



Weight and Emotional Well-being in Teens

None of the authors or their immediate family members have a personal financial relationship with the products or services related to this project.

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BACKGROUND

- In overweight and obese children and adolescents, there is ample evidence for increased prevalence of depression, anxiety, disordered eating, and other behavioral problems. Causation and specific interaction factors are unknown [1].
- Children who present for obesity treatment have a much higher rate of depression (42.6%) than obese children in the population at large (17%), indicating a potentially higher need for psychiatric services amongst this patient population [2].
- This is the first study to determine the prevalence of depression, anxiety, substance use disorders, eating disorders within the same subjects in the primary care setting and the relationship of the total psychiatric "load" of these disorders with BMI.

OBJECTIVES

- Determine the prevalence of depression and co-morbid psychiatric disorders in adolescents and their relation with BMI at two primary care clinics (UCSF and San Francisco General Hospital Teen Clinics).
- Evaluate the relationship between the overall burden of psychiatric disease and BMI.

METHODS

- Inclusion criteria:** all adolescents aged 12-18 years at the UCSF and SFGH Teen Clinics and selected by age from clinic schedule
- Exclusion criteria:** non-English non-Spanish speaking, lack of consent, anorexia nervosa, and unwillingness to participate
- PHQ-9 (Depression), MASC-2 (Anxiety), SCOFF (Eating Disorders), CRAFFT (Substance Use Disorders), RS & IPFI (Resilience), and ISS (Shame) and were collected on iPads or paper via RedCap
- Subjects that screen positive for suicide or trauma are flagged by study researchers and their physicians notified during clinic visit
- Subjects receive a \$5 gift card of their choice for iTunes or Safeway
- Statistics:** Measures were summarized using standard summary statistics including means, standard deviations, and the correlations among the self-report measures. Pearson's chi-square test was used to test the relationship between categorical variables. A linear regression model was used to estimate the relationship of a set of covariates to BMI. The covariates were age, ethnicity, sex, insurance type, and the four screening measures.

RESULTS

- There is a significant relationship between increased BMI and the increased psychiatric load of depression, anxiety, and eating disorders ($p < 0.05$).
- There is a correlation between BMI and both the PHQ-9 and the SCOFF screeners.
- Race (Asian, Pacific Islander, Hispanic) and a positive SCOFF score were predictive of increased BMI in our linear regression model, adjusting for age, gender, ethnicity, other screeners, and insurance type ($p < 0.05$).
- BMI is predictive of the SCOFF screener such that those scoring above the SCOFF cutoff had greater BMI scores.

Table 1. Baseline Characteristics of EWT Study Sample

Total (n = 151*)		
	Mean	SD
Age	15.9	1.9
BMI (%)	66.3	28.3
N		
%		
BMI (%)		
Underweight (≤ 4)	3	2.08
Normal (5-84)	86	59.72
Overweight (85-94)	28	19.44
Obese (≥ 95)	27	18.75
Male	55	38.19
Education		
Middle School	33	22
High School	99	66
College	17	11.33
Not currently in School	1	0.67
Exposure to Trauma	24	16
Prior Mental Health Treatment	31	20.81
Prior Weight Treatment	14	9.4
Insurance		
Uninsured/MediCal	81	60.45
Private Insurance	53	39.55

*Taking into account missing data, n ranges from 134-151

Figure 1. Racial Demographics of Study Sample

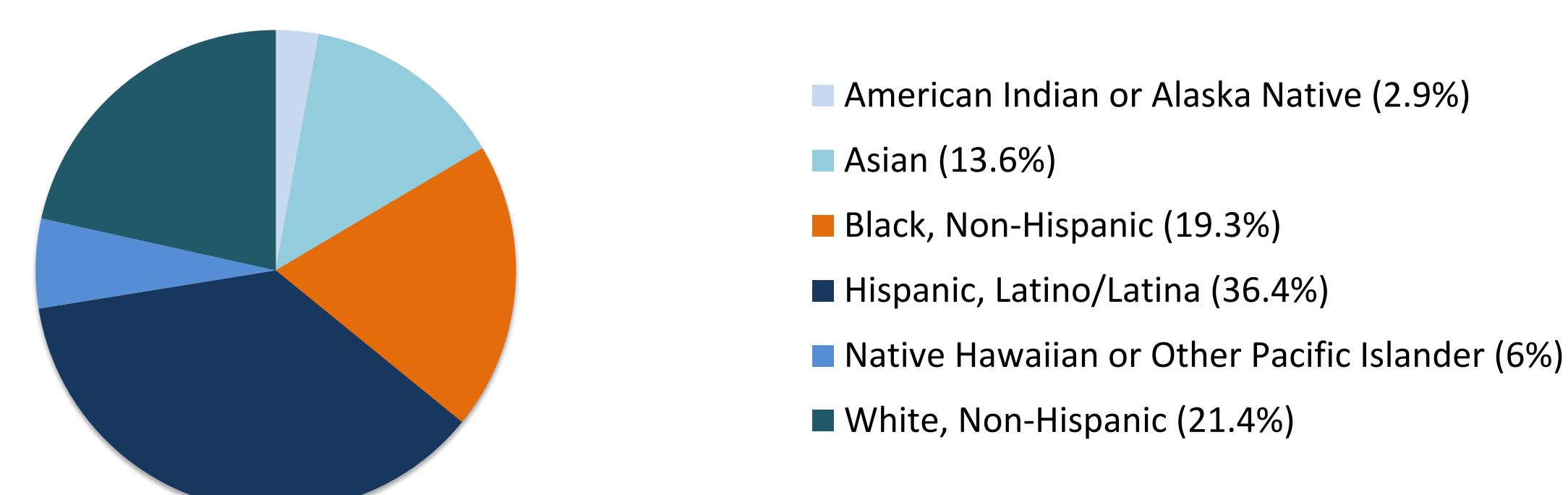


Table 2. Correlations among BMI and Screeners

	BMI	PHQ-9	MASC	SCOFF
PHQ-9	0.20*	-	-	-
MASC	0.11	0.28*	-	-
SCOFF	0.33*	0.43*	0.25*	-
CRAFFT	-0.02	0.31*	-0.07	0.22*

*Indicates statistical significance, Pearson correlation coefficient, $p < 0.05$

Table 3. Percentage of Clinically Positive Screeners by BMI Category

Screener	BMI % ≤ 84		BMI % 85-94		BMI % ≥ 95	
	n	%	n	%	n	%
PHQ-9 ≥ 10	14	16.85	5	17.86	17*	62.96
MASC ≥ 65	2	2.35	4*	15.38	6*	22.22
SCOFF ≥ 2	13	14.61	7	25	14*	51.85

*Indicates significant difference from "BMI % ≤ 84 " category, Fisher's exact test, $p < 0.05$

Table 4. Total Psychiatric Load by BMI

Number of Positive Screeners	Percentage within BMI category by Number of Positive Screeners		
	BMI % < 85	BMI 85-94	BMI > 94
0	5.88	15.48	3.70
1	88.24	53.85	62.96
2	5.88	23.08	25.93
3	0	7.69	7.41

*Phi coefficient 0.40, $p < 0.05$

CONCLUSION

- Our data argues for a more systematic and thorough psychiatric screening of overweight and obese patients for depression, anxiety, and eating disorders.

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