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# Obesity Indicators, Accuracy of Body Weight Perception, and Chronic Illness among Chinese Americans

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# OBJECTIVES

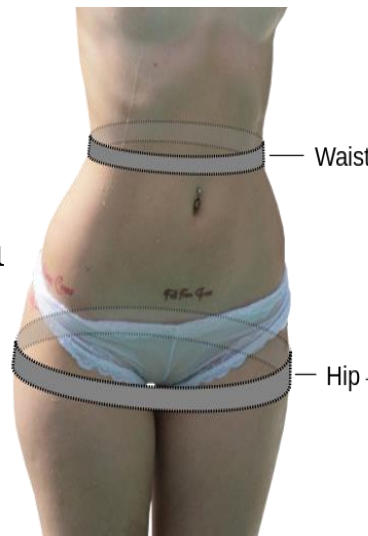
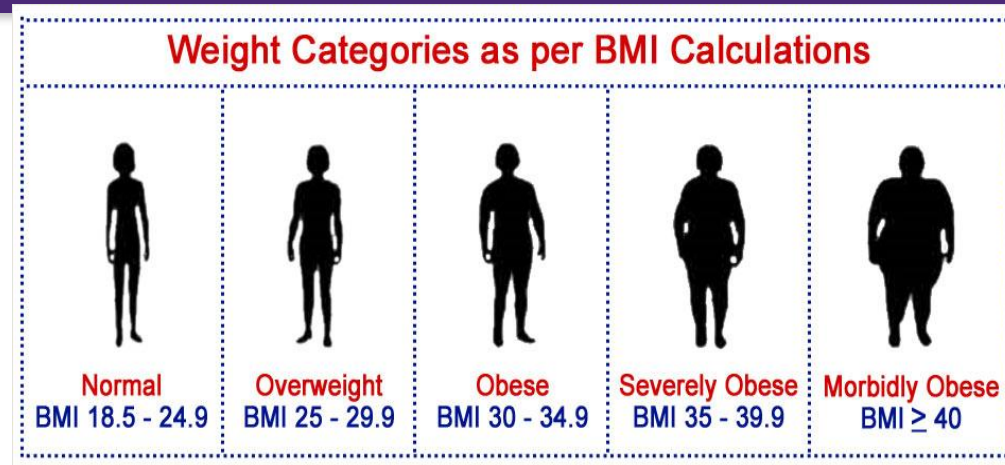
- Learn about the measurements of obesity indications and perception of body weight.
- Learn about the impact of obesity indications and perception of body weight on chronic illnesses.

# Background

- ❖ Asian Americans make up 4% of the U.S. population and are projected to increase to 9.3% of the population by the year of 2050. In general, Asian Americans who were born in the United States tend to be overweight and more obese than those born in foreign countries.
- ❖ Obesity has been identified as a major source of unsustainable health costs, morbidity and mortality due to multiple chronic illnesses, including hypertension, type 2 diabetes, cardiovascular diseases and certain types of cancer.

# Obesity Indicators

- ❖ Body Mass Index (BMI)
- ❖ Waist circumference
- ❖ Hip circumference
- ❖ Weight to hip ratio
- ❖ Weight to height ratio
- ❖ Fasting blood glucose
- ❖ Glycosylated hemoglobin (HbA1C)



# Accuracy of Body Weight

- ❖ An individual's perception of his/her body weight in comparison with actual body weight and is associated with weight related behaviors.
- ❖ Chinese Americans have increased risk for obesity but no studies have examined the impact of accuracy of body weight perception on obesity, obesity indicators and chronic illness.



# Methods

- ❖ A descriptive and cross-sectional design
- ❖ Participants were recruited from metropolitan New York area.
- ❖ Data included demographic information, accuracy of perception of body weight, anthropometric measures (weight, height, BMI, waist circumference, hip circumference, weight to height ratio, weight to hip ratio, fasting plasma glucose and HbA1C).
- ❖ Chronic illnesses were assessed using a researcher developed self-report checklist and verified by medical record review.



Total Sample N=162	Total N=162	Consistent estimation group: perceived body weight was <u>CONSISTENT</u> to their actual body weight N=110	Underestimation group: perceived body weight was <u>LIGHTER</u> than their actual body weight N=32	Overestimation group: perceived body weight was <u>HEAVIER</u> than their actual body weight N=20	P value
		n (%)	n (%)	n (%)	
Male	78 (48.1%)	52 (32.1%)	22 (13.6%)	4 (2.5%)	0.003**
Female	84 (51.9%)	58 (35.8%)	10 (6.2%)	16 (9.9%)	
Primary Language	16 (10.1)	9 (5.7%)	2 (1.3%)	5 (3.2%)	0.166
English	82 (51.9)	62 (39.2%)	13 (8.2%)	7 (4.4%)	
Mandarin	53 (33.5)	31 (19.6%)	15 (9.5%)	7 (4.4%)	
Cantonese Other	7 (4.4)	5 (3.2%)	1 (0.6%)	1 (0.6%)	
Speaking English at Home	52 (32.1)	34 (21%)	9 (5.6%)	9 (5.6%)	0.400
Marital Status	120 (74.1%)	85 (52.5%)	23 (14.2%)	12 (7.4%)	0.300
Married/partner	25 (15.4%)	15 (9.3%)	4 (2.5%)	6 (3.7%)	
Single/separated/divorced	17 (10.5%)	10(6.2%)	5 (3.1%)	2 (1.2%)	
Widowed					
Residence status	36 (22.2%)	26 (16.0%)	4 (2.5%)	6 (3.7%)	0.454
Home alone	124 (76.5%)	83 (51.2%)	27 (16.7%)	14 (8.6%)	
Home family	2 (1.2%)	1 (0.6%)	1 (0.6%)	0 (0.0%)	
Assisted living					
Employment status employed	74 (45.7)	50 (30.9%)	13 (8.0%)	11 (6.8%)	0.597
		Mean±SD*	Mean±SD*	Mean±SD*	
Age	58.2 ± 17.2	59.7±17.2	60.8±14.7	46.1±16.7	0.003**
Years in Education	12.6 ± 4.6	12.8±4.6	11.2±4.4	14.4±3.9	0.047**
Years lived in the US	22.4 ± 13.9	22.4±14.1	22.8±12.3	22.0±15.7	0.977

Total Sample  N=162	Total  N=162	Consistent estimation group:  perceived body weight was <u>CONSISTENT</u> to their actual body weight  N=110	Underestimation group: perceived body weight was <u>LIGHTER</u> than their actual body weight  N=32	Overestimation group: perceived body weight was <u>HEAVIER</u> than their actual body weight  N=20	P value
	Mean±SD*	Mean+SD*	Mean+SD*	Mean+SD*	
<b>Weight</b>	143.4±29.9	145.9±30.9	140.1±26.5	135±28.5	0.277
<b>Body Mass Index (BMI)</b>	24.3± 3.9	24.7± 4.0	23.6± 3.9	23.1± 2.7	0.120
<b>waist circumference</b>	84.3± 10.2	85.2± 10.1	85.0± 10.2	78.5±8.7	0.024**
<b>Hip circumference</b>	94.9± 9.1	95.9± 9.7	94.3± 8.7	90.4± 4.5	0.044**
<b>Waist/hip ratio</b>	0.89± 0.07	0.89± 0.06	0.90±0.06	0.87± 0.09	0.240
<b>Weight/height ratio</b>	51.7± 5.9	52.2± 5.9	51.9± 6.1	48.4±4.2	0.024**

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	Mean+SD*	Mean+SD*	Mean+SD*	Mean+SD*	
glycosylated hemoglobin [HbA1C]	6.2± 1.2	6.3±1.0	6.5± 1.7	5.7±0.4	0.004**
Fasting Plasma Glucose (FPG)	105.2± 46.9	104.5± 41.6	115.2±69.8	92.7± 21.6	0.177
	n (%)	n (%)	n (%)	n (%)	
Diabetes	106 (65.4)	72 (44.4)	24 (14.8)	10 (6.3)	0.183
Hypertension	76 (46.9%)	55 (34%)	17 (10.5%)	4 (2.5%)	0.035**
Heart disease	25 (15.5%)	16 (9.9%)	5 (3.1%)	4 (2.5%)	0.833
Stroke	4 (2.5%)	3 (1.9%)	0 (0%)	1 (0.6%)	0.503

# Chronic Illnesses among Chinese Americans

Chronic illness	Total N=162
	Yes (%)
Diabetes	106 (65.4)
Hypertension	76 (46.9)
Heart disease	25 (15.4)
Mental health problem	7 (4.3)
Hearing problem	22 (13.6)
Oral health problem	18 (11.1)
Neuropathy	20 (12.3)
Kidney disease	6 (3.7)
Amputation	1 (0.6)
Stroke	4 (2.5)
Eye problem	62 (38.3)
Skin problem	26 (16.0)
Foot problem	27 (16.7)
Other health problems	65 (40.1)
Numbers of chronic illnesses	Mean+SD 2.88+2.01 Range 0-9

# Obesity Indicators and Numbers of Chronic Illnesses among Chinese Americans

Obesity indicators N=162	Total N=160	Group with Numbers of Chronic Illnesses<3 N=94	Group with Numbers of Chronic Illnesses>=3 N=68	Bivariate P value#	Adjusted P value##
	Mean±SD*	Mean±SD*	Mean±SD*		
Weight (lb)	143.4±29.9	142.48±30.1	144.27±30.0	0.819	0.039**
Body Mass Index (BMI)	24.3±3.9	23.85±3.62	24.80±4.21	0.111	0.115
Waist circumference (cm)	84.3±10.2	82.09±9.96	87.20±9.83	0.001**	0.006**
Hip circumference(cm)	94.9±9.1	93.24±9.06	97.09±8.94	0.001**	0.020**
Waist/hip ratio	0.89±0.07	0.88±0.06	0.90±0.07	0.171	0.156
Weight/height ratio	51.7±5.9	50.04±5.39	53.87±5.96	0.000**	0.011**
Glycosylated hemoglobin [HbA1C]	6.2±1.2	5.92± 0.90	6.62 ±1.43	0.002**	0.026**
Fasting Plasma Glucose (FPG)	105.2±46.9	97.33± 37.61	115.71±56.39	0.023**	0.168

## Obesity Indicators and Common Chronic Illnesses among Chinese Americans

Obesity indicators N=162	Common Chronic Illnesses (Bivariate P value)#					
	Diabetes/ non- diabetes	Hypertension/non- hypertension	Eye problem/non- eye problem	Foot problem/ non-foot problem	Skin problem/non skin problem	Heart disease/non- heart disease
Waist circumference (cm)	<0.001**	<0.001**	0.150	0.749	0.350	0.027**
Hip circumference(cm)	0.001**	0.003**	0.009**	0.864	0.442	0.053**
Waist/hip ratio	0.012**	0.019**	0.339	0.406	0.596	0.251
Weight (lb)	0.118	0.119	0.482	0.571	0.028	0.368
Body Mass Index (BMI)	0.019**	0.007**	0.393	0.734	0.079	0.121
Glycosylated hemoglobin [HbA1C]	<0.001**	0.039**	0.014**	0.033**	0.730	0.845
Fasting Plasma Glucose (FPG)	<0.001**	0.040**	0.118	0.474	0.524	0.959
Weight/height ratio	<0.001**	<0.001**	0.006	0.478	0.819	0.009**

# Conclusions

- ❖ One third of Chinese Americans did not perceive their body weight correctly.
- ❖ Accuracy of perception of body weight significantly predicted abnormal values of obesity indicators even after controlling for all demographic factors.
- ❖ General obesity indicator (BMI), central obesity indicators (waist circumference, hip circumference, weight to height ratio) and HbA1c were significantly associated with chronic illnesses.
- ❖ Nursing practice and interventions need to address perception of body weight, gender and age differences to promote normal values of obesity indicators so as to prevent obesity and chronic illnesses among this population.