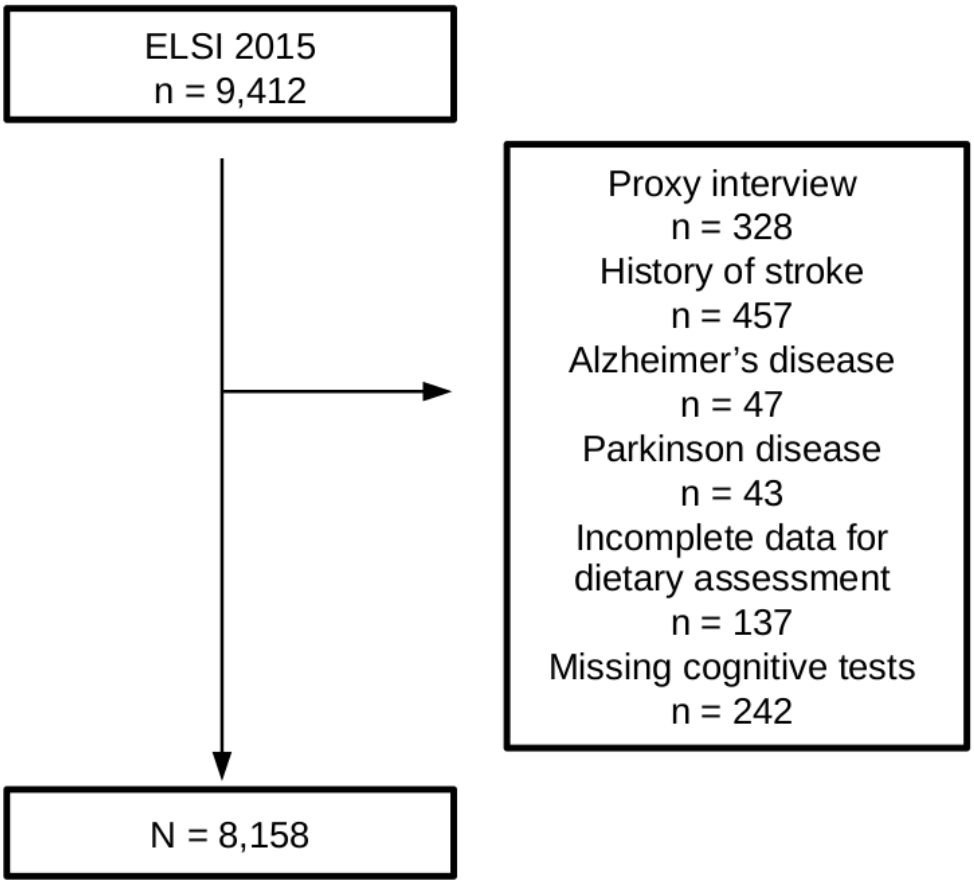
http://doi.org/10.47626/1516-4446-2023-3316

Figure S1 Flowchart of the study sample†



† ELSI: Brazilian Longitudinal Study of Aging (Estudo Longitudinal da Saúde dos Idosos Brasileiros).

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Table S1 Missing values for covariates (n = 8,158)

Variable	Number of missing values
Age	0
Sex	0
Race	342
Education	62
Income	0
Body mass index	438
Hypertension	19
Diabetes	51
Cardiovascular disease	18
Alcohol consumption	14
Smoking	3
Physical activity	385
Depressive symptoms	1,109
Private healthcare access	9

Table S2 Comparison between included and excluded participants

	Included	Excluded	p-value
Urban residents, %	85.6	82.7	0.307
Age in years, mean (SD)	61.6 (9.3)	67.1 (11.8)	<0.001
Female, %	53.8	54.3	0.830
Race, %			0.181
Black	9.4	11.4	
Mixed†	43.6	47.6	
White	44.1	38.3	
Other‡	2.9	2.7	
Years of education, median (IQR)	5 (3-11)	4 (1-6)	<0.001
Income in USD,§ median (IQR)	247.8 (147.9-405.4)	223.7 (118.3-320.9)	<0.001
Body mass index, mean kg/m^2 (SD)	27.9 (5.3)	27.3 (5.4)	0.004
Hypertension, %	50.1	61.7	<0.001
Diabetes, %	15.1	20.2	<0.001
Cardiovascular disease, %	4.5	11.2	<0.001
Alcohol consumption, %	20.4	10.8	<0.001
Smoking, %			<0.001
Never	46.5	42.0	
Former	36.5	42.1	
Current	17.0	15.9	
Physical activity,‖ %	15.1	9.6	<0.001
Depressive symptoms,¶ %	31.8	44.2	<0.001
Private healthcare access, %	26.2	18.7	0.002
Daily frequency of fruit and vegetable consumption, mean (SD)	2.0 (1.3)	2.0 (1.3)	0.817

IQR, interquartile range.
† Includes mixed Black and White.
‡ Includes Asian, Indigenous, or other races/ethnicities.
§ Monthly *per capita* income in US dollars.
‖ 150 minutes a week of moderate or intense physical activity.
¶ Score of 4 or higher in the Center for Epidemiological Scale-Depression (CES-D).

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Rural-urban disparities in fruit and vegetable consumption and cognitive performance in Brazil – Gonçalves NG et al.

Table S3 Association of daily fruit and vegetable consumption with cognitive performance (n=8,158)

	Fruits		Vegetables	
	β (95% CI)	p-value	β (95% CI)	p-value
Memory	0.037 (0.012; 0.061)	0.003	0.041 (0.013; 0.069)	0.004
Verbal fluency	0.033 (0.001; 0.065)	0.041	0.030 (-0.014; 0.075)	0.178
Temporal orientation	0.030 (0.003; 0.057)	0.026	-0.015 (-0.050; 0.019)	0.393
Global cognition	0.044 (0.019; 0.069)	<0.001	0.034 (0.005; 0.062)	0.020

Linear regression model adjusted for age, sex, education, race, income, alcohol consumption, smoking, hypertension, diabetes, cardiovascular disease, body mass index, depressive symptoms, private healthcare access, and physical activity.

Table S4 Association between daily fruit consumption and cognitive performance stratified by residence in urban (n=6,912) or rural (n=1,246) area

	Urban		Rural	
	β (95% CI)	p-value	β (95% CI)	p-value
Memory	0.041 (0.015; 0.066)	0.001	-0.002 (-0.085; 0.080)	0.947
Verbal fluency	0.039 (0.008; 0.071)	0.013	-0.003 (-0.146; 0.139)	0.963
Temporal orientation	0.037 (0.012; 0.062)	0.003	-0.018 (-0.132; 0.095)	0.733
Global cognition	0.050 (0.024; 0.076)	<0.001	-0.007 (-0.092; 0.078)	0.848

Linear regression model adjusted for age, sex, education, race, income, alcohol consumption, smoking, hypertension, diabetes, cardiovascular disease, body mass index, depressive symptoms, private healthcare access, and physical activity.

Table S5 Association between daily vegetable consumption and cognitive performance stratified by residence in urban (n=6,912) or rural (n=1,246) area

	Urban		Rural	
	β (95% CI)	p-value	β (95% CI)	p-value
Memory	0.034 (0.001; 0.068)	0.043	0.061 (-0.026; 0.149)	0.152
Verbal fluency	0.031 (0.022; 0.085)	0.246	0.022 (-0.091; 0.135)	0.678
Temporal orientation	-0.009 (-0.046; 0.028)	0.627	-0.056 (-0.179; 0.067)	0.335
Global cognition	0.031 (-0.005; 0.066)	0.091	0.034 (-0.046; 0.115)	0.367

Linear regression model adjusted for age, sex, education, race, income, alcohol consumption, smoking, hypertension, diabetes, cardiovascular disease, body mass index, depressive symptoms, private healthcare access, and physical activity.

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Rural-urban disparities in fruit and vegetable consumption and cognitive performance in Brazil – Gonçalves NG et al.

Table S6 Association between combined daily consumption of fruits and vegetables and cognitive performance using complete case analysis (n=6,743)

	Unadjusted		Model 1		Model 2	
	β (95% CI)	p-value	β (95% CI)	p-value	β (95% CI)	p-value
Memory	0.079 (0.061; 0.098)	<0.001	0.046 (0.026; 0.065)	<0.001	0.034 (0.015; 0.053)	<0.001
Verbal fluency	0.004 (0.003; 0.005)	<0.001	0.002 (0.001; 0.003)	<0.001	0.002 (0.001; 0.003)	<0.001
Temporal orientation	0.012 (0.007; 0.018)	<0.001	0.004 (-0.001; 0.010)	0.096	0.001 (-0.004; 0.006)	0.673
Global cognition	0.084 (0.065; 0.103)	<0.001	0.046 (0.027; 0.066)	<0.001	0.033 (0.014; 0.053)	<0.001

Model 1: linear regression model adjusted for age, sex, education, race, income, and residence in rural/urban area.
Model 2: linear regression model adjusted for age, sex, education, race, income, rural/urban area, alcohol consumption, smoking, hypertension, diabetes, cardiovascular disease, body mass index, depressive symptoms, private healthcare access, and physical activity.

Table S7 Association between combined daily consumption of fruits and vegetables and cognitive performance stratified by residence in urban (n=5,750) or rural (n=993) area using complete case analysis

	Urban		Rural	
	β (95% CI)	p	β (95% CI)	p-value
Memory	0.034 (0.015; 0.053)	<0.001	0.024 (-0.038; 0.086)	0.411
Verbal fluency	0.002 (0.001; 0.003)	0.003	0.001 (-0.002; 0.005)	0.464
Temporal orientation	0.002 (-0.003; 0.008)	0.364	-0.006 (-0.025; 0.012)	0.462
Global cognition	0.034 (0.015; 0.054)	<0.001	0.019 (-0.043; 0.082)	0.509

Linear regression model adjusted for age, sex, education, race, income, alcohol consumption, smoking, hypertension, diabetes, cardiovascular disease, body mass index, depressive symptoms, private healthcare access, and physical activity.

Table S8 Association of daily consumption of fruits and vegetables with cognitive performance using complete case analysis (n=6,743)

	Fruits		Vegetables	
	β (95% CI)	p-value	β (95% CI)	p-value
Memory	0.048 (0.015; 0.080)	0.004	0.031 (-0.005; 0.067)	0.090
Verbal fluency	0.002 (0.001; 0.003)	0.002	0.002 (0.000; 0.004)	0.021
Temporal orientation	0.005 (-0.001; 0.012)	0.119	-0.005 (-0.015; 0.004)	0.256
Global cognition	0.049 (0.017; 0.081)	0.003	0.027 (-0.006; 0.061)	0.116

Linear regression model adjusted for age, sex, education, race, income, alcohol consumption, smoking, hypertension, diabetes, cardiovascular disease, body mass index, depressive symptoms, private healthcare access, and physical activity.

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Table S9 Association between daily fruit consumption and cognitive performance stratified by residence in urban (n=5,750) or rural (n=993) area using complete case analysis

	Urban		Rural	
	β (95% CI)	**p-value**	**β (95% CI)**	**p-value**
Memory	0.053 (0.019; 0.086)	0.002	0.020 (-0.074; 0.078)	0.955
Verbal fluency	0.002 (0.001; 0.003)	0.005	0.001 (-0.004; 0.007)	0.617
Temporal orientation	0.007 (0.000; 0.015)	0.054	-0.005 (-0.028; 0.019)	0.672
Global cognition	0.055 (0.022; 0.087)	<0.001	0.000 (-0.077; 0.077)	0.994

Linear regression model adjusted for age, sex, education, race, income, alcohol consumption, smoking, hypertension, diabetes, cardiovascular disease, body mass index, depressive symptoms, private healthcare access, and physical activity.

Table S10 Association between daily vegetable consumption and cognitive performance stratified by residence in urban (n=5,750) or rural (n=993) area using complete case analysis

	Urban		Rural	
	β (95% CI)	**p-value**	**β (95% CI)**	**p-value**
Memory	0.022 (-0.017; 0.061)	0.277	0.073 (-0.036; 0.182)	0.169
Verbal fluency	0.023 (0.000; 0.004)	0.051	0.002 (-0.003; 0.007)	0.349
Temporal orientation	-0.004 (-0.014; 0.005)	0.361	-0.013 (-0.056; 0.030)	0.509
Global cognition	0.019 (-0.018; 0.056)	0.309	0.061 (-0.051; 0.173)	0.253

Linear regression adjusted for age, sex, education, race, income, alcohol consumption, smoking, hypertension, diabetes, cardiovascular disease, body mass index, depressive symptoms, private healthcare access, and physical activity.

Table S11 Association between daily fruit and vegetable consumption and cognitive impairment (n=8,262)

	Unadjusted		Model 1		Model 2	
	OR (95% CI)	**p-value**	**OR (95% CI)**	**p-value**	**OR (95% CI)**	**p-value**
Fruits and vegetables combined	0.836 (0.772; 0.906)	<0.001	0.903 (0.820; 0.995)	0.040	0.932 (0.843; 1.030)	0.166
Fruits	0.775 (0.690; 0.871)	<0.001	0.832 (0.724; 0.957)	0.010	0.861 (0.746; 0.994)	0.041
Vegetables	0.837 (0.699; 1.002)	0.052	0.966 (0.814; 1.146)	0.693	1.010 (0.844; 1.207)	0.912

Model 1: linear regression model adjusted for age, sex, education, race, income, and residence in rural/urban area.
Model 2: linear regression model adjusted for age, sex, education, race, income, residence in rural/urban area, alcohol consumption, smoking, hypertension, diabetes, cardiovascular disease, body mass index, depressive symptoms, private healthcare access, and physical activity.

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Table S12 Association between daily vegetable consumption and cognitive impairment stratified by residence in urban (n=6,989) or rural (n=1,273) area

	Urban		Rural	
	OR (95% CI)	**p-value**	**OR (95% CI)**	**p-value**
Fruits and vegetables combined	0.905 (0.802; 1.022)	0.108	1.032 (0.798; 1.335)	0.788
Fruits	0.819 (0.697; 0.963)	0.016	1.032 (0.705; 1.510)	0.858
Vegetables	1.006 (0.808; 1.253)	0.953	1.053 (0.727; 1.524)	0.764

Linear regression model adjusted for age, sex, education, race, income, alcohol consumption, smoking, hypertension, diabetes, cardiovascular disease, body mass index, depressive symptoms, private healthcare access, and physical activity.