

Body Mass Index, Mobility Limitations, and Cognitive Status Among Older Adults in the United States: A Cross-Sectional Analysis of the 2020 Health and Retirement Study



By
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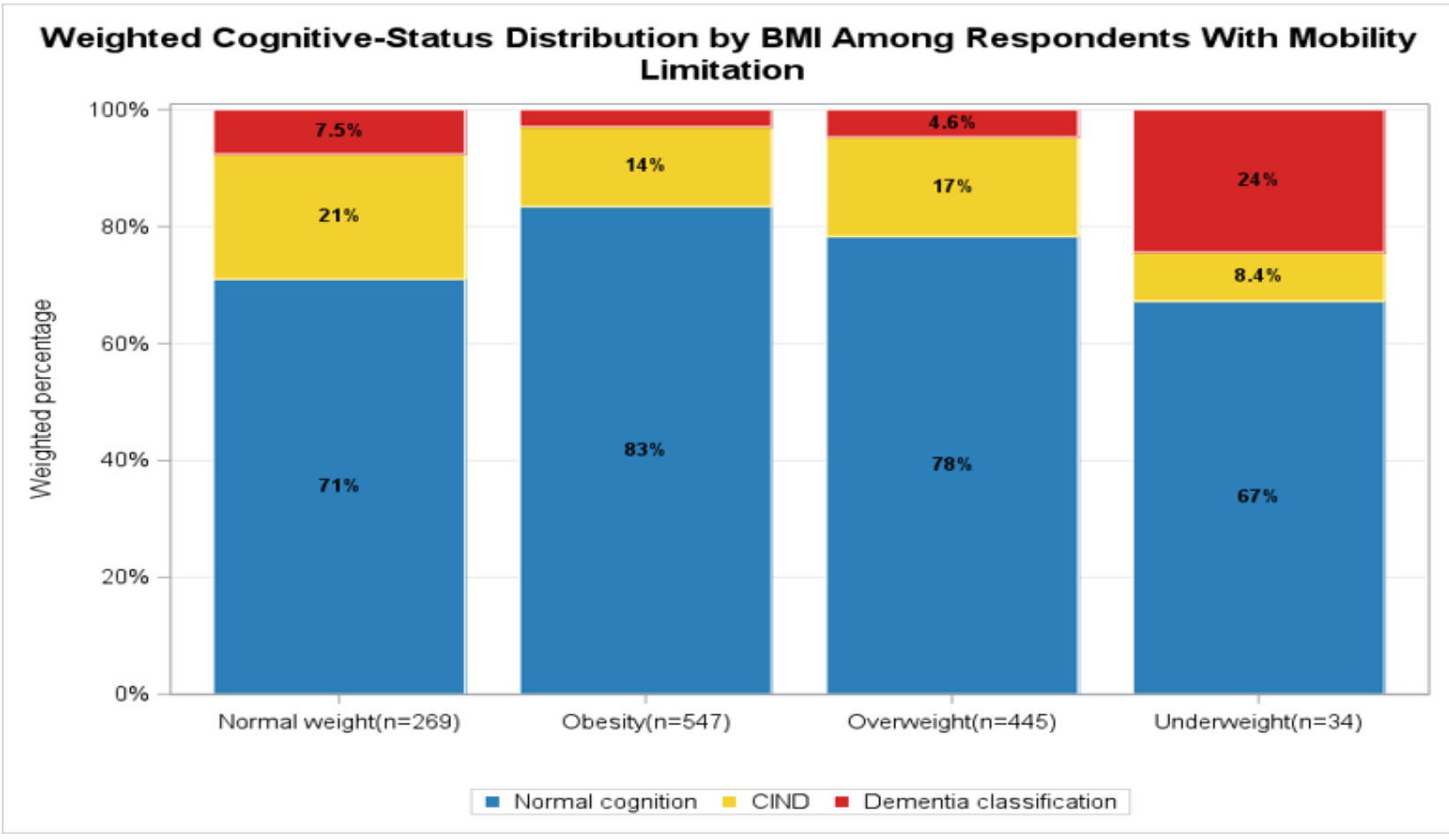
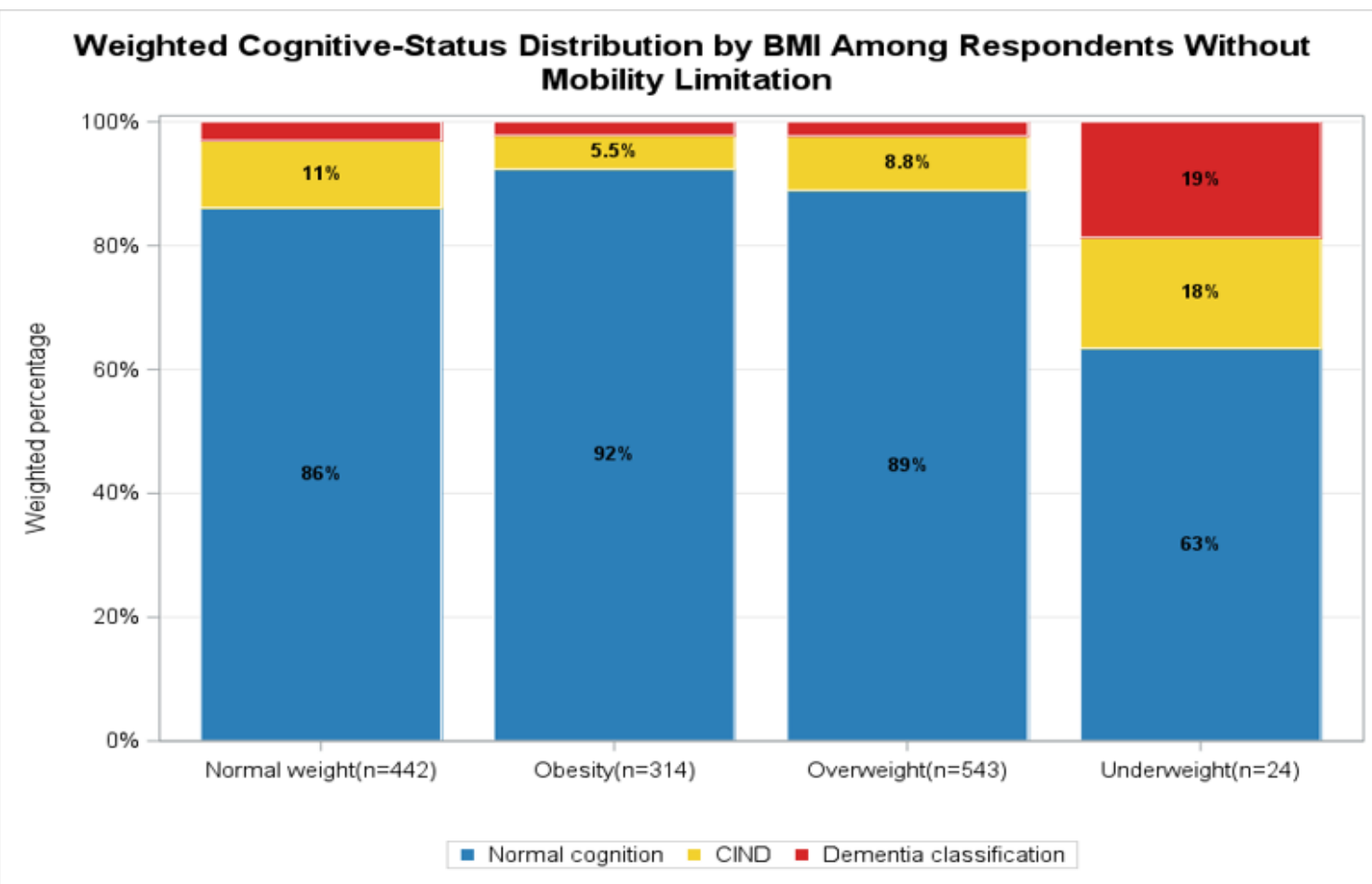
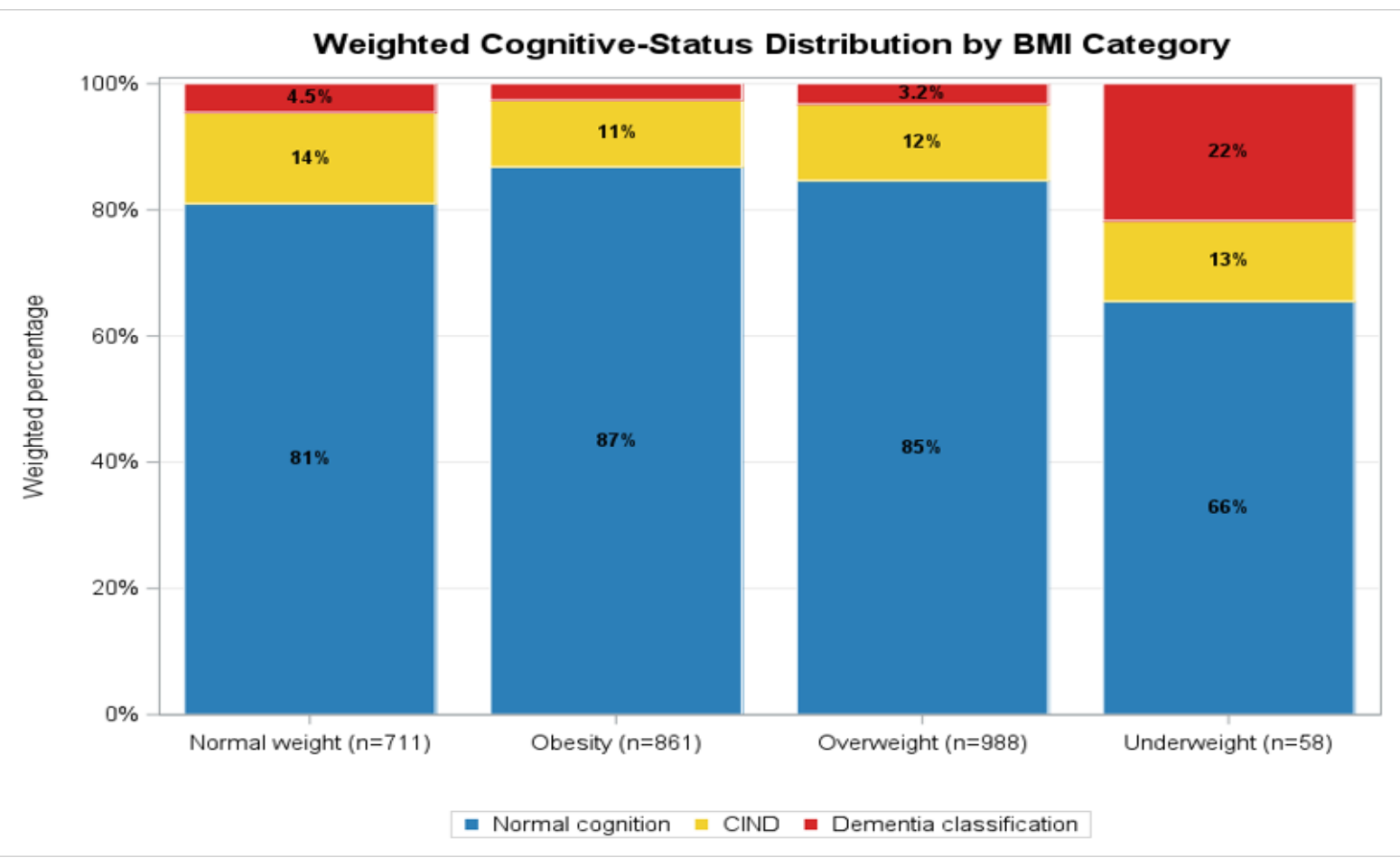
INTRODUCTION

BMI, mobility, and cognition are interrelated in later life.

Late-life BMI findings are mixed and may reflect reverse causation and selective survival.

Low BMI may indicate frailty, malnutrition, sarcopenia, or dementia-related weight loss.

Objective: examine whether BMI category and mobility limitation are independently and jointly associated with cognitive status.



METHODS			RESULTS			DISCUSSION			CONCLUSIONS		
Cross-sectional analysis of the 2020 Health and Retirement Study leave-behind sample. Analytic sample: 2,618 adults aged 65 years and older with complete data and positive leave-behind weight. Outcome: normal cognition, cognitive impairment without dementia (CIND), or dementia classification using the Langa-Weir algorithm. Main predictors: BMI category: normal weight, overweight, obesity, and under weight and self-reported mobility limitation. Covariates: Age, sex, race/ethnicity, education, current work status, physical activity, perceived stress, depressive symptoms, and number of chronic conditions. Analysis: weighted descriptive statistics and weighted multinomial logistic regression.	Sample Characteristics		BMI category was significantly associated with cognitive status overall, $F(6, 2612) = 5.66, p < .0001$.			➤ Obesity was associated with lower odds of CIND and dementia classification, but this should not be interpreted as protective. ➤ The inverse association may reflect reverse causation, illness-related weight loss, selective survival, or changes in body composition. ➤ Underweight status was associated with higher odds of dementia classification and may indicate frailty, malnutrition, sarcopenia, or disease-related weight loss. ➤ Mobility limitation and the BMI-by-mobility interaction were not significant after adjustment. CLINICAL AND RESEARCH IMPLICATIONS ➤ Late-life BMI should be interpreted alongside weight history, frailty, disease stage, and body composition. ➤ Higher weight should not be viewed as cognitively protective, while unintentional low weight may indicate nutritional, functional, or cognitive vulnerability.			➤ BMI category was associated with cognitive status. ➤ Obesity was inversely associated with CIND and dementia classification, whereas underweight was associated with higher odds of dementia classification. ➤ Mobility limitation and the BMI-by-mobility interaction were not significant after adjustment. ➤ Longitudinal studies using weight change, body composition, and objective mobility measures are needed.		
	Characteristic	Weighted estimate	Mobility limitation was not independently associated with cognitive status overall, $F(2, 2616) = 1.68, p = .1858$.								
	Age, mean (SD), years	74.03 (7.14)									
	Female	56.7%	Adjusted Associations With Cognitive Status			ALZHEIMER'S ASSOCIATION AAIC 26					
	Education, mean (SD), years	13.64 (2.83)									
	Mobility limitation	46.0%	Predictor	CIND vs. normal cognition, AOR (95% CI)	Dementia vs. normal cognition, AOR (95% CI)						
	Depressive symptoms	8.9%	Obesity vs. normal weight	0.55 (0.36–0.84)	0.25 (0.10–0.67)						
	Chronic conditions, mean (SD)	2.62 (1.49)	Overweight vs. normal weight	0.75 (0.52–1.09)	0.51 (0.23–1.13)						
	BMI Category		Underweight vs. normal weight	1.11 (0.45–2.74)	6.06 (1.79–20.57)						
	Category	Weighted %	Mobility limitation, yes vs. no	1.31 (0.92–1.88)	0.75 (0.36–1.57)						
	Normal weight	27.4%	Highlighted one estimates were statistically significant at $p < .05$.								
Obesity	31.9%										
Overweight	38.5%	Interaction									
Underweight	2.1%										
Cognitive Status		The BMI-category-by-mobility-limitation interaction was not statistically significant: $F(6, 2612) = 1.24, p = .2811$.									
Category	Weighted %										
Normal cognition	83.9%										
CIND	12.3%										
Dementia classification	3.8%										