

# Women Versus Men: Pre-Operative Traits In Obese Patients Undergoing Open Roux-En-Y Gastric Bypass

Jennifer Cobernus<sup>1</sup>, DO, Manasa Sridhar<sup>1</sup>, DO, Nicole Zucconi<sup>1</sup>, DO and Gus J Slotman<sup>2</sup>, M.D.  
 Departments of Family Medicine<sup>1</sup> and Surgery<sup>2</sup>, Inspira Health Network

## BACKGROUND

The obesity epidemic plagues patients and their physicians. In this clinically fragile population, every insight helps. However, few investigations have evaluated differences between the sexes among patients with severe obesity. Objective of this study is to investigate these variations.

## METHODS

Data on 5,389 patients, pre-operative for open gastric bypass (RYGB), from the Surgical Review Corporation's BOLD database was examined in two groups: Women (n=4,093) and Men (n=1296). Statistics: analysis of variance and the Chi-squared equation.

**TABLE 1: PERCENT CARDIOPULMONARY COMORBIDITIES**

	Angina	Asthma	CHF	DVT/PE	HTN	IHD	LEE	OHS	OSA	PVD*	PHTN
FEMALE	3.3	22.9	2.1	3.4	59	3.8	25.4	2.7	44	1.4	3.6
MALE	4.9	12.9	6.2	4.9	70.8	9.6	30.6	5.2	69	1.9	5.6
P-value	0.008	<0.0001	<0.0002	0.0155	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	0.1921	0.0017

CHF: Congestive Heart Failure; DVT: Deep Vein Thrombosis; PE: Pulmonary Embolus; HTN: Hypertension; IHD: Ischemic Heart Disease; LEE: Lower Extremity Edema; OHS: Obesity Hyperventilation Syndrome; OSA: Obstructive Sleep Apnea; PVD: Peripheral Vascular Disease; PHTN: Pulmonary Hypertension. \*PVD Not statistically significant.

**TABLE 2: PERCENT ENDOCRINE AND METABOLIC COMORBIDITIES**

	Fibro	DIABETES	GOUT	Lipid	M.Irr.	PTC	PCOS
FEMALE	4.5	36.5	2.2	37	23.3	2.6	5.1
MALE	0.7	46.8	9	46.6	0	0.5	0
P-value	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Fibro: Fibromyalgia; Lipid: Hyperlipidemia; M.Irr.: Menstrual Irregularities; PTC: Pseudotumor Cerebri; PCOS: Polycystic Ovarian Syndrome

**TABLE 4: PERCENT SOMATIC COMORBIDITIES**

	Back Pain	FS	MSSK*
FEMALE	51.8	5.1	3.9
MALE	47.5	7.9	4.2
P-value	0.0067	0.0002	0.886

FS: Functional Status; MSSK: Musculoskeletal complaints. \*MSSK Not Statistically Significant

**TABLE 3: PERCENT ABDOMINAL AND HEPATOBILIARY COMORBIDITIES**

	AH	CHOLE.	GERD	ABD Pann.*	Liver Dis.	UST
FEMALE	7	22.6	44.3	8.2	44.3	25.6
MALE	9.7	9	35.8	7.6	35.8	3.1
P-value	0.0014	<0.0001	<0.0001	0.5473	<0.0001	<0.0001

AH: Abdominal Hernia; Chole: Cholecystitis; GERD: Gastroesophageal Reflux Disease; ABD Pann.: Abdominal Pannus; UST: Urinary Stress Incontinence. \*ABD Pann: Not statistically significant.

**TABLE 5: PERCENT PSYCHOLOGICAL/BEHAVIORAL COMORBIDITIES**

	Alcohol	Depression	MH	PMI	Sub. Ab.*	Tobacco
FEMALE	14.1	35.8	12.5	19.1	0.2	4.9
MALE	21.3	25.9	7.7	13.9	0.4	7.5
P-value	<0.0001	<0.0001	<0.0001	<0.0001	0.3395	0.0005

MH: Mental Health; PMI: Psychomotor Impairment; Sub.Ab: Substance Abuse. \*Sub.Ab. Not statistically Significant

**TABLE 6: WEIGHT, AGE, BMI Mean/SD AND INSURANCE PERCENT**

	Mean Wt.	+/- SD	Mean Age	+/- SD	Mean BMI	+/- SD	Medicare	Medicaid	Private	Self-Pay
FEMALE	132.2 kg	27.72 kg	45.6	11.95	49.39	9.63	7.34%	7.30%	59.34%	1%
MALE	168.8 kg	36.44 kg	46.96	11.68	52.85	10.52	1.44%	3.00%	19.91%	0.60%
P-value	<0.0001	<0.0001	0.0003	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Effective Sample Size for Insurance Respondents = 4225. Frequency missing = 1164 22% of the data in this stratum are missing.

## CONCLUSIONS

Significant variations exists between pre-operative clinical characteristics of women versus men with severe obesity who chose RYGB. Men were older and heavier, drank and smoked more, and carried 60% more obesity co-morbidities than did women. Women had more musculoskeletal and psychological problems. Cardiopulmonary and endocrine problems dominated in men. Understanding these variations may aid recognition of and clinical management of fragile patients with obesity.

## CONTACT

Jennifer B. Cobernus, DO  
 Inspira Health Network  
 Email: cobernusj@ihn.org

Nicole Zucconi, DO  
 Inspira Health Network  
 Email: zucconin@ihn.org

Manasa Sridhar, DO  
 Inspira Health Network  
 Email: sridharm@ihn.org

Gus J. Slotman, MD  
 Inspira Health Network  
 Email: slotmang@ihn.org

# Women Versus Men: Pre-Operative Traits In Obese Patients Undergoing Open Roux-En-Y Gastric Bypass

Jennifer Cobernus<sup>1</sup>, DO, Manasa Sridhar<sup>1</sup>, DO, Nicole Zucconi<sup>1</sup>, DO and Gus J Slotman<sup>2</sup>, M.D.  
 Departments of Family Medicine<sup>1</sup> and Surgery<sup>2</sup>, Inspira Health Network

## BACKGROUND

The obesity epidemic plagues patients and their physicians. In this clinically fragile population, every insight helps. However, few investigations have evaluated differences between the sexes among patients with severe obesity. Objective of this study is to investigate these variations.

## METHODS

Data on 5,389 patients, pre-operative for open gastric bypass (RYGB), from the Surgical Review Corporation's BOLD database was examined in two groups: Women (n=4,093) and Men (n=1296). Statistics: analysis of variance and the Chi-squared equation.

TABLE 1: PERCENT CARDIOPULMONARY COMORBIDITIES FEMALE vs MALE

	Angina	Asthma	CHF	DVT	HTN	IHD	Lipid	LEE	OHS	OSA	PHTN
FEMALE	3.3	22.9	2.1	3.4	59	3.8	37	25.4	2.7	44	3.6
MALE	4.9	12.9	6.2	4.9	70.8	9.6	46.6	30.6	5.2	69	5.6
P-value	0.008	<0.0001	<0.0002	0.0155	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	0.0017

CHF: Congestive Heart Failure; DVT: Deep Vein Thrombosis; HTN: Hypertension; IHD: Ischemic Heart Disease; Lipid: Hyperlipidemia; LEE: Lower Extremity Edema; OHS: Obesity Hyperventilation Syndrome; OSA: Obstructive Sleep Apnea; PHTN: Pulmonary Hypertension.

TABLE 2: PERCENT PSYCHOSOMATIC COMORBIDITIES FEMALE vs MALE

	Alcohol	Back Pain	B/MH	Depression	Fibro	FS	PMI	Tobacco
FEMALE	14.1	51.8	12.5	35.8	4.5	5.1	19.1	4.9
MALE	21.3	47.5	7.7	25.9	0.7	7.9	13.9	7.5
P-value	<0.0001	0.0007	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	0.0005

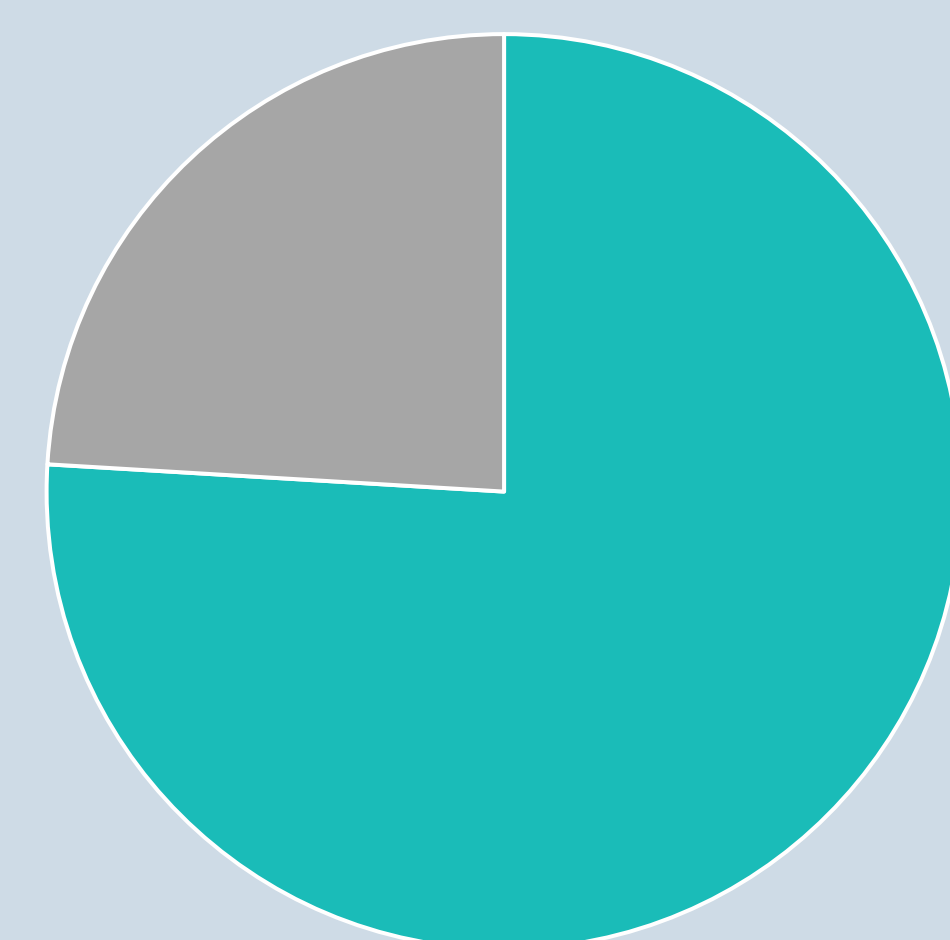
B/MH: Behavioral/Mental Health issues; Fibro: Fibromyalgia; FS: impairments of Functional Status; PMI: Psychomotor Impairments

TABLE 3: PERCENT OTHER STATISTICALLY SIGNIFICANT COMORBIDITIES FEMALE vs MALE

	AH	CHOLE	G.I.	GOUT	PTC	UST
FEMALE	7	2.5	4.3	2.2	2.6	25.6
MALE	9.7	3.5	35.8	2.8	0.5	3.1
P-value	0.0014	<0.0001	0.0001	0.0001	<0.0001	<0.0001

AH: Abdominal Hernia; CHOLE: Cholelithiasis; G.I.: Glucose Intolerance; PTC: Pseudotumor Cerebri; UST: Urinary Stress-Incontinence.

Total Surgeries = 5389



■ Women ■ Men

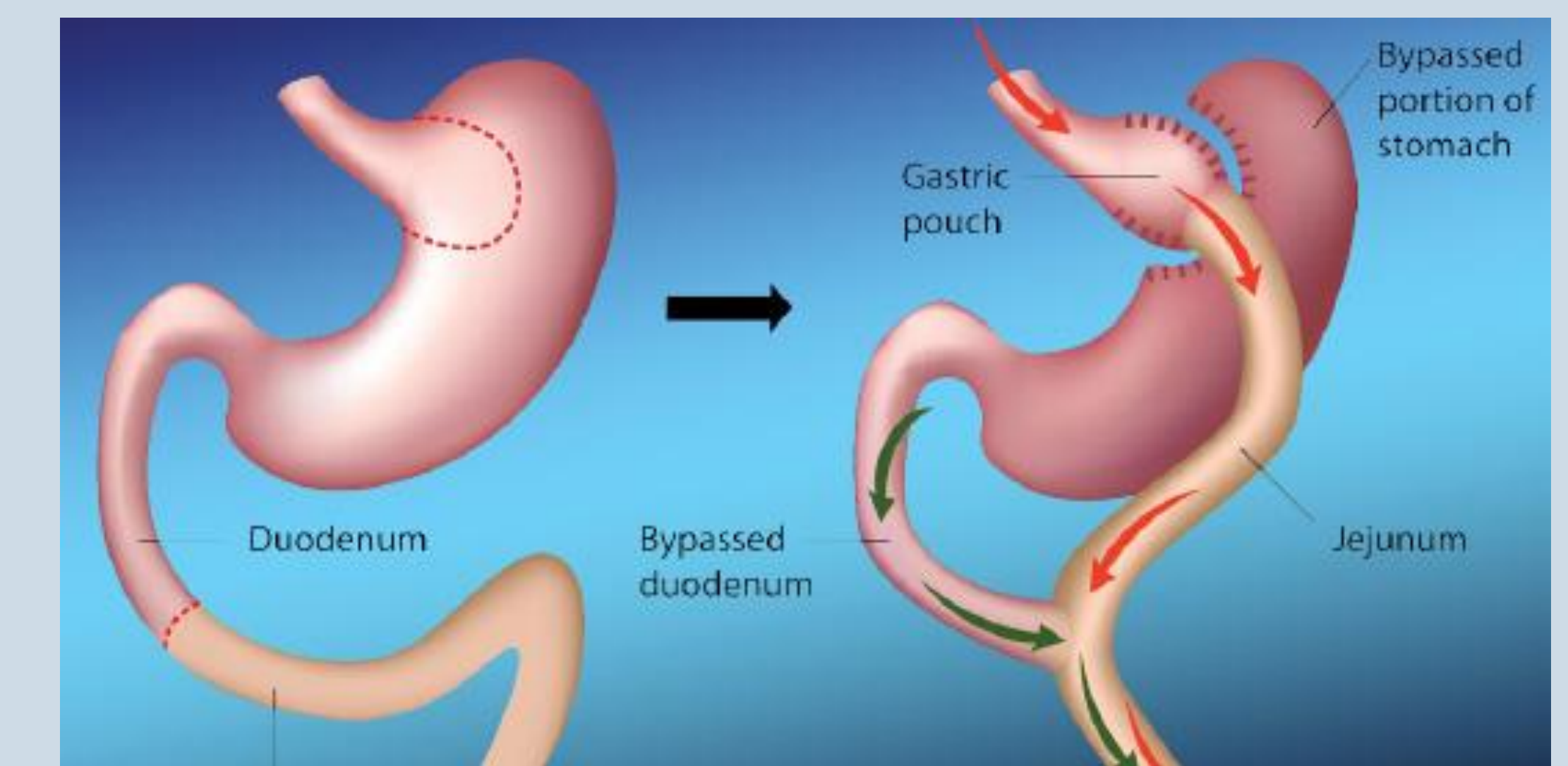


Figure 1. Roux-en-y Gastric Bypass

## CONCLUSIONS

Significant variations exist between pre-operative clinical characteristics of women versus men with severe obesity who chose RYGB. Men were older and heavier, drank and smoked more, and carried 60% more obesity co-morbidities than did women. Women had more musculoskeletal and psychological problems. Cardiopulmonary and endocrine problems dominated in men. Understanding these variations may aid recognition of and clinical management of fragile patients with obesity.

## CONTACT

Jennifer B. Cobernus, DO  
 Inspira Health Network  
 Email: cobernusj@ihn.org

Manasa Sridhar, DO  
 Inspira Health Network  
 Email: sridharm@ihn.org

Nicole Zucconi, DO  
 Inspira Health Network  
 Email: zucconin@ihn.org

Gus J. Slotman, MD  
 Inspira Health Network  
 Email: slotmang@ihn.org

# Women Versus Men: Pre-Operative Traits In Obese Patients Undergoing Open Roux-En-Y Gastric Bypass

Jennifer Cobernus<sup>1</sup>, DO, Manasa Sridhar<sup>1</sup>, DO, Nicole Zucconi<sup>1</sup>, DO and Gus J Slotman<sup>2</sup>, M.D.  
 Departments of Family Medicine<sup>1</sup> and Surgery<sup>2</sup>, Inspira Health Network

## BACKGROUND

The obesity epidemic plagues patients and their physicians. In this clinically fragile population, every insight helps. However, few investigations have evaluated differences between the sexes among patients with severe obesity. Objective of this study is to investigate these variations.

## METHODS

Data on 5,389 patients, pre-operative for open gastric bypass (RYGB), from the Surgical Review Corporation's BOLD database was examined in two groups: Women (n=4,093) and Men (n=1296). Statistics: analysis of variance and the Chi-squared equation.

## CONTACT

Jennifer B. Cobernus, DO  
 Inspira Health Network  
 Email: cobernusj@ihn.org

Manasa Sridhar, DO  
 Inspira Health Network  
 Email: sridharm@ihn.org

Nicole Zucconi, DO  
 Inspira Health Network  
 Email: zucconin@ihn.org

Gus J. Slotman, MD  
 Inspira Health Network  
 Email: slotmang@ihn.org

## INTRODUCTION

With two thirds of patients fitting into the overweight or obese category (BMI >25 kg/m<sup>2</sup>) this is a major concern of primary care physicians today. The process of weight management often begins with the primary provider offering counseling regarding non-surgical and non-pharmacologic options. A 2014 Cochran review found that surgery resulted in greater weight loss (1).

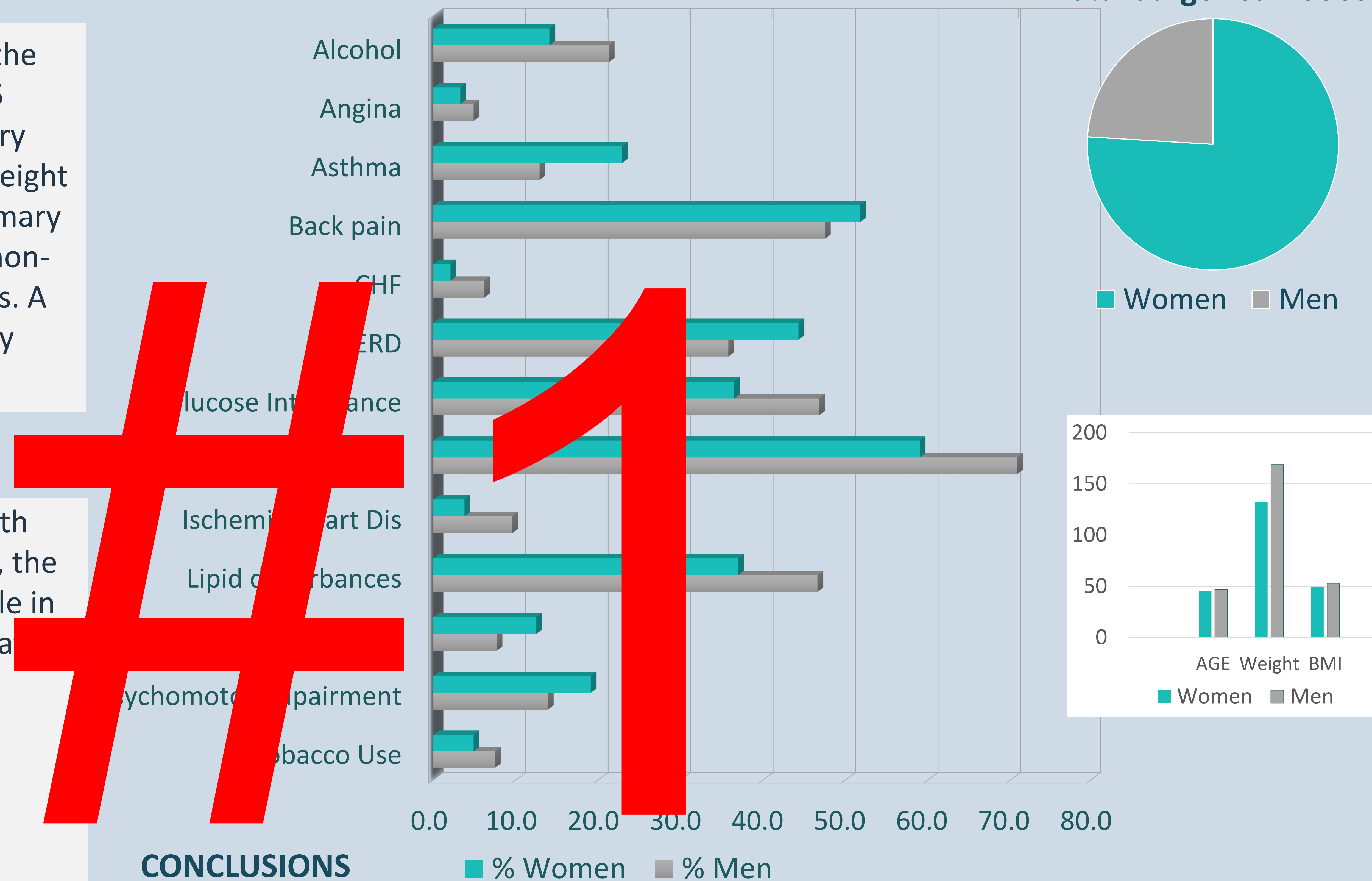
## DISCUSSION

As the primary entry point into the health care system for the majority of patients, the primary care physician will play a key role in identifying patients who qualify for bariatric surgery (1). Surgical options should be offered to patients that have a BMI >40 kg/m<sup>2</sup>. Given fragility of obese patients, surgical treatment is recommended for patients with a BMI >35 kg/m<sup>2</sup> and comorbidities (2).

Obesity is an independent risk factor of multiple diseases and conditions. Recently it has been shown that obesity itself markedly reduces life expectancy. Overweight men have a 12-year reduction while there is a 9-year reduction in overweight women (1).

The Roux-en-Y surgical procedure has been the most frequently used procedure showing a greater loss of weight that has been maintained over a longer period of time (3).

## RESULTS: PREVALENCE OF COMORBIDITIES



## CONCLUSIONS

Significant variations exist between pre-operative clinical characteristics of women versus men with severe obesity who chose RYGB. Men were older and heavier, drank and smoked more, and carried 60% more obesity co-morbidities than did women. Women had more musculoskeletal and psychological problems. Cardiopulmonary and endocrine problems dominated in men. Understanding these variations may aid recognition of and clinical management of fragile patients with obesity.

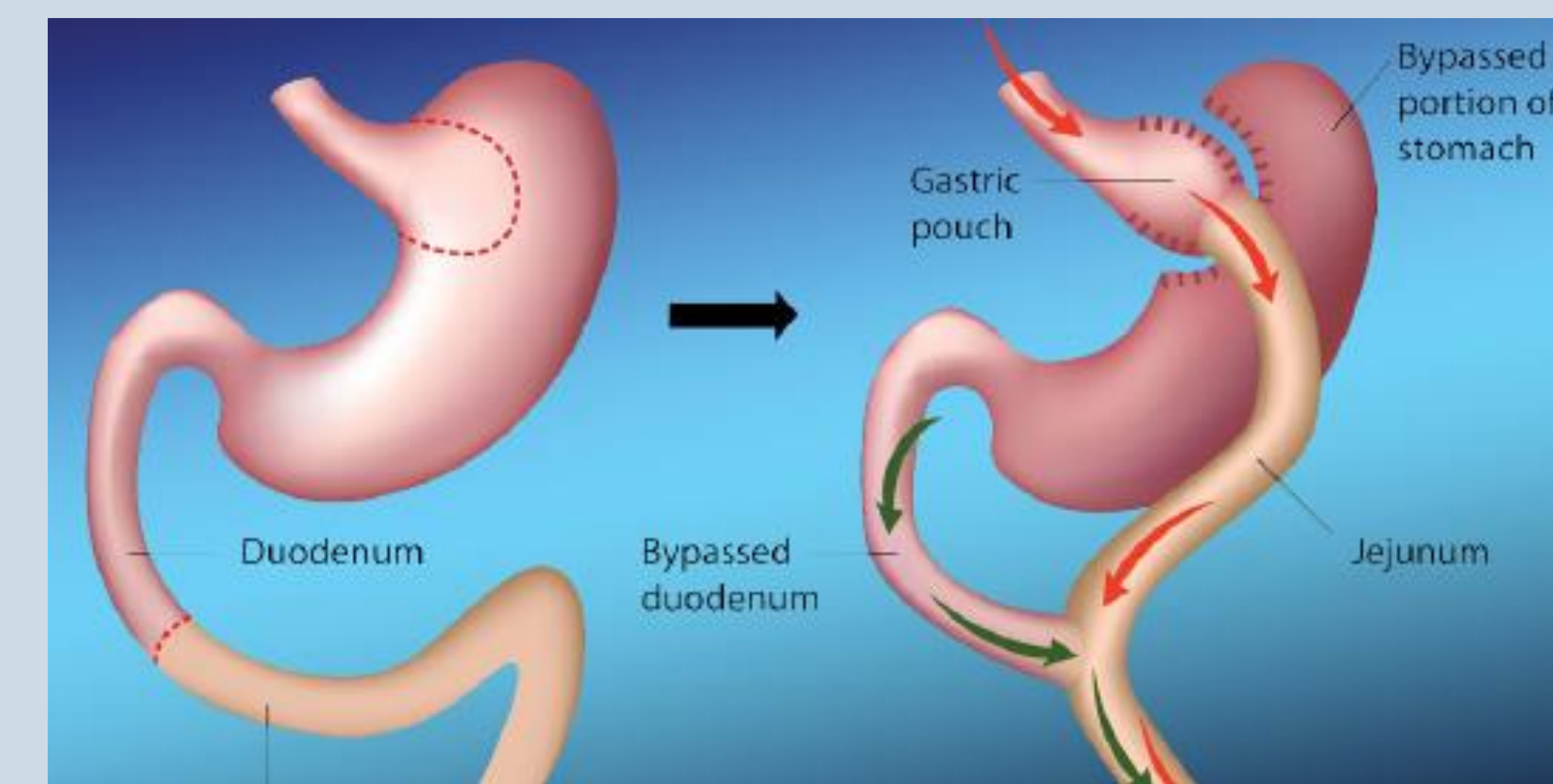


Figure 1. Roux-en-y Gastric Bypass

## REFERENCES

1. Eurlanson, M., Ivey, L.C. Seikel, K., Update on Office-Based Strategies for the Management of Obesity. *Am Fam Physician*. 2016;94(5):361-368.
2. Moyer, V.A., Screening for and Management of Obesity in Adults: U.S. Preventive Services Task Force Recommendation Statement. *Annals of Internal Medicine*. 4 September 2012. Vol 157. No5. 373-378.
3. Machado, M.B., Velasco, I.T, Scalabrini-Neto, A. Gastric Bypass and Cardiac Autonomic Activity: Influence of Gender and Age. *OBES SURG* (2009) 19:332-338