

Demographics and Weight-Related Medical Problems Vary by Race in Morbidly Obese Men: Analysis of 17,734 Males Pre-Operative for Laparoscopic Roux-en-Y Gastric Bypass (LRYGB)

Kirk Duwel DO MS¹, Nicole Zucconi DO¹, and Gus J Slotman MD²

Departments of Family Medicine¹ and Surgery²

Inspira Health Network

1505 W Sherman Ave, Vineland, NJ, U.S.A.

BACKGROUND

In the obesity epidemic, every physician now manages fragile bariatric patients. Every insight can aid patient care. However, variation by race among morbidly obese males is unknown.

OBJECTIVE

To identify clinical variations by race in obese men.

METHODS

Pre-operative data from 17,734 men in the Surgical Review Corporation's BOLD database before LRYGB was analyzed in five groups: African American (AA, n=1,310), Caucasian (CA, n=14,168), Asian (AS, n=53), Hispanic HI, (n=1,519), and Other (O, Pacific Islander, Native American, or more than one race, n=684). Analysis of variance tested continuous data. Chi-squared tested 32 obesity co-morbidities. .

RESULTS

See Tables 1 & 2. AA weight (166+-34 kg) and BMI (51+-10) were highest and CA oldest (49+-11), (p<0.0001). AA had greatest CHF, gout, hypertension (HBP) (p<0.0001), substance abuse (p<0.05) (n=4), and lowest cholelithiasis (CL), mental health diagnosis (MH), depression (p<0.0001), liver disease (p<0.01) (n=4). CA had highest hernia, panniculitis, angina, back/somatic pain, CL, MH, depression, GERD, ischemic heart disease (IHD), psychologic impairment (PI), leg edema, unemployed (p<0.0001), disability, pulmonary hypertension (PHT) (p<0.01), fibromyalgia and peripheral vascular disease (PVD) (p<0.05) (n=18) and lowest in none. AS

alcohol use, diabetes, dyslipidemia, sleep apnea (OSA) ($p < 0.0001$) and liver disease ($p < 0.05$) were highest ($n=5$), and hernia, panniculitis, back/somatic pain, CHF, GERD, IHD, leg edema, unemployed ($p < 0.0001$) impaired function, pseudotumor cerebri (PTC), PHT, substance abuse ($p < 0.01$), fibromyalgia ($p < 0.05$) were lowest ($n=14$). HI had lowest DVT/PE, diabetes, gout, HBP, dyslipidemia, and PI ($p < 0.0001$) ($n=6$) and none highest. O OSA, angina ($p < 0.0001$) and alcohol were lowest and PTC highest. Asthma, obesity hypoventilation, stress incontinence and tobacco use did not vary by race.

CONCLUSIONS

Clinical characteristics vary by race in morbidly obese men. Cardiopulmonary, abdominal, somatic and functional problems dominate CA. AA CHF, HBP were highest. AS drank most and had highest liver disease, diabetes, OSA, dyslipidemia. HI was lowest in 6, highest in none. O had lowest OSA and alcohol. This advance knowledge could facilitate targeted medical and pre-surgical interventions, with improved outcomes.

	African American	Caucasian	Asian	Hispanic	Other	Probability
Abdominal Hernia	4.12	8.36	5.26	0	4.54	<.0001
Alcohol Use	30	35.95	29.24	37.74	29.69	<.0001
Back Pain	37.63	50.05	39.04	32.08	39.37	<.0001
Cholelithiasis	4.2	10.37	8.04	5.66	6.45	<.0001
Mental Health Dx	3.66	7.93	5.41	7.55	5.73	<.0001
CHF	5.95	4.27	2.78	1.89	1.91	<.0001
Depression	14.05	27.37	18.57	16.98	16.06	<.0001
GERD	35.57	45.05	39.77	26.42	33.57	<.0001
Glucose Metabolism	45.88	51.03	49.42	54.72	43.38	<.0001
GOUT	10.15	8.7	8.04	9.43	4.02	<.0001
Hypertension	77.33	74.27	68.42	75.47	61.88	<.0001
Ischemic Heart Disease	5.11	9.87	5.41	1.89	5	<.0001
Lipids	41.15	55.36	49.12	73.58	37.79	<.0001
Lower Extremity Edema	26.11	32.2	23.54	15.09	20.74	<.0001
Musculoskeletal	36.11	47.37	41.37	20.75	32.92	<.0001
Obstructive sleep Apnea	63.44	67.05	55.7	67.92	55.43	<.0001
PsychoImpair	7.79	14.03	9.5	13.21	9.35	<.0001
Pseudotumor Cerebre	0.31	1.05	1.32	0	0.07	0.0002
Liver Disease	5.19	8.64	6.73	9.43	8.36	0.0003
DVT or PE	2.6	3.57	2.63	1.89	1.65	0.0006
Abdominal Skin Pan	4.27	6.81	5.56	3.77	5.2	0.0008
Pulmonary Hypertension	4.89	5.77	5.12	1.89	3.36	0.0012
Substance Abuse	1.37	0.56	0.44	0	1.12	0.0014
Angina	3.66	4.21	2.92	3.77	2.17	0.0016
Functional Status	3.89	4.09	2.63	1.89	2.17	0.0018
Fibromyalgia	0.31	0.76	0.15	0	0.26	0.0232
Peripheral Vascular Disease	1.68	2.15	1.9	0	1.05	0.0343
Obesity Hypoventilation	2.52	2.73	2.92	1.89	1.71	0.2012
Stress urinary incontinence	4.05	4.34	4.82	1.89	3.29	0.2734
Asthma	12.52	12.87	14.18	15.09	11.26	0.3071
Tobacco Use	7.18	8.27	8.63	13.21	8.49	0.4093

Table 1 – Weight-Related Medical Problems in Morbidly Obese Men.

Frequency of Obesity Comorbidities by Race

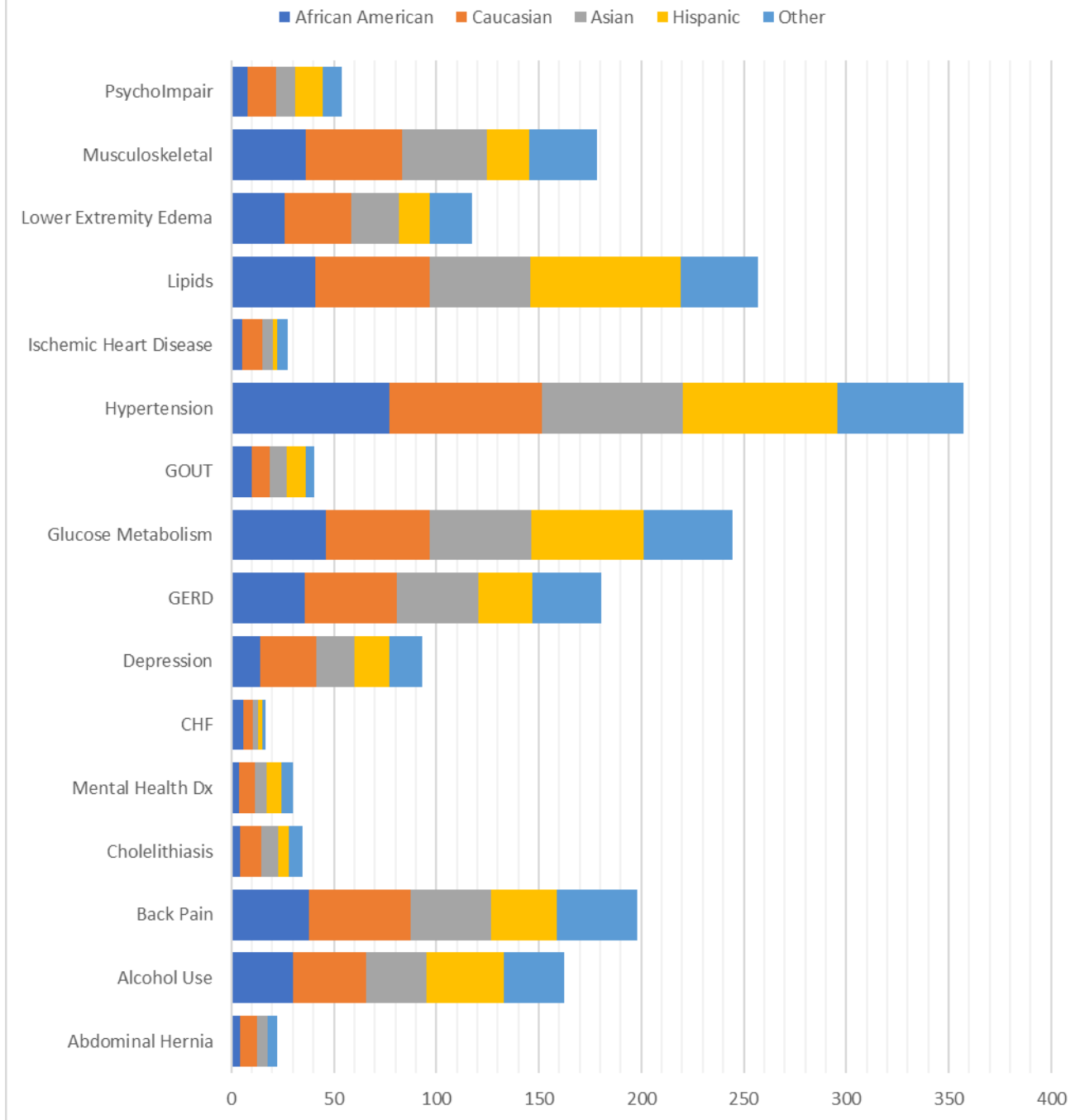


Figure 1 – The frequency of each obesity related comorbidity by race.

	African American	Caucasian	Asian	Hispanic	Other	Probability
Employed full or part	60.38	59.31	71.7	61.42	50	<.0001
Homemaker	0.08	0.1	0	0.07	0	<.0001
Not specified	10.61	9.57	13.21	6.85	20.76	<.0001
Self Employed	1.83	4.05	3.77	3.36	4.09	<.0001
Student	2.6	1.03	0	2.5	2.05	<.0001
Unemployed or Disabled	24.5	25.94	11.32	25.81	23.1	<.0001

Table 2 Employment Status of Morbidly Obese Men

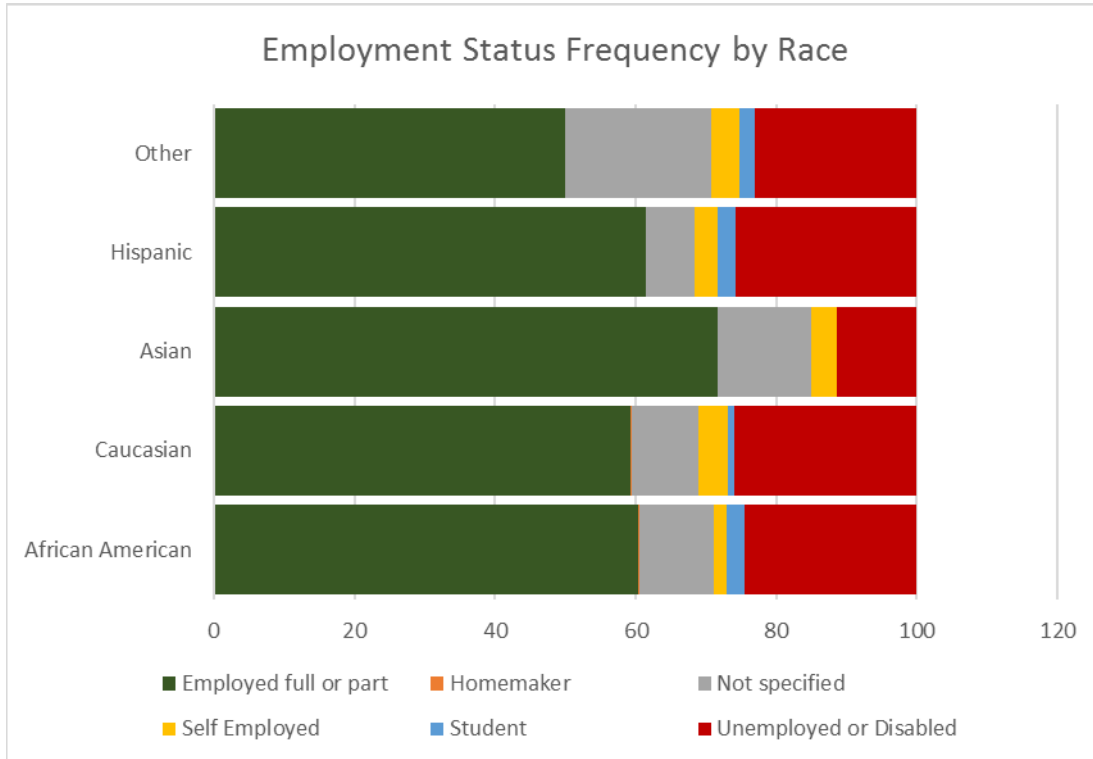


Figure 2 - Breakdown of each race's employment status into: employed, homemaker, self employed, student, unemployed, or not specified.

REFERENCES

1. Ogden, C.L., et al., *Prevalence of childhood and adult obesity in the United States, 2011-2012*. *Jama*, 2014. **311**(8): p. 806-14.
2. Ogden, C.L., et al., *Prevalence of Obesity Among Adults and Youth: United States, 2011-2014*. *NCHS Data Brief*, 2015. **219**: p. 1-8.
3. Skinner, A.C., E.M. Perrin, and J.A. Skelton, *Prevalence of obesity and severe obesity in US children, 1999-2014*. *Obesity*, 1116. **24**(5): p. 1116-23.
4. Flores, L., et al., *Hypertension remission 1 year after bariatric surgery: predictive factors*. *Surgery for Obesity & Related Diseases*, 2014. **10**(4): p. 661-5.
5. Nielsen, J.B., et al., *Prevalence, severity, and predictors of symptoms of dumping and hypoglycemia after Roux-en-Y gastric bypass*. *Surgery for Obesity & Related Diseases*, 1562. **12**(8): p. 1562-1568.
6. Hansen, N.B., C. Gudex, and R.K. Stoving, *Improvement in health-related quality of life following Roux-en-Y gastric bypass*. *Danish Medical Journal*, 4870. **61**(7).
7. Kelley, E.A., et al., *Geography, Race/Ethnicity, and Obesity Among Men in the United States*. *American Journal of Mens Health*, 2016. **10**(3): p. 228-36.
8. Sharifi, M., et al., *The role of neighborhood characteristics and the built environment in understanding racial/ethnic disparities in childhood obesity*. *Preventive Medicine*, 2016. **91**: p. 103-109.
9. Residori, L., et al., *Prevalence of co-morbidities in obese patients before bariatric surgery: effect of race*. *Obesity Surgery*, 2003. **13**(3): p. 333-40.
10. Schwartz, J., et al., *Variation in Clinical Characteristics of Women versus Men Preoperative for Laparoscopic Roux-en-Y Gastric Bypass: Analysis of 83,059 Patients*. *American Surgeon*, 2017. **83**(9): p. 947-951.
11. DeMaria, E.J., et al., *Baseline data from American Society for Metabolic and Bariatric Surgery-designated Bariatric Surgery Centers of Excellence using the Bariatric Outcomes Longitudinal Database*. *Surgery for Obesity & Related Diseases*, 2010. **6**(4): p. 347-55.