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## FROM THE ALZHEIMER'S ASSOCIATION INTERNATIONAL CONFERENCE 2023

### VOLUNTEERING IN LATE LIFE MAY PROTECT THE BRAIN

#### Key Takeaways:

- **Volunteering later in life may protect the brain against cognitive decline and dementia.**
- **New study of older adults found better memory and executive function among those who volunteered.**

**AMSTERDAM, JULY 20, 2023** — Volunteering in late life is associated with better cognitive function — specifically, better executive function and episodic memory — according to research presented today at the [Alzheimer's Association International Conference](#)<sup>®</sup> (AAIC<sup>®</sup>) 2023, in Amsterdam, Netherlands, and online.

“Volunteers are cornerstones of all communities and imperative to the success and impact of many organizations, including the Alzheimer's Association,” said [Donna McCullough](#), Alzheimer's Association chief mission and field operations officer. “We hope these new data encourage individuals of all ages and backgrounds to engage in local volunteering — not only to benefit their communities, but potentially their own cognitive and brain health.”

Volunteer activities, such as supporting educational, religious, health-related or other charitable organizations, provide a means for older adults to be more physically active, increase social interaction and provide cognitive stimulation that may protect the brain. However, there is a lack of information on the relationship between volunteering and cognitive function, especially in large, diverse populations.

As first reported at AAIC 2023, Yi Lor, MPH, an epidemiology doctoral student at the University of California Davis, alongside principal investigator of the studies, Rachel Whitmer, Ph.D., examined volunteering habits among an ethnic and racially diverse population of older adults (n=2,476; average age ~74; 48% Black, 20% White, 17% Asian, 14% Latinx) in the Kaiser Healthy Aging and Diverse Life Experiences Study (KHANDLE) and Study of Healthy Aging in African Americans (STAR). In the combined group, 1,167 (43%) participants reported they had volunteered in the past year.

The researchers found that volunteering was associated with better baseline scores on tests of executive function and verbal episodic memory in this study group after adjusting for age, sex, education, income, practice effects and interview mode (phone vs. in-person). Volunteering was also associated with a trend toward less cognitive decline over the follow-up time of 1.2 years, but this association did not reach statistical significance. Additionally, those who volunteered several times per week had the highest levels of executive function.

“Volunteering may be important for better cognition in late life and could serve as a simple intervention in all older adults to protect against risk for Alzheimer's disease and associated dementias,” said Lor. “Our next steps are to examine whether volunteering is protective against cognitive impairment, and how physical and mental health may impact this relationship.”

#### **About the Alzheimer's Association International Conference<sup>®</sup> (AAIC<sup>®</sup>)**

The Alzheimer's Association International Conference (AAIC) is the world's largest gathering of researchers from around the world focused on Alzheimer's and other dementias. As a part of the

Alzheimer's Association's research program, AAIC serves as a catalyst for generating new knowledge about dementia and fostering a vital, collegial research community.

AAIC 2023 home page: [www.alz.org/aaic/](http://www.alz.org/aaic/)

AAIC 2023 newsroom: [www.alz.org/aaic/pressroom.asp](http://www.alz.org/aaic/pressroom.asp)

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### **About the Alzheimer's Association®**

The Alzheimer's Association is a worldwide voluntary health organization dedicated to Alzheimer's care, support and research. Our mission is to lead the way to end Alzheimer's and all other dementia — by accelerating global research, driving risk reduction and early detection, and maximizing quality care and support. Our vision is a world without Alzheimer's and all other dementia®. Visit [alz.org](http://alz.org) or call 800.272.3900.

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- Yi Lor, MPH, et al. The association of late-life volunteering with cognitive function and cognitive decline in the KHANDLE and STAR cohorts. (Funders: KHANDLE: U.S. National Institute on Aging 5R01AG052132-04; STAR: U.S. National Institute on Aging 7RF1AG050782-02)

\*\*\* AAIC 2023 news releases may contain updated data that does not match what is reported in the following abstracts.

**Proposal ID:** 77992

**Title:** The association of late-life volunteering with cognitive function and cognitive decline in the KHANDLE and STAR cohorts

**Background:** Prior studies have shown that volunteering in late life is associated with better physical health, social activity, and cognition, but the bulk of evidence is limited to non-Latino White or Asian populations. The purpose of this analysis was to determine whether volunteering is associated with differences in domain-specific cognition or cognitive change in a diverse cohort.

**Method:** Kaiser Healthy Aging and Diverse Life Experiences Study (KHANDLE) and Study of Healthy Aging in African Americans (STAR) are harmonized cohort studies of long-term Kaiser Permanente members ages + and 50+ respectively, consisting of 48% Black, 20% White, 17% Asian, and 14% Latinx individuals. Participants self-reported performing volunteer work for the 12 months prior to baseline for religious, educational, health-related, or charity organizations. Executive function (EF) and verbal episodic memory (VEM) were measured across three waves using the Spanish and English Neuropsychological Assessment Scales (SENAS) and scores were z-standardized to the baseline. Linear mixed-models with random intercepts and slopes evaluated the association of volunteering with baseline cognition and cognitive change over 3 visits (mean follow-up=1.2 years) with years since baseline as the timescale and adjusting for baseline age, sex, education, income, practice effects, and interview mode (phone vs in-person).

**Result:** Of the 2476 participants with average baseline age of 73.7 (SD = 8.2) years, 1167 (42.3%) had volunteered in the 12 months prior to baseline (Table 1). Those who volunteered had on average higher baseline EF ( $\beta = 0.184$ ; CI = 0.110, 0.257) and VEM ( $\beta = 0.114$ ; CI = 0.040, 0.189) compared to those who did not report volunteering (Table 2, Model 2). There were no statistically significant associations of volunteering and EF or VEM decline, though the direction of the associations suggested that those who volunteered had slower cognitive decline than those who did not volunteer.

**Conclusion:** In this diverse cohort, volunteering was associated with significantly higher baseline cognition, and suggested to be associated with less cognitive change over an average of 1.2 years, though not statistically significant. With additional follow up, we will examine whether volunteering is protective against cognitive impairment, and how physical and mental health may mediate this relationship.

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## Tables and Figures:

### [AAIC2023 Abstract Volunteer and Cognition Table 1 20230127.png \(174.1KB\)](#)

**Table 1:** Baseline characteristics of Kaiser Healthy Aging and Diverse Life Experiences Study (KHANDLE) and Study of Healthy Aging in African Americans (STAR) participants at baseline by volunteering

	Total	No Volunteer	Volunteer
	N (%) or mean (SD)		
<b>Number of participants</b>	2476 (100)	1302 (52.7)	1167 (42.3)
<b>Baseline age</b>	73.7 (8.2)	74.7 (8.5)	72.7 (7.7)
<b>Gender/Sex: Male</b>	904 (37.8)	513 (41.4)	389 (33.9)
<b>Race:</b>			
Asian	415 (16.8)	225 (54.5)	188 (45.5)
Black	1197 (48.4)	603 (50.4)	592 (49.5)
Latinx	355 (14.4)	221 (62.3)	134 (37.8)
White	502 (20.3)	251 (50.1)	250 (49.9)
<b>Education: College graduate</b>	1087 (44.0)	480 (36.9)	606 (51.9)
<b>Income: &gt;=\$55,000</b>	1512 (65.8)	712 (60.0)	798 (71.8)

### [AAIC2023 Abstract Volunteer and Cognition Table 2 20230127.png \(84.2KB\)](#)

**Table 2:** Association ( $\beta$ , 95% CI) of late-life volunteering with cognitive function and cognitive decline estimated from linear mixed-models

	Executive Function		Verbal Episodic Memory	
	Model 1 $\beta$ (95% CI)	Model 2 $\beta$ (95% CI)	Model 1 $\beta$ (95% CI)	Model 2 $\beta$ (95% CI)
<b>Volunteering</b>	0.358 (0.276, 0.439)	0.183 (0.109, 0.258)	0.270 (0.189, 0.351)	0.114 (0.039, 0.189)
<b>Volunteering*Time</b>	0.009 (-0.020, 0.038)	0.005 (-0.024, 0.034)	-0.0005 (-0.060, 0.059)	0.001 (-0.058, 0.061)

Model 1: Unadjusted (except for practice effects)

Model 2: Model 1 + adjusted age, sex, education, income, and interview mode