

Identifying Disparities: A Retrospective Analysis of DEXA Screening Among Older Adults in a Medicare Advantage Plan

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Introduction

- Osteoporosis is a common and often asymptomatic skeletal disease affecting older adults
- There are known modifiable and non-modifiable risk factors associated with developing osteoporosis
 - Modifiable: physical activity, weight, cigarette smoking, alcohol use, and stress
 - Nonmodifiable: age, sex, race, prior history of fractures, history of falls, and family history of osteoporosis
- Left untreated, osteoporosis can lead to costly and debilitating fragility fractures; low-cost DEXA screening can detect osteoporosis before the onset of fragility fractures
- It is predicted that the greatest increase in fragility fractures will be among Hispanic and other race/ethnicity groups, indicating these groups may not be getting screened
- Men are less likely to be screened and receive treatment and have an increased risk of mortality associated with fractures
- Screening guidelines vary. Most guidelines agree that all women over the age of 65 should be screened, while others also recommend screening men ≥ 70

Objective:

- To compare DEXA screening rates among eligible men and women within Medicare Advantage managed care plans and identify fixed and modifiable factors associated with decreased likelihood of receiving a DEXA scan

Methods

- Retrospective chart review using January 1, 2021 – January 31, 2024, data from Medicare Advantage managed care plans at a single healthcare system
- Included all women aged ≥ 65 and men aged ≥ 70
- Conducted bivariate analysis using X^2 and t-tests
- Used stepwise logistic regression with forward and backward selection to estimate effect size
 - Used simple imputation to account for missing variables

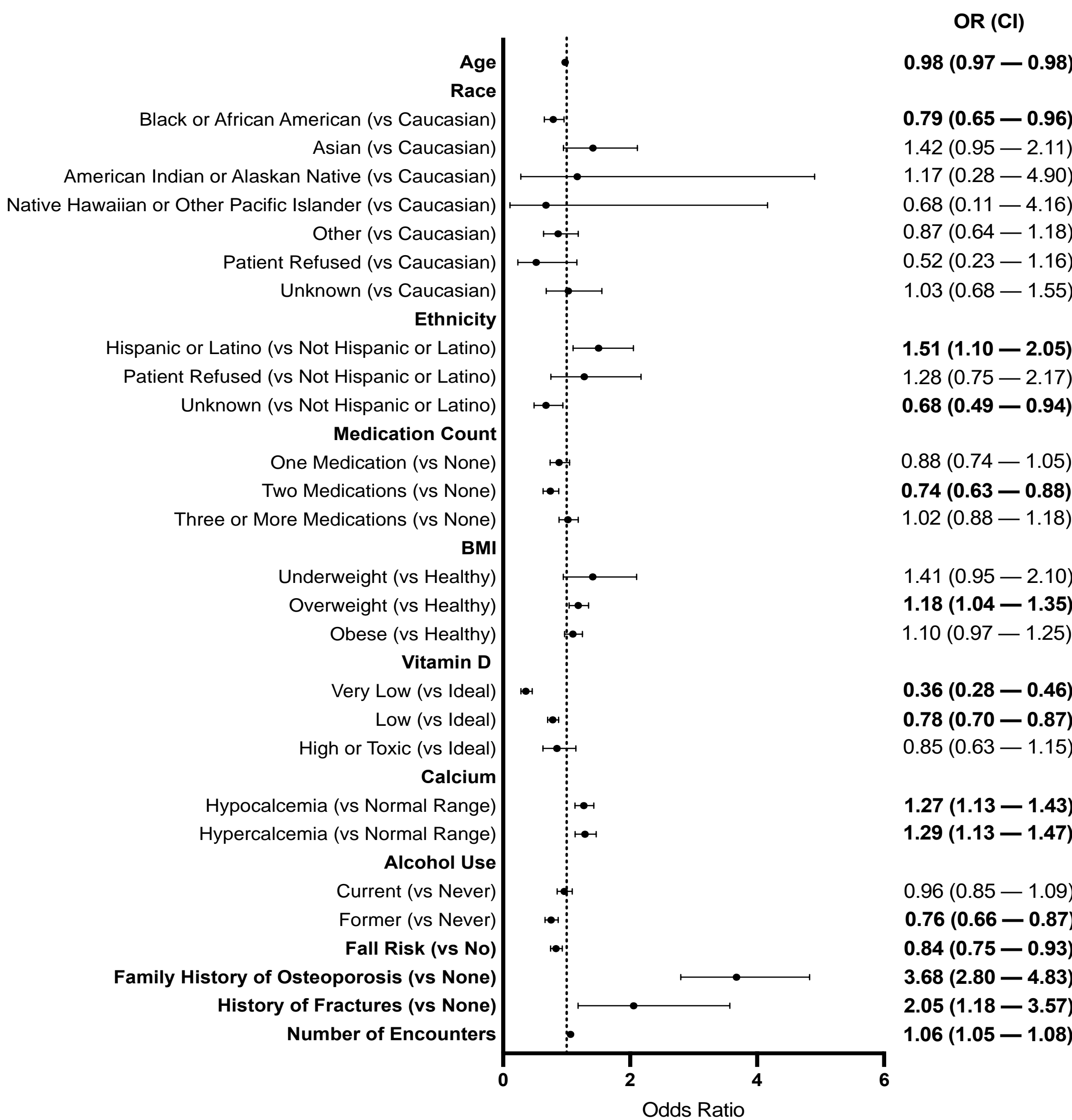
Results

Table 1. Pre-imputation bivariate associations between patient characteristics and DEXA scan

Patient Characteristics	DEXA (SD or %)		P
	Yes	No	
Age	73.7 (6.4)	75.9 (7.1)	<.001
Sex			<.001
Male	137 (4.3)	3,018 (95.7)	
Female	3,384 (50.5)	3,315 (49.5)	
Race			<.001
White or Caucasian	2,913 (36.9)	4,986 (63.1)	
Black or African American	223 (32.0)	473 (68.0)	
Asian	73 (38.0)	119 (62.0)	
Native Hawaiian or Other Pacific Islander	2 (22.2)	7 (77.8)	
American Indian or Alaska Native	6 (60.0)	4 (60.0)	
Other	208 (38.2)	336 (61.8)	
Patient Refused	20 (28.6)	50 (71.4)	
Unknown	76 (17.5)	358 (82.5)	
Ethnicity			<.001
Hispanic or Latino	216 (38.1)	351 (61.9)	
Not Hispanic or Latino	3,147 (36.6)	5,459 (63.4)	
Patient Refused	44 (29.5)	105 (70.5)	
Unknown	114 (21.4)	418 (78.6)	
Medications			0.057
No Medications	310 (43.1)	409 (56.9)	
One Medication	318 (40.8)	461 (59.2)	
Two or More Medications	362 (36.8)	623 (63.2)	
Three or More Medications	806 (39.5)	1,234 (60.5)	
Alcohol Use			<.001
Never	1,102 (41.0)	1,588 (59.0)	
Current	1,589 (35.9)	2,837 (64.1)	
Former	796 (32.1)	1,687 (67.9)	

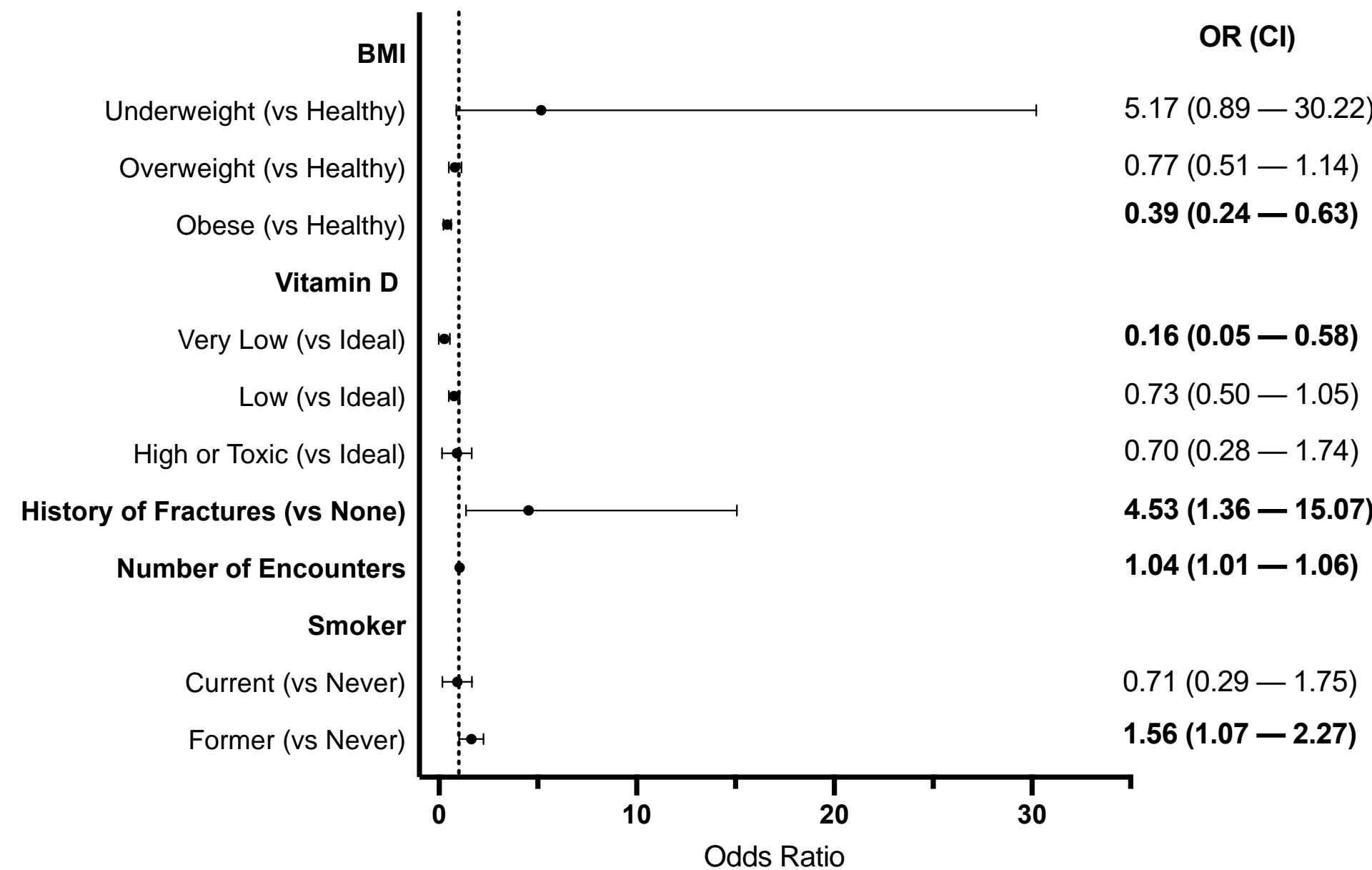
Patient Characteristics	DEXA (SD or %)		P
	Yes	No	
Smoking			<.001
Never	1,865 (38.4)	2,989 (61.6)	
Current	216 (33.9)	422 (66.1)	
Former	1,425 (33.7)	2,805 (66.3)	
Vitamin D			0.042
Ideal (25-80)	469 (49.1)	487 (50.9)	
Very Low (<10)	7 (30.4)	16 (69.6)	
Low (10-24)	367 (43.4)	478 (56.6)	
High/Toxic (>80)	24 (49.0)	25 (51.0)	
Calcium			<.001
Normal	463 (36.1)	820 (63.9)	
Hypocalcemia	405 (35.8)	725 (64.2)	
Hypercalcemia	241 (50.3)	238 (49.7)	
BMI			0.136
Healthy	921 (36.9)	1,578 (63.1)	
Underweight	64 (41.0)	92 (59.0)	
Overweight	1,178 (34.7)	2,213 (65.3)	
Obese	1,259 (36.7)	2,170 (63.3)	
Fall Risk			<.001
Low Risk	1131 (42.4)	1,537 (57.6)	
High Risk	641 (35.7)	1,153 (64.3)	
Mobility			0.002
Yes	457 (37.8)	753 (62.2)	
No	1,160 (43.0)	1,535 (57.0)	
History of Fractures			<.001
Yes	57 (54.8)	47 (36.8)	
No	3,461 (35.5)	6,286 (64.5)	
Family History of Osteoporosis			<.001
Yes	324 (63.2)	189 (36.8)	
No	3,197 (34.2)	6,144 (65.8)	
Number of Encounters in 2023	3.6 (3.9)	3.1 (4.5)	<.001

Figure 1. Associations of different risk factors with likelihood of receiving DEXA scan among women



Results

Figure 2. Associations of different risk factors with likelihood of receiving DEXA scan among men



Discussion

- Nearly 50% of eligible women and 95% of eligible men go unscreened
- Significant factors varied by sex:
 - Women: age, black race, unknown ethnicity, two medications, low and very low vitamin D levels, former alcohol use, and fall risk
 - Men: obesity and very low vitamin D
- History of fractures and more encounters increased screening rates in both sexes, but there is no benefit to screening once a fracture has already occurred

Conclusion

- Men may not get screened due to variations in guidelines, however both high risk men and women with additional risk factors on top of their age are not getting screened for osteoporosis
- Early detection via low-cost DEXA screening and subsequent treatment can prevent fragility fractures, which are costly, potentially debilitating, and limit older adults' independence

Acknowledgments

