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The Illinois Institute for Rural Affairs (IIRA) works to improve the quality of life for rural residents by partnering with public and private agencies on local development and enhancement efforts.



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An Empirical Analysis of Financial Hardship Associated with Alzheimer's Disease and Related Dementia: Metro and Nonmetro Patients

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Abstract

This paper explores financial hardships among ADRD patients using data from the National Health and Aging Trends Study. Results of data analysis indicate financial hardship among the non-Whites and the 75-84-year-old patients.

Introduction

Research shows that on average, an American turning 65 today will incur \$138,000 in future long-term services and support costs². In earlier publications on ADRD, I presented statistics such as the average out-of-pocket spending on health and care, \$2,383 per month³, and the typical social security income for an ADRD patient, \$1,200 per month. These statistics or datapoints suggest that patients could require financial support from multiple sources including 'informal'⁴ caregivers.

Table 1 shows the sources of income for people ages 65 and older; the typical annual income for the group is \$55,335. Of this, a majority, 51%, is from social security or retirement income; 34% is from wages and salaries and one percent of the segment relies on public assistance for survival, for example SNAP. In short, there is little or no evidence that people age 65 and older rely on financial assistance from family and friends or the government, but the opposite could be true for ADRD patients.

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² See, <https://aspe.hhs.gov/reports/long-term-services-supports-older-americans-risks-financing-research-brief-0>.

³ Athiyaman, A. (2023). Burden of Health Care Costs for Persons with Alzheimer's Disease and Related Dementia. *Research Brief*, 5(16), August 16. Available: http://www.iira.org/wp-content/uploads/2023/08/RB5_16-burden-of-health-care-costs-for-persons-with-Alzheimer-disease-and-related-dementia-1.pdf.

⁴ Informal caregiving is the provision of health and care needs for a relative or a friend; see, Athiyaman, A. (2023). Exploring the Other Side of Alzheimer's Disease and Related Dementia: Informal Caregivers. *Research Brief*, 5(15), August 7. Available: <http://www.iira.org/wp-content/uploads/2023/08/RB5-15-Exploring-the-Other-Side-of-Alzheimers-Disease-and-Related-Dementia-Informal-Caregivers-4.pdf>.

Table 1: Annual Income of Persons 65 Years and Older by Sources of Income, 2021

Item	Mean (SE ⁵)	Share (%)
Income before taxes	\$55,335 (1,179)	100%
Social security / retirement	\$28,516 (604)	51%
Wages and salaries	\$19,018 (813)	34%
Self-employment income	\$3,046 (478)	6%
Interest, dividends, and property income	\$3,431 (311)	6%
Unemployment, public assistance, and other income	\$177 to \$810 (40 – 151)	3%

Source: Consumer Expenditure Surveys, 2021; Table 1300.

How could we conceptualize or define financial hardship? What proportion of ADRD patients suffer from financial hardship? What proportion of variability in 'financial hardship' could be explained by

demographic variables such as race, gender, and place of residence, metro / nonmetro? This paper explores these and other related questions.

Financial Hardship, the Construct

Financial hardship is a superlative category that includes 'absolute poverty' - one's inability to gain basic 'need' satisfaction⁶; financial hardship is one's inability to meet real-life obligations because of one's limited economic

resources⁷. In this definition, the focal object is ADRD patients. The dimension on which the objects will be judged is financial-hardship perception. The perceivers or raters would be the patients or their proxies, for example, informal caregivers.

⁵ SE is the standard error of the mean.

⁶ Basic or primary needs include food (hunger), water (thirst), air, need to avoid injury, etc. See, Olson, M. H., & Ramírez, J. J. (2020). *An introduction to theories of learning*. Routledge.

⁷ Yabroff, K. R., Zhao, J., Chen, M. H., Hoque, J., Arias, G., Han, X., & Zheng, Z. (2023, May). Financial hardship and psychosocial well-being and quality of life among prostate cancer survivors in the United States. In *Urologic Oncology: Seminars and Original Investigations*. Elsevier.

Methodology

The National Health and Aging Trend Study (NHATS) collects data on physical and cognitive capacity of approximately 9,000 Medicare beneficiaries ages 65 and older⁸. Participants were first interviewed in 2011 and are being re-interviewed every year to track changes in aspects such as physical capacity.

The Round 11 data files were released for public use in November, 2022. The focal objects, ADRD patients, were identified using a set of three questionnaire items (Table 2). As shown in Table 2, a total of 2.275mil weighted cases or ADRD patients were identified and used in data analysis.

Table 2: Variables Used to Identify ADRD Patients

NHAT Variable ⁹	Item Description	Value Labels and Frequencies
hc11disescn9	Has dementia	1 & 7 = Yes; n = 320
cp11dad8dem	Dementia indicated in cognitive test, AD8	1 = Yes; n = 60
s11reasnprx1	Proxy respondent's statement that the target has dementia	1 = Yes; n = 174

Note: Total number of cases, unweighted = 351, weighted number of cases = 2.275mil; some respondents belong to more than one category, so column total (n) doesn't sum to 351.

Table 3 shows the variables used in the research; data were analyzed using descriptive summary measures, central tendency, dispersion, and correlation

coefficient. Independence among qualitative variables was tested using crosstabulations and Chi-square analysis.

⁸ <https://www.nhats.org/researcher/about>.

⁹ Variable labels are from [NHATS Round 11 Data Collection Instrument](#)

Table 3: Operational Definition of Variables

Variable	Definition and Value Labels
FINANCIAL HARDSHIP MEASURES	
ew11mealskip1	Skip meals, no money. 1 = YES; 2 = NO
ew11mealskip2	Skip meals, how many days in the last month? 1 = NEARLY EVERY DAY 2 = MORE THAN HALF THE DAYS 3 = SEVERAL DAYS (LESS THAN HALF) 4 = A FEW DAYS
ew11nopayhous	No money for housing 1 = YES; 2 = NO
ew11nopayutil	No money for utilities 1 = YES; 2 = NO
Ew11nopaymed	No money for medical 1 = YES; 2 = NO
DEMOGRAPHIC VARIABLES	
r15dracehisp	Race and Hispanic ethnicity 1 = WHITE, NON-HISPANIC 2 = BLACK, NON-HISPANIC 3 = OTHER RACES, NON-HISPANIC 4 = HISPANIC
r11dmetnonmet	Participant's residential geography. 1 = METRO 2 = NONMETRO
r5dgender	Gender of the respondent 1 = MALE 2 = FEMALE
r11d2intvrage	Age of the respondent 2 = 70-74; 3 = 75-79; 4 = 80-84; 5 = 85-89; 6 = 90+
FINANCIAL HELP	
ew11finhlpfam	Received financial help from family 1 = YES; 2 = NO

Findings

Characteristics of the Respondents

Of the 2.275million ADRD patients, 63% were females. A majority of the patients live in the metro, 83% (Table 4).

Table 4: ADRD Patients: Gender and Residential Location

Gender	Geography	
	Metro	Nonmetro
Male	36%	41%
Female	64%	59%
N	1,880,515	395,005

Note: $\chi^2 = 3403.77$; $p < .05$.

Financial Hardship

Financial hardship indicators reveal that one in hundred, both in the metro and the nonmetro, skip meals a few days in a month because of “no money”. While proportionally more metro residents had

“no money” to pay for housing and utility, a higher percentage of nonmetro residents reported having “no money” to pay medical or prescription drug bills (Table 5).

Table 5: Impact of Residential Location on Financial Hardship

Financial Hardship Indicator	Residential Location		N	χ^2	p
	Metro	Nonmetro			
No money, skipped meals	1%	1%	2,249,853	0.16	.68
No money to pay rent or mortgage	3%	1%	2,253,439	5415.18	<.01
No money to pay utility bills	4%	1%	2,253,439	9511.75	<.01
No money to pay medical bills	1%	2%	2,243,030	1925.68	<.01

Note: Proportion of metro respondents in “N” = 82%.

Impact of Race on Financial Hardship

There are metro-nonmetro differences in types of financial-hardship experiences. Since more than four in five ADRD patients in the nonmetro are White, 85%, it is statistically logical to expect the Whites to experience more financial hardship; in fact, only Whites in the nonmetro report experiencing consequences of financial hardship: skipping meals, not paying utilities, etc.

(Table 6). In contrast, metro is home to 34% of non-White ADRD patients, so a statistically logical induction would be that non-Whites in the metro will face financial hardship¹⁰. Table 6 shows the validity of the induction; for three of the four indicators of financial hardship, a higher proportion of non-Whites report skipping meals, nonpayment of rent or mortgage and utilities.

Table 6: Financial Hardship by Race, Metro and Nonmetro

Financial Hardship Indicator	Race				χ^2	<i>p</i>
	White	Black	Hispanic	Other		
No money, skipped meals			40%	60%	NA	NA
No money to pay rent or mortgage	39%	22%	23%	16%	4357.84	<.01
No money to pay utility bills	18%	21%	48%	12%	11,123.2	<.01
No money to pay medical bills	51%	22%	27%	-	NA	NA

Note: N = 13,841 for “skipped meals”; 50,429 for housing; 70,311 for utility, and N = 20,567 for medical.

Financial Hardship Indicator	White	N
No money, skipped meals	100%	2,972
No money to pay rent or mortgage	100%	2,972
No money to pay utility bills	100%	2,972
No money to pay medical bills	100%	7,791

¹⁰ The statistical syllogism will be of the form:

- The probability for ADRD patients to experience financial hardship is > 0
- There is a large proportion of non-White ADRD patients in the metro

➡ [Make probable] that non-White ADRD patients in the metro will experience financial hardship.

Impact of Age on Financial Hardship

Nonmetro shows little or no variability and/or correlation between age and financial hardship; most of the financial hardship is among the 90+ age group (Table

7). The opposite is true for the metro regions, people in the 75-84 age groups report the most hardship.

Table 7: Financial Hardship by Age, Metro and Nonmetro

(i) Metro

Financial Hardship Indicator	Age Category				χ^2	p
	70-74	75-84	85-89	90+		
No money, skipped meals	-	100%	-	-	NA	NA
No money to pay rent or mortgage	13%	55%	32%	-	53,400.88	<.01
No money to pay utility bills	9%	65%	17%	10%	20,378.75	<.01
No money to pay medical bills	-	100%	-	-	NA	NA

Note: N = 13,841 for “skipped meals”; 50,429 for housing; 70,311 for utility, and N = 20,567 for medical.

(ii) Nonmetro

Financial Hardship Indicator	Age Category		N
	75-84	90+	
No money, skipped meals	-	100%	2,972
No money to pay rent or mortgage	-	100%	2,972
No money to pay utility bills	-	100%	2,972
No money to pay medical bills	62%	38%	7,791

Summary and Conclusion

This paper explores financial hardships among ADRD patients using data from the National Health and Aging Trends Study. The construct, 'financial hardship', was defined as one's inability to meet real-life obligations because of one's limited economic resources. Four binary items were used as measures: skipped meals because of no money, no money to pay housing, no money to pay utilities, and couldn't pay for medical or prescription medicine.

Results of data analysis show that:

- (i) one in hundred, both in the metro and the nonmetro, skip meals a few days in a month because of lack of money;
- (ii) only Whites in the nonmetro report experiencing consequences of financial hardship: skipping meals, not paying utilities, etc.;
- (iii) In the metro, a higher proportion of non-Whites report skipping meals, nonpayment of rent or mortgage and utilities;
- (iv) In the nonmetro, most of the financial hardship is among the 90+ age group, and

- (v) In the metro, people in the 75-84 age groups report the most hardship.

In conclusion, almost a quarter of a million ADRD patients report financial hardship. One's race, non-Whites, and one's age are correlated with financial hardship.

Although this research used multiple indicators of financial hardship, a unified theory of the construct is needed to fit facts into an orderly pattern, with enlarged and significant meaning for policy. Future Research Briefs on ADRD will work towards constructing such a theory.

References

- [1] Athiyaman, A. (2023). Burden of Health Care Costs for Persons with Alzheimer's Disease and Related Dementia. *Research Brief*, 5(16), August 16.
- [2] Athiyaman, A. (2023). Exploring the Other Side of Alzheimer's Disease and Related Dementia: Informal Caregivers. *Research Brief*, 5(15), August 7.
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- [4] Olson, M. H., & Ramírez, J. J. (2020). *An introduction to theories of learning*. Routledge.
- [5] Yabroff, K. R., Zhao, J., Chen, M. H., Hoque, J., Arias, G., Han, X., & Zheng, Z. (2023, May). Financial hardship and psychosocial well-being and quality of life among prostate cancer survivors in the United States. In *Urologic Oncology: Seminars and Original Investigations*. Elsevier.