

Supplementary Table S4. Multivariable-adjusted association between body mass index (BMI) and mammographic density^a by race and ethnicity, stratified by age at mammogram, and with modified BMI cut points^b

BMI (kg/m ²)	All			AIAN			Asian			Black			Hispanic			NHPI			White			
	Low MD (n)	High MD (n)	RR (95% CI)	Low MD (n)	High MD (n)	RR (95% CI)	Low MD (n)	High MD (n)	RR (95% CI)	Low MD (n)	High MD (n)	OR (95% CI)	Low MD (n)	High MD (n)	RR (95% CI)	Low MD (n)	High MD (n)	RR (95% CI)	Low MD (n)	High MD (n)	RR (95% CI)	
Full cohort^c																						
Under/Normal weight	27,331	47,047	(ref)	88	171	(ref)	160	955	(ref)	95	200	(ref)	1,189	2,657	(ref)	27	69	(ref)	25,772	42,995	(ref)	
Overweight	30,566	21,274	0.69 (0.68, 0.69)	112	92	0.70 (0.59, 0.84)	188	347	0.79 (0.74, 0.84)	156	115	0.64 (0.55, 0.74)	1,558	1,443	0.71 (0.68, 0.74)	46	38	0.70 (0.54, 0.90)	28,506	19,239	0.68 (0.67, 0.69)	
Obese	25,495	9,091	0.43 (0.42, 0.44)	130	38	0.35 (0.26, 0.46)	100	78	0.54 (0.45, 0.63)	187	68	0.40 (0.32, 0.50)	1,333	611	0.47 (0.44, 0.50)	67	24	0.38 (0.27, 0.55)	23,678	8,272	0.43 (0.42, 0.44)	
p-trend			<0.001			<0.001			<0.001			<0.001			<0.001			<0.001			<0.001	
p-heterogeneity ^d																						<0.001
Age <45^e																						
Under/Normal weight	5,473	17,590	(ref)	26	65	(ref)	36	419	(ref)	20	79	(ref)	389	1,269	(ref)	*	*	(ref)	4,993	15,727	(ref)	
Overweight	5,261	5,860	0.69 (0.68, 0.71)	24	30	0.80 (0.61, 1.06)	36	123	0.84 (0.77, 0.91)	32	56	0.80 (0.66, 0.97)	483	625	0.74 (0.69, 0.78)	*	*	0.89 (0.64, 1.24)	4,681	5,013	0.68 (0.67, 0.70)	
Obese	4,984	2,401	0.43 (0.41, 0.44)	29	16	0.50 (0.33, 0.76)	18	21	0.58 (0.43, 0.78)	46	27	0.46 (0.33, 0.63)	426	243	0.47 (0.42, 0.52)	27	12	0.38 (0.23, 0.61)	4,438	2,082	0.42 (0.41, 0.44)	
p-trend			<0.001			0.016			0.002			<0.001			<0.001			0.004			<0.001	
p-heterogeneity ^d																						<0.001
Age 45 to <55^e																						
Under/Normal weight	7,702	16,670	(ref)	27	63	(ref)	50	356	(ref)	34	74	(ref)	461	1,057	(ref)	*	*	(ref)	7,121	15,091	(ref)	
Overweight	8,640	7,680	0.70 (0.69, 0.71)	35	44	0.80 (0.63, 1.02)	62	126	0.76 (0.69, 0.85)	62	37	0.56 (0.43, 0.75)	634	611	0.71 (0.66, 0.75)	*	*	0.70 (0.54, 0.90)	7,829	6,846	0.70 (0.68, 0.71)	
Obese	8,252	3,475	0.44 (0.43, 0.45)	57	*	0.27 (0.16, 0.45)	41	37	0.54 (0.42, 0.68)	73	27	0.39 (0.28, 0.56)	553	273	0.48 (0.43, 0.53)	21	*	0.38 (0.27, 0.55)	7,507	3,116	0.44 (0.42, 0.45)	
p-trend			<0.001			<0.001			<0.001			<0.001			<0.001			0.03			<0.001	
p-heterogeneity ^d																						0.04
Age ≥55^e																						
Under/Normal weight	14,156	12,787	(ref)	35	43	(ref)	74	180	(ref)	41	47	(ref)	339	331	(ref)	*	*	(ref)	13,658	12,177	(ref)	
Overweight	16,665	7,734	0.67 (0.66, 0.69)	53	18	0.44 (0.27, 0.70)	90	98	0.75 (0.64, 0.87)	62	22	0.47 (0.32, 0.70)	441	207	0.64 (0.56, 0.74)	*	*	0.69 (0.31, 1.52)	15,996	7,380	0.67 (0.66, 0.69)	
Obese	12,259	3,215	0.44 (0.42, 0.45)	44	*	0.30 (0.16, 0.55)	41	20	0.48 (0.33, 0.69)	68	14	0.30 (0.18, 0.51)	354	95	0.42 (0.35, 0.51)	19	*	0.39 (0.11, 1.36)	11,733	3,074	0.44 (0.42, 0.45)	
p-trend			<0.001			<0.001			<0.001			<0.001			<0.001			0.08			<0.001	
p-heterogeneity ^d																						0.33

Abbreviations: AIAN=non-Hispanic American Indian or Alaska Native; Asian=non-Hispanic Asian; Black=non-Hispanic Black; NHPI=non-Hispanic Native Hawaiian or Pacific Islander; White=non-Hispanic White

^aConsistent with Utah Population Database confidentiality policies, we have masked low counts (n<11) and any counts that could be used to re-create the low counts.

^bLow MD is defined as BI-RADS A or B, and high MD defined as BI-RADS C or D.

^cBMI cut points were defined as 25 (overweight) and 30 (obese) for AIAN, Black, Hispanic and White women, 23 (overweight) and 27.5 (obese) for Asian women, and 26 (overweight) and 32 (obese) for NHPI women.

^dMultivariable models are adjusted for age (continuous), education (less than high school or high school diploma, more than high school, missing), parity (0 births in Utah, 1 birth in Utah, 2+births in Utah, parous with number of births not known), and hormone therapy (HT) use (never, past, current). The model for the full population, "All," is additionally adjusted for the combined race and ethnicity variable.

^eTest for heterogeneity is a likelihood ratio test comparing models with and without interaction terms between the combined race and ethnicity variable and BMI.

^fMultivariable models are adjusted for age (continuous), education (less than high school or high school diploma, more than high school, missing), and parity (0 births in Utah, 1 birth in Utah, 2+births in Utah, parous with number of births not known). The model for the full population, "All," is additionally adjusted for the combined race and ethnicity variable.