, though the robustness of the findings across multiple specifications strengthens their plausibility.

Public Health Implications

This study's findings underscore an urgent need for policy reforms that support the health and economic security of individuals balancing intergenerational caregiving responsibilities. One

concrete policy recommendation involves the expansion and standardization of Paid Family and Medical Leave (PFML) across the United States. As of 2022, only 10 states and Washington, D.C. had implemented or passed PFML legislation, with 13 states expected to have operational programs by 2025. This limited state-by-state availability creates substantial inequities, particularly affecting pre-retirement adults who are more likely to experience dual caregiving burdens.

Notably, the United States remains the only high-income country in the Organisation for Economic Co-operation and Development (OECD)—a group of 38 industrialized nations—that does not guarantee paid leave to new mothers and is one of just a few without paid leave for new fathers. Moreover, most existing programs prioritize leave for parental bonding, leaving significant gaps for those who need time off to care for aging parents or other adult relatives. This gap reflects a broader policy failure to recognize the complex and growing demands of intergenerational caregiving.

Expanding PFML at the federal level would directly address these structural shortcomings. Research has shown that access to paid leave improves caregiver health, increases workforce attachment (especially among women), and can even reduce downstream costs by lowering the need for institutional care among older adults. Nationally mandated and inclusive paid leave policies could play a pivotal role in mitigating the health deterioration observed among dual caregivers and promoting broader health equity.

Conclusion

This thesis underscores dual caregiving as a critical and often overlooked determinant of adverse physical health outcomes among adults in the pre-retirement stage. Through rigorous analysis of longitudinal data, it reveals that individuals simultaneously responsible for aging parents and dependent children experience both subjective health deterioration and a greater burden of chronic conditions, independent of age, socioeconomic status, or birth cohort. These results go beyond numerical patterns—they reveal the often-unseen toll shouldered by individuals navigating care for both older and younger generations, a burden that materializes in tangible, quantifiable declines in physical health.

By disentangling these nuanced relationships, this research advances the scholarly discourse on intergenerational caregiving and positions dual caregivers as a distinct public health priority. The analytic rigor, sensitivity modeling, and policy framing presented here offer a multidimensional contribution: empirical, theoretical, and translational. This work not only informs future investigations but also provides actionable insight for policymakers, health systems, and employers seeking to reduce caregiver strain and promote health equity.

Ultimately, this thesis lays a foundation—conceptually, empirically, and morally—for rethinking how public health approaches caregiving in aging societies. In doing so, it calls for a shift: from individual endurance to collective responsibility, from invisible burden to structural support.

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