Quantifying the clinical unmet need in adults with class II and III obesity in the United States

664

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Objective

- To understand the clinical burden of obesity among US adults by evaluating the prevalence of obesity and obesity-related complications (ORCs), focusing on level of obesity (class I, II, III), sex, and race/ethnicity.

Introduction

- Obesity is a serious, chronic, multifactorial, and progressive disease that can lead to an increased risk of metabolic and long-term complications, and can shorten lifespan.[1,2]
- Although current obesity management medications (OMMs) have advanced care, unmet needs remain,[3,4] particularly among those living with class II or III obesity (body mass index [BMI] ≥35 kg/m^2).
- Despite increasing awareness of the clinical unmet need among people living with obesity, work to date has not quantified how this burden may vary according to socio-demographic factors and severity of obesity.
- With the development of next-generation OMMs, a broader assessment of these disparities is required to facilitate more targeted and equitable care for those at the highest clinical risk.

Methods

Data source



- Cross-sectional analysis of National Health and Nutrition Examination Survey (NHANES) 2017–2020 dataset, a national survey measuring the health and nutrition of adults and children in the USA
- NHANES 2017–2020 prevalence estimates were applied to 2025 US population estimates[a]

Prevalence of obesity



Prevalence of ORCs[b] and ORC MM[c] (0, 1, 2, or ≥3 ORCs)[d]



BMI=body mass index; CKD=chronic kidney disease; CVD=cardiovascular disease; NHANES=National Health and Nutrition Examination Survey; ORC=obesity-related complication; MM=multimorbidities; OSA=obstructive sleep apnea; T2DM=type 2 diabetes mellitus.
[a]2025 population estimates were derived from US Census data.[5,6] [b]ORCs selected represent the nine most reported ORCs in the NHANES dataset. [c]MM describes the co-occurrence of two or more ORCs. [d]All data were evaluated across obesity class, sex, and race/ethnicity.

Results

Prevalence of obesity

- The 2025 US Census reports a total of 269,763,509 adults (**Table 1**),[5] of whom 21.6%, 11.0%, and 8.9% were estimated to be living with class I, class II, and class III obesity, respectively.[6]
- The prevalences of obesity classes by sex, race/ethnicity, and both sex and race/ethnicity are presented in **Supplementary Figures 1–3**.
  - The prevalence of class II and III obesity was higher in women than men, with the greatest disparity among those living with class III obesity (11.3% and 6.3%, respectively) (**Supplementary Figure 1**).
  - Regarding race/ethnicity, class II and III obesity were most prevalent in non-Hispanic Black individuals (14.0% and 13.9%, respectively) (**Supplementary Figure 2**).
  - When assessed by sex and race/ethnicity, non-Hispanic Black women had the highest prevalence of class II and III obesity (16.1% and 18.8%, respectively) (**Supplementary Figure 3**).

Table 1. Demographics of the 2025 US adult population

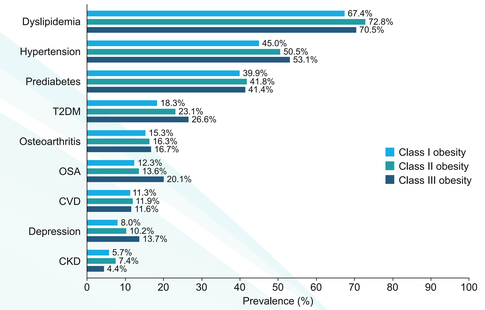
	Total	Women	Men
Population, n (%)	269,763,509 (100)	136,257,548 (50.5)	133,505,961 (49.5)
Race/ethnicity, n (%)			
White	155,006,112 (57.5)	78,123,512 (29.0)	76,882,600 (28.5)
Asian	17,507,652 (6.5)	9,091,030 (3.4)	8,416,622 (3.1)
Non-Hispanic Black	34,071,131 (12.6)	17,723,463 (6.6)	16,347,668 (6.1)
Hispanic	52,199,239 (19.4)	25,789,392 (9.6)	26,436,824 (9.8)
Other/Multiracial	10,979,375 (4.1)	5,513,966 (2.0)	5,454,618 (2.0)

2025 population estimates were derived by applying group percentages from US Census data to the total 2025 adult population.[5,6] Percentages are subject to rounding.

Prevalence of ORCs and ORC MM

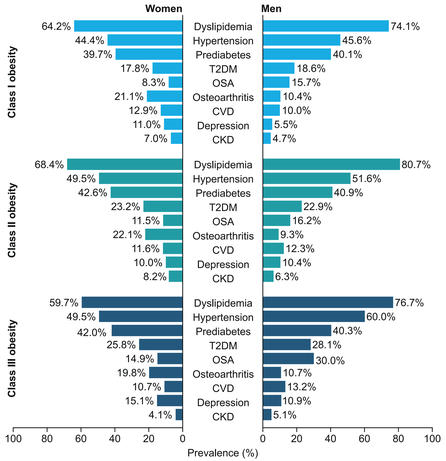
- Among the ORCs examined across obesity classes, the most prevalent were dyslipidemia (67.4–72.8%), hypertension (45.0–53.1%), and prediabetes (39.9–41.8%) (**Figure 1**).
- The prevalences of hypertension, type 2 diabetes mellitus (T2DM), osteoarthritis, obstructive sleep apnea (OSA), and depression appeared to increase with obesity class.
- The prevalences of dyslipidemia, hypertension, and OSA were higher in men, whereas the prevalence of osteoarthritis was higher in women, irrespective of obesity class; other ORCs differed between classes (**Figure 2**).
  - Among women, 5 of 9 ORCs were more prevalent in those living with class III versus class I obesity; the largest differences were observed for T2DM (25.8% vs 17.8%) and OSA (14.9% vs 8.3%).
  - Among men, all ORCs were more prevalent in those living with class III versus class I obesity; the largest differences were observed for hypertension (60.0% vs 45.6%) and OSA (30.0% vs 15.7%).
- Among non-Hispanic Black individuals, who had the highest prevalence of class II and III obesity, hypertension was the most prevalent ORC in women in classes II and III (55.7% and 60.5%, respectively), and dyslipidemia was most prevalent in men in classes II and III (67.5% and 67.9%, respectively; **Figure 3**).
- Irrespective of sex, the prevalence of ORC MM (2 or ≥3 co-occurring ORCs) was generally highest among individuals living with class II and III obesity, and the prevalences of having 0 ORCs or 1 ORC were highest in those living with class I obesity (**Figure 4**).

Figure 1. Prevalence of ORCs by obesity class



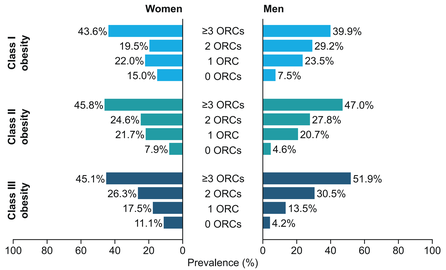
CKD=chronic kidney disease; CVD=cardiovascular disease; ORC=obesity-related complication; OSA=obstructive sleep apnea; T2DM=type 2 diabetes mellitus.
ORCs have been ordered from most to least prevalent according to prevalence among people living with class I obesity. Participants may have had more than one ORC.

Figure 2. Prevalence of ORCs by obesity class and sex



CKD=chronic kidney disease; CVD=cardiovascular disease; ORC=obesity-related complication; OSA=obstructive sleep apnea; T2DM=type 2 diabetes mellitus.
ORCs have been ordered from most to least prevalent according to data from men with class I obesity. Participants may have reported more than one ORC.

Figure 4. Prevalence of ORC MM by sex



CKD=chronic kidney disease; CVD=cardiovascular disease; MM=multimorbidities; ORC=obesity-related complication; OSA=obstructive sleep apnea; T2DM=type 2 diabetes mellitus.

Figure 3. Prevalence of ORCs by obesity class and race/ethnicity in (A) women and (B) men

(A)

Race/ethnicity	Obesity class	Dyslipidemia	Hypertension	Prediabetes	T2DM	OSA	Osteoarthritis	CVD	Depression	CKD
White	I	66.6%	46.3%	38.6%	17.0%	8.1%	27.1%	17.2%	8.4%	8.6%
	II	74.9%	54.2%	43.4%	24.5%	11.8%	29.3%	15.3%	10.6%	8.9%
	III	63.4%	51.8%	36.9%	26.2%	12.5%	22.6%	11.3%	15.5%	4.8%
Asian	I	64.3%	49.8%	39.5%	21.6%	13.5%	14.3%	5.1%	12.4%	1.8%
	II	60.1%	50.6%	43.8%	34.9%	10.3%	0.0%	6.8%	2.2%	4.1%
	III	47.7%	26.2%	73.8%	9.2%	0.0%	30.7%	9.2%	0.0%	0.0%
Non-Hispanic Black	I	53.1%	52.2%	43.0%	19.6%	7.6%	10.3%	10.3%	14.9%	9.3%
	II	51.5%	55.7%	38.3%	16.4%	7.2%	10.5%	7.0%	7.0%	10.3%
	III	56.9%	60.5%	49.5%	28.1%	22.1%	13.1%	12.9%	10.9%	3.8%
Hispanic	I	61.8%	30.3%	37.6%	15.4%	9.9%	6.9%	3.6%	9.8%	2.0%
	II	62.8%	29.0%	42.1%	27.8%	15.0%	11.4%	5.3%	12.0%	4.2%
	III	47.7%	31.9%	52.9%	19.9%	9.9%	11.4%	3.4%	18.4%	1.6%
Other/Multiracial	I	75.4%	49.0%	50.1%	28.1%	3.4%	40.2%	11.2%	30.5%	4.3%
	II	67.7%	42.5%	51.4%	1.6%	9.1%	16.5%	2.2%	8.0%	8.3%
	III	53.2%	15.7%	47.3%	26.8%	30.8%	29.7%	11.2%	22.2%	2.1%

(B)

Race/ethnicity	Obesity class	Dyslipidemia	Hypertension	Prediabetes	T2DM	OSA	Osteoarthritis	CVD	Depression	CKD
White	I	76.8%	45.6%	40.6%	17.8%	16.2%	13.6%	10.9%	6.0%	4.6%
	II	83.4%	55.5%	39.8%	21.9%	14.5%	10.9%	15.4%	10.1%	6.9%
	III	80.7%	64.0%	40.3%	26.4%	27.6%	12.6%	14.3%	9.7%	5.6%
Asian	I	69.3%	34.8%	23.6%	27.1%	22.9%	0.0%	4.6%	4.8%	9.0%
	II	100%	20.5%	53.7%	20.5%	25.1%	3.1%	5.7%	10.7%	0.0%
	III	84.4%	45.0%	21.0%	23.6%	25.7%	0.0%	6.0%	18.4%	0.0%
Non-Hispanic Black	I	65.2%	55.4%	37.7%	26.4%	13.1%	7.0%	14.6%	4.2%	9.3%
	II	67.5%	62.5%	38.4%	30.0%	22.2%	12.2%	8.6%	13.3%	12.2%
	III	67.9%	57.1%	46.4%	21.1%	29.0%	11.7%	14.6%	8.1%	7.6%
Hispanic	I	70.5%	41.1%	39.0%	18.6%	13.4%	2.0%	4.9%	3.7%	2.4%
	II	83.9%	39.7%	43.2%	26.5%	18.2%	4.0%	6.6%	12.9%	3.0%
	III	67.0%	50.6%	40.5%	28.9%	42.5%	4.4%	8.9%	15.2%	0.6%
Other/Multiracial	I	68.6%	53.1%	53.9%	8.8%	16.2%	11.7%	12.2%	8.7%	4.3%
	II	64.0%	35.8%	47.2%	7.9%	12.9%	6.0%	8.2%	0.0%	0.0%
	III	77.4%	55.8%	34.0%	57.5%	26.0%	9.9%	13.3%	13.9%	7.3%

Most — Prevalence — Least

CKD=chronic kidney disease; CVD=cardiovascular disease; ORC=obesity-related complication; OSA=obstructive sleep apnea; T2DM=type 2 diabetes mellitus.
Participants could report more than one ORC. ORCs are ordered from left to right according to their prevalence among White men living with class I obesity. The varying colors represent rank order of the nine ORCs from most to least prevalent within each row, independent of other rows; color shading does not reflect the actual proportion values within individual cells. Where two ORCs had equal prevalence, each were assigned the color corresponding to the higher rank, and the subsequent color in the sequence was omitted. Disparities in population representation (e.g., Asian and Other/Multiracial) may represent a study limitation.

Conclusions

- The severity of obesity and its complications vary across adults in the US, with class III obesity demonstrating a nearly 2-fold higher prevalence in women than men, with substantial variation by race/ethnicity.
- The highest prevalence of ORC MM was observed among individuals living with higher levels of obesity (class II or III).
- These findings establish the current clinical burden of obesity and underline the critical need for targeted access to care to address the disproportionate clinical burden and systemic disparities inherent with higher levels of obesity.
- As next-generation OMMs become available, these data will provide essential context for their application and potential for clinical utility in diverse high-risk populations living with obesity.

Abbreviations

BMI=body mass index; CKD=chronic kidney disease; CVD=cardiovascular disease; MM=multimorbidity; NHANES=National Health and Nutrition Examination Survey; OMM=obesity management medication; ORC=obesity-related complication; OSA=obstructive sleep apnea; T2DM=type 2 diabetes mellitus.

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Disclosures

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