Ochsner Health

Identifying factors related to high healthcare utilization in a group of persons with dementia and their caregivers

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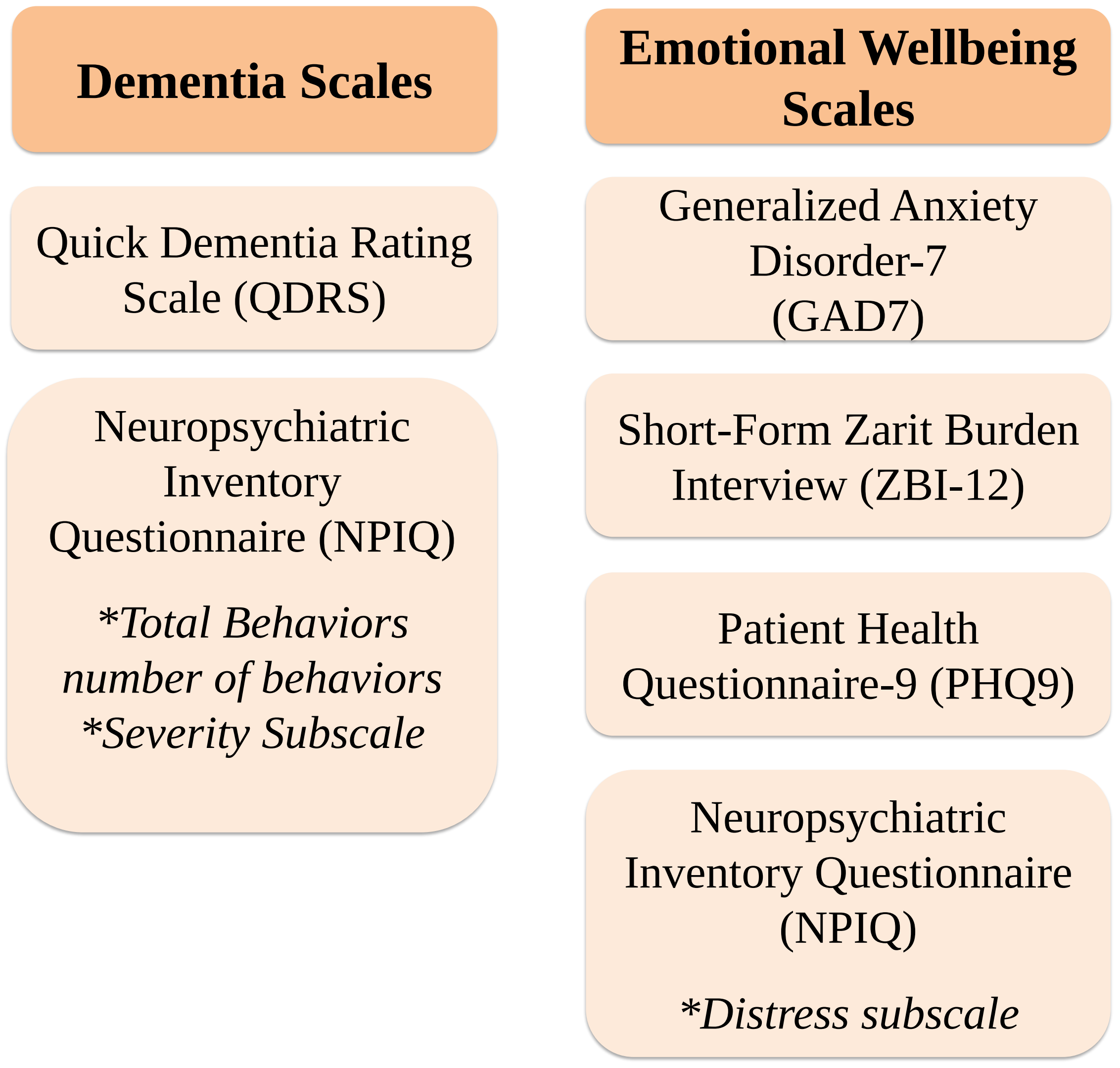
Introduction

High utilizers (HU) are a subgroup of patients who place a disproportionate burden on the healthcare system due to their increased use of resources[1]. Dementia is a costly disease, with care expenses for people living with Alzheimer's being as high as $355 billion in 2021 and estimated to surpass $1.1 trillion by 2050[2]. Understanding HU in dementia could support the development of tailored care and mitigate costs. This study aimed to identify factors related to HU in a group of older adults with dementia enrolled in the Care Ecosystem Program (CE) –a comprehensive care management program that provides individualized support for persons living with dementia (PWD) and their caregivers (CG) (memory.ucsf.edu/Care-Ecosystem).

Methods

The study examined cross-sectional data on 273 PWD-CG dyads enrolled in the New Orleans and surrounding areas branch of the CE. All PWD had at least one emergency department (ED) visit or hospitalization 12-months prior to enrollment. Healthcare utilization was gathered from the dyads' report and confirmed with their electronic medical records and/or claims data. Sociodemographic information, dementia symptoms and severity, and emotional wellbeing scales were included (Figure 1). PWD were categorized as high utilizers (HU) if they were more than two standard deviations above the mean for ED visits (ED-HU, N=40) or hospitalizations (H-HU, N=42), and as Typical Utilizers (ED-TU and H-TU) if their utilization was below two standard deviations. Analyses included descriptive statistics, frequencies, independent sample t-tests, chi-squares, and negative binomial regressions. Cohen's d effect sizes were calculated. SPSS version 27 was used for all analyses and significance level was set at 0.05.



Dementia Scales

Quick Dementia Rating Scale (QDRS)

Neuropsychiatric Inventory Questionnaire (NPIQ)

**Total Behaviors number of behaviors*
**Severity Subscale*

Emotional Wellbeing Scales

Generalized Anxiety Disorder-7 (GAD7)

Short-Form Zarit Burden Interview (ZBI-12)

Patient Health Questionnaire-9 (PHQ9)

Neuropsychiatric Inventory Questionnaire (NPIQ)

**Distress subscale*

Figure 1. Dementia and Emotional Wellbeing Scales

Table 1. Sociodemographic and Utilization Information by Subgroups

	ED-HU (N=40)	ED-TU (N=233)	H-HU (N=42)	H-TU (N=231)
PWD age, Years M(SD)	81(7)	80(8)	79(8)	80(8)
PWD sex, Female n(%)	28(70)	133(57)	22(52)	139(60)
PWD race, White n(%)	18(45)	159(68)	33(79)	144(62)
PWD education n(%)				
< 12 years	7(18)	38(16)	6(14)	39(17)
12 years	15(38)	76(33)	14(33)	77(33)
> 12 years	18(45)	119(51)	22(53)	115(50
CG age, Years M(SD)	64(13)	64(12)	65(10)	64(12)
CG sex, Female n(%)	31(78.5)	182(78)	33(79)	180(80)
CG education n(%)				
< 12 years	2(5)	5(2)	1(2)	6(3)
12 years	7(17)	42(18)	4(10)	45(20)
> 12 years	31(78)	186(80)	37(88)	180(77
ED Visits, M(SD)	5.9(3.1)	1.3(0.8)	1.9(2.6)	2(2)
Hospital Visits, M(SD)	0.8(1.3)	0.6(1)	2.8(1)	0.2(0.4)

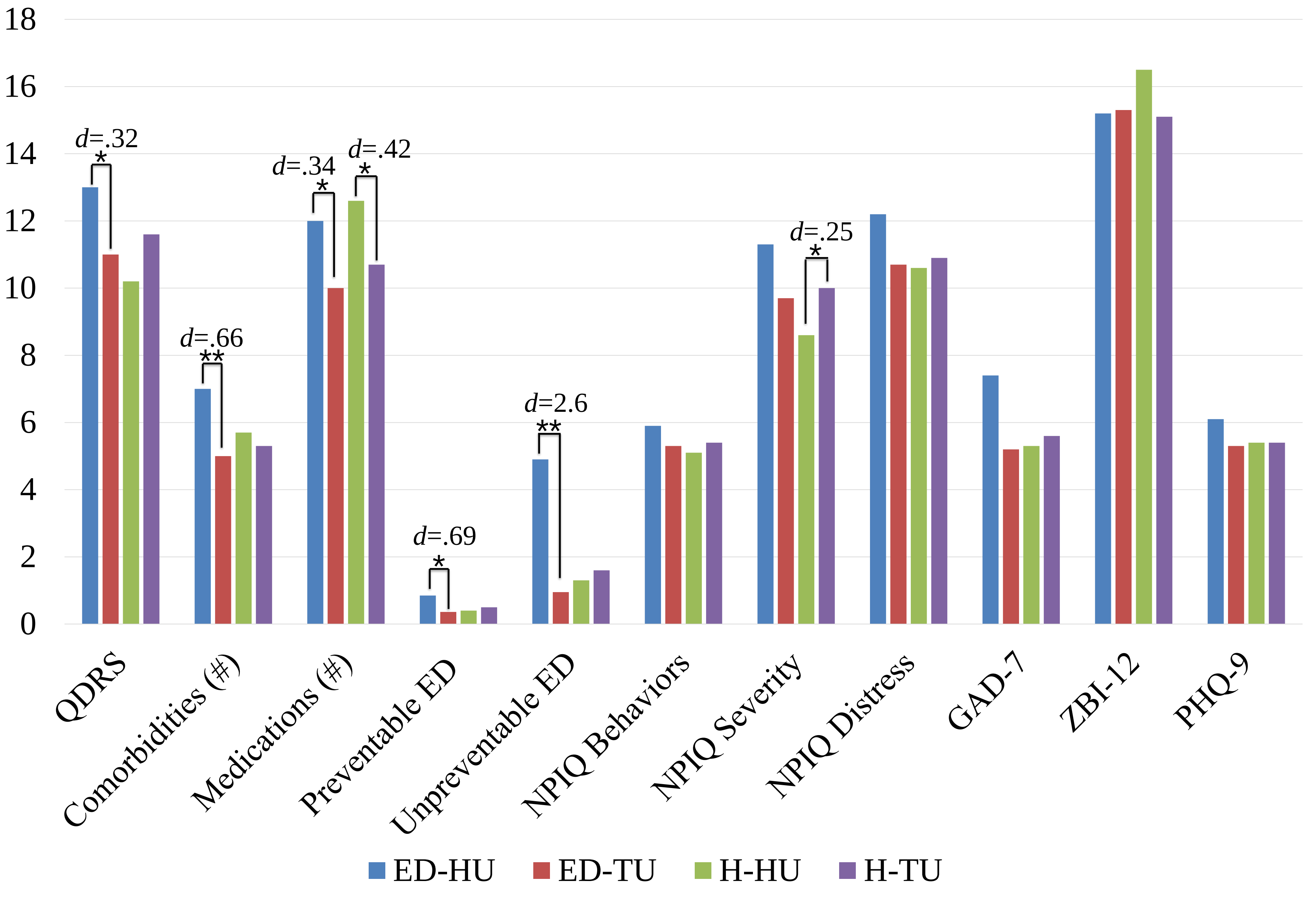


Figure 2. Differences in clinical outcome measures by utilization group (*p<.05, **p<.001).

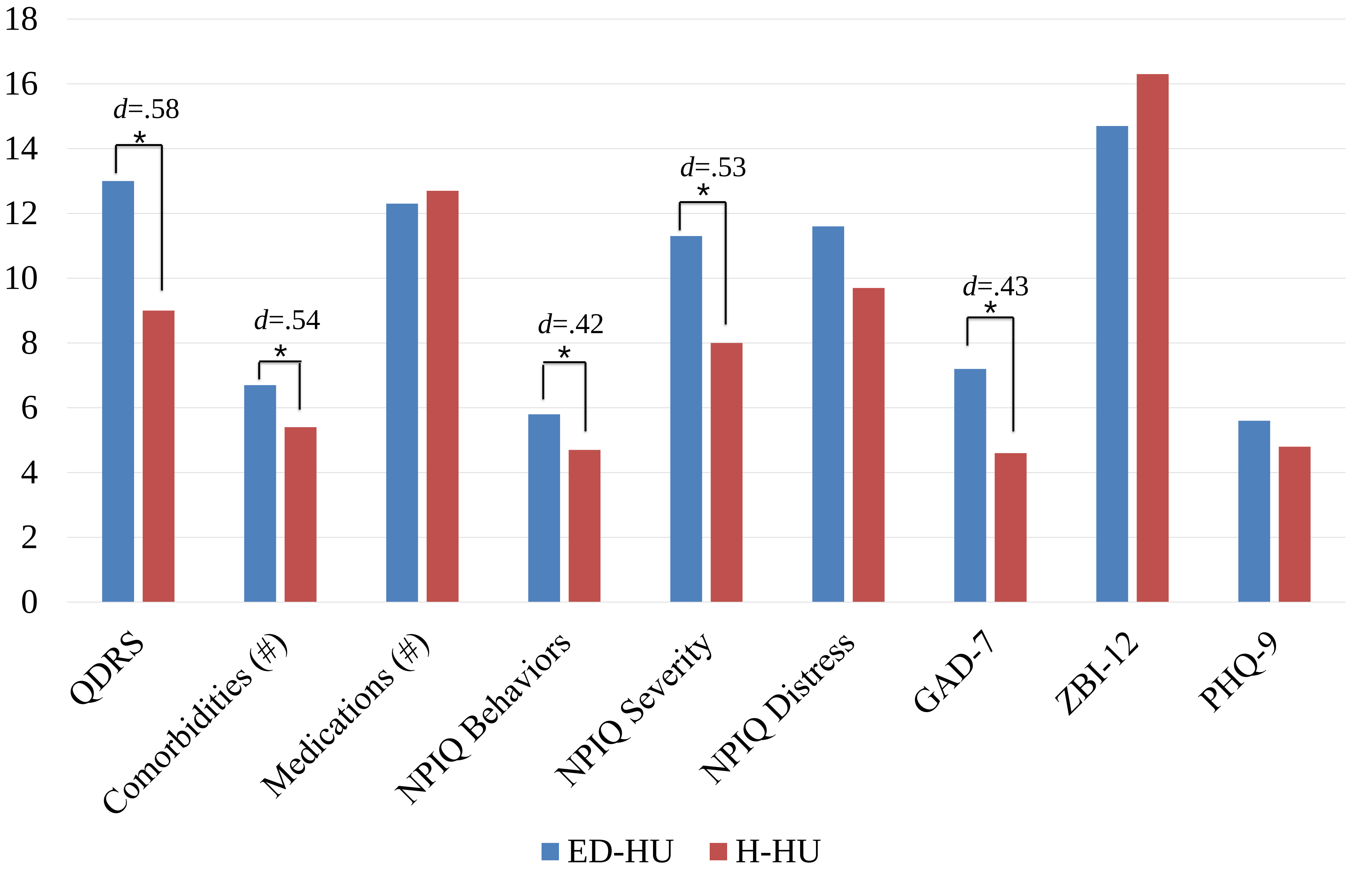


Figure 3. Differences in clinical outcome measures by HU group (*p<.05, **p<.001).

Results

Mean age was 80 years for PWD and 64 years for CGs. Both were predominantly female (PWD=60%, CG=78%) and white (64%) with at least high school education (PWD=83.5%, CG=97.4%). Dementia severity for the whole sample was mild to moderate (QDRS M=11.4; SD=6). Table 1 presents sociodemographic and utilization data. ED-HU were more likely to be Black (X^2=.007) and H-HU were more likely to be White (X^2=.046) when compared to their TU counterparts. ED-HU had significantly higher/more dementia severity, medical comorbidities, medications, and both preventable and unpreventable ED visits compared to the ED-TU. On the other hand, H-HU had increased number of medications and less severe neuropsychiatric symptoms when compared to the H-TU (Figure 2).

The negative binomial regression models for ED visits (*p*=.025) and hospitalizations (*p*=.010) were significant.

- Medical comorbidities were the only predictor (*p*=.034) for ED visits.
- Black race (*p*=.004), younger PWD (*p*=.033), and having more medications (*p*<.001) were associated with hospital admissions.

Exploratory analysis showed significant differences between HU groups (Figure 3). PWD who belonged to both HU categories were removed for this analysis. ED-HU were more likely to be Black (*p*<.001).

Conclusions

- Increased medical complexity was associated with HU for ED visits and hospitalizations in PWD-CG dyads.
- ED-HU had higher dementia severity, worse behavioral symptoms, and more medical complexity relative to H-HU.
- Social determinants of health should be considered when identifying patients for preventive care or early interventions.
- Outpatient follow-ups and care-management services might be warranted to manage patients with multiple comorbidities and potential polypharmacy.
- Sample size and the use of self-report measures must be considered as limitations of this study.
- For questions, please contact Carolina Pereira at carolina.pereiraosorio@ochsner.org.

References

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2. Alzheimer's Association. (2021). 2021 Alzheimer's Disease facts and figures. *Alzheimer's Impact Movement.* Retrieved from: https://aaic.alz.org/downloads2021/2021_Alzheimers_Disease_Facts_and_Figures.pdf