



# Behavioral Intention and Behavior toward the Obese on a College Campus: An Exploratory Analysis of Discriminatory Behavior

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## ABSTRACT

**Background:** Discriminatory behavior toward the obese is ubiquitous, which can lead to psychological conditions that exacerbate physical repercussions. **Purpose:** Using the Theory of Planned Behavior (TPB), this study examined the link between college students' behavioral intention and self-reported behavior toward the obese. Possible connections with demographic variables were explored. **Methods:** Students at one university participated ( $n=718$ ). Two scales were developed; one measured behavioral intention - College Obesity Behavioral Intention Scale (COBIS); one measured behavior - College Obesity Behavior Scale (COBS). Alphas fell in the acceptable to excellent range for both instruments. **Results:** There was a statistically significant correlation ( $r=0.6642$ ;  $P=0.001$ ) between the COBIS and COBS. Linear regression was significant ( $R^2=0.4412$ ;  $P=0.001$ ). A significant regression model ( $P=0.001$ ) consisting of age group, sex, and BMI status by COBIS and COBS scores was found. **Discussion:** Behavioral intention among subjects had a significant impact on how they behaved toward the obese. Predictor characteristics for this discriminatory behavior are being male, younger-aged (18-25 years), and have an underweight or normal Body Mass Index (BMI). **Translation to Health Education Practice:** Further research could identify other TPB constructs (attitude, subjective norms, and perceived behavioral controls) that can shape behavioral intention toward the obese among college students.

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## BACKGROUND

The mounting health issue of obesity<sup>1,2</sup> has been associated with substantial physiological and psychological damage to individuals.<sup>3-5</sup> Along with evidence linking obesity to substantial economic costs<sup>6</sup> and negative physical health outcomes,<sup>3,7</sup> the obese are a socially marginalized group in today's world.<sup>8</sup> Anti-fat bias is prevalent in many areas of society and is traditionally accepted.<sup>5</sup> This intolerant environment in which the obese exist has subsequent damaging repercussions for their physical health.<sup>3</sup> There are indications that this

decidedly harmful, and yet conventional, discriminatory behavior is learned early in childhood and continues throughout a person's life.<sup>5,8,9</sup>

Recent data indicate that 66.3% (about 2 out of 3) of United States (US) adults are overweight (BMI=25-29.9) and 32.2% (about 1 out of 3) are obese (BMI=30>).<sup>1</sup> Despite the fact that approximately two-thirds of all U.S. adults are overweight and one-third are obese, society regards these groups with pessimism and aversion.<sup>8</sup> The discrimination that obese individuals face in their daily lives has been characterized

as the most debilitating when compared to that experienced by all other oppressed populations including homosexuals, racial/

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ethnic groups, religious communities, and the disabled.<sup>10,11</sup> In fact, this “fatism” has been compared with the bigotry of racism as it was experienced during the 1930s and 1940s in the U.S.<sup>4</sup> And, along with the fact that the obese population is increasing at an alarming rate, there are signs that the negative stigma of obesity is escalating as well.<sup>12</sup>

The negative consequences experienced by obese individuals have been documented. There are reports of anti-fat bias during job interviews<sup>13</sup> and then eventually on the job.<sup>14</sup> Specifically, overweight/obese women face discrimination regarding actual pay, promotions, and benefits.<sup>14</sup> Obese individuals have a more difficult time getting loans.<sup>15</sup> Television, an important social institution, typically depicts overweight characters in a most negative fashion.<sup>16</sup> And, specific settings in the public arena have been found prohibitive to the obese. There have been several successful lawsuits filed by obese individuals or groups representing the obese against restaurants, movie theatres, and airlines because these public businesses do not accommodate the obese comfortably with seating.<sup>5</sup> Contemporary public opinion holds fast that the obese take up too much space, which they do not deserve due to their self-indulgence.<sup>17</sup>

Ironically, the health care industry, the one segment of society that presumably should be more inclined to support individuals with excess weight, behaves negatively toward this group as well. One investigation used a mail survey to examine attitudes towards the obese of 1,222 physicians from six different specialty groups.<sup>18</sup> Significant findings indicated that the physicians felt uncomfortable treating obese patients. Also, nurses’ attitudes toward obese patients are not much different. Nurses believe obesity can be prevented with more self-control, and that as a whole, nurses do not like to care for obese individuals.<sup>19</sup> A qualitative study revealed that 90% of nurses in the sample reiterated traditionally held, and yet incorrect beliefs, that being overweight was completely unhealthy for a female patient.<sup>20</sup> Being overweight is a strong precursor to obesity, which is the more distinct condition

that leads to many negative health indices.<sup>7</sup> These nurses listed several incorrect physical conditions they perceived as being related to excess weight. Also, not one of the nurses cited any of the positive outcomes of being slightly overweight.

Our PK-12 school systems have been noted as unsafe places for heavier-weighted students.<sup>5,9</sup> Teachers and school health care workers have reported negative feelings and attitudes toward the obese.<sup>21</sup> These attitudes transfer to children, as there are clear signs that elementary-aged children prefer to socialize with thinner children as friends.<sup>22</sup>

As children continue their journey through the educational process they hold on to these beliefs regarding the obese into their post high school experiences. The college phase of life is a time in which adolescents wander into young adulthood, and it is a time when significant change happens to these soon-to-be members of adult society.<sup>23</sup> The college experience is when students attain the knowledge and skills they need for their chosen careers. Also, they learn how to exist outside their protected childhood family circle,<sup>5</sup> and many establish lifelong relationships, begin families, and set up households of their own. Additionally, college students discover, cultivate, and solidify attitudes, perceptions, and opinions on all aspects of their lives.

Pessimistic points of view about the obese population seem to be prevalent throughout the college experience.<sup>8</sup> In a study of 96 undergraduates, Regan<sup>10</sup> examined perceptions regarding the obese and found that most believed the obese were less sexually attractive, skilled, and responsive. Perez-Lopez, et al.<sup>11</sup> also observed that male college students in their research were more likely to agree with anti-fat attitudes as compared to the female college student respondents. In this study, 103 female and 76 male undergraduates responded to attitudinal issues involving the obese. The results confirmed a significant difference between the male and female answers with males holding more negative attitudes toward the obese than females.

In another study, 449 university students

were asked to rank order illustrations of potential sexual partners. The drawings included an obese partner, partners with various other disabilities, and a healthy partner. The results demonstrated that the least-preferred partners were obese. There were clear gender differences, in that male respondents provided significantly lower ranks for obese partners than their female counterparts.<sup>24</sup>

Interestingly, attitude differences exist when examining the actual weight status of the individual college student. One study investigated anti-fat attitudes by weight status and found that the heavier weighted students in the sample responded more negatively toward obese people compared to the medium (n=518) or light-weighted groups (n=255).<sup>4</sup> In this same study, women in the heavier-weighted group (n=133) had the most negative responses. On the other hand, another investigation found that individuals with a higher BMI status (overweight/obese) displayed lower scores on an anti-fat bias survey than the underweight/normal BMI subjects.<sup>25</sup>

These research examples indicate that there is prevalent weight bias within the college-aged population. Exploring the complexities of this developmental period is crucial to understanding the mindset and norms of future society, and to discovering an antidote for discrimination against the obese. Although there are several research studies concerning college students’ attitudes and behavioral intentions toward the obese,<sup>4,8,10,11</sup> there is a gap in the literature regarding how college students actually behave toward the obese. To understand how behavior can be formed, the use of a theoretical framework that involves the elements of behavior is requisite.

The Theory of Planned Behavior (TPB) provides a framework to help determine the specific decision-related dimensions that may be the most important influences on behavior.<sup>26</sup> According to the TPB, behavioral intention is a direct factor that motivates a person to behave in a certain manner. These intentions to behave are based on various factors, some that are under a person’s

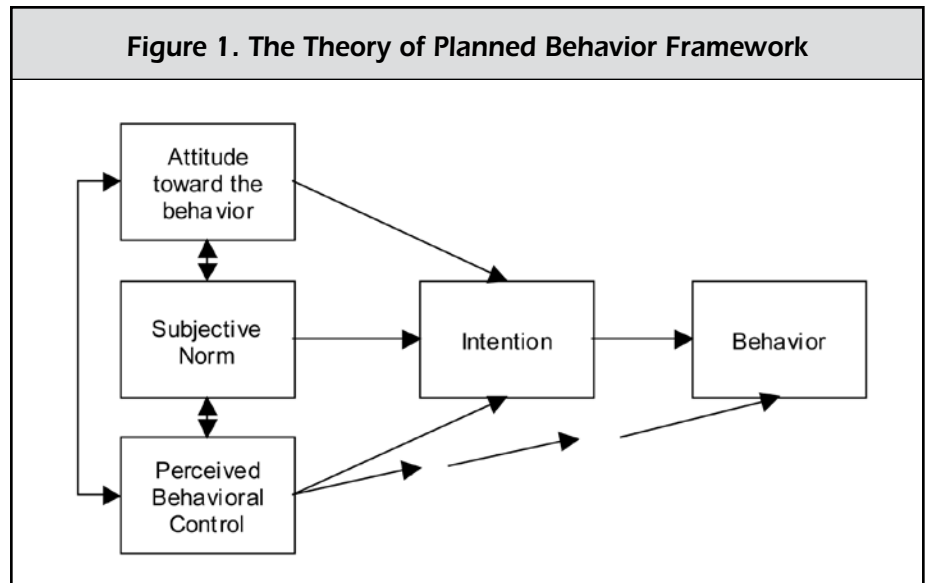
control and some that are not. This framework also contends that attitude, subjective norms, and a person's perceived control over the behavior are important determinants to the intention to behave, which is the major determinant to the actual behavior. The perceived control construct can factor into the actual behavior by circumventing the intention to behave (Figure 1).

There have been numerous investigations based on the TPB, which illustrate the theory's heuristic appeal. These studies support the framework's concluding construct; intention to behave is one of the strongest predictors of the behavior. Netemeyer, Burton, and Johnston<sup>27</sup> found a significant relationship between college students' intention to vote for a certain candidate and their actual vote. Ajzen and Madden<sup>28</sup> confirmed significant connections between the intention to receive a grade of "A" in a college class and in fact earning that "A." In another study, Davis and Ajzen<sup>29</sup> found that African-American high school students' intention to graduate significantly predicted their actual graduation.

Research exploring health behaviors also has shown behavioral intent predicts subsequent behavior. For example, studies have shown significant results between intention to use a condom and eventual condom use.<sup>30,31</sup> Another investigation explored college-aged females and their intake of multivitamins. Results indicated their intention to use multivitamins strongly predicted their use.<sup>32</sup> Behavioral intention was a strong influence when motivating a group of sedentary college students to engage in more physical activity through the use of persuasive messages to participate sent via e-mail.<sup>33</sup> However, according to Ajzen, the architect and original author of the TPB, he is unaware of any research applying the TPB to discriminatory behaviors, and noted that this type of behavior is an important one that should be explored using the TPB (written communication, June 11, 2008).

**PURPOSE**

The consistency of the TPB framework in the prediction of behavior has been



consistently noted in the literature.<sup>27-33</sup> This theory may help to explain why individuals victimize the obese, and possibly be a means to uncover reasons why discrimination occurs against any underrepresented group. Therefore, the purpose of this study was to test the assumption of how college students intend to behave and then how they actually behaved toward an obese person. The anticipated answer to this research question was a verification of the last two TPB constructs; intention to behave is formidably linked to behavior, when specifically investigating behavior that is prejudicial in nature. Also, demographic traits were tested on intention to behave and on self-reported behavior to investigate possible pathways toward preventing negative behaviors toward the obese.

**METHODS**

*Participants*

The participants in this study were college students who attended an urban university in the south central region of the U.S. The specific sample was drawn at the end of the fall semester from students enrolled in a university-wide required personal health course. This freshman-level course was offered to students in 21 on-campus and off-campus sections. We were given consent from individual professors to collect data from students in 20 of the 21 sections. Over-

all, 718 students completed all instruments out of a total course census of 1,276 (56.3% response rate). Although this response rate seems low, this course historically experienced high absenteeism. According to professors of record, daily absenteeism for this course was typically between 25% and 50%. Also, the research instruments were mostly administered at the end of class, and students had the option of leaving.

Nevertheless, this sample's demographic profile corresponded closely to university-wide demographic statistics (Table 1). This study used the National Institutes of Health (NIH) and the Centers for Disease Control and Prevention (CDC) classification system for Body Mass Index (BMI) which identifies six separate categories to help determine weight status. These categories are as follows: (1) Underweight- <18.5, (2) Normal- 18.5-24.9, (3) Overweight- 25-29.9, (4) Obesity Class I- 30-34.9, (5) Obesity Class II- 35-39.9, and (6) Extreme Obesity Class III- 40>. University-wide BMI information was not available. Permission to conduct this study was given by the university's institutional review board. Informed consent and assurance of anonymity were accomplished through the use of a cover letter read aloud to students before completion of the instruments.

*Measures*

The instruments used in this research study to measure the variables of behav-



**Table 1. University-wide and Sample Demographic Statistics-undergraduate Only**

Demographic	University	Sample
Sex	(N=15,209)	(n=717)
Male	6,078 (40%)	336 (46.9%)
Female	9,131 (60%)	381 (53.1%)
Age-average	(N=15,209)	(n=717)
	24.30 years	22.65 years
Race/Ethnicity	(N=15,209)	(n=713)
Asian	357 (2.4%)	19 (2.7%)
Black	5,380 (35.3%)	210 (29.4%)
Hispanic	206 (1.4%)	6 (0.8%)
White	8,862 (58.2%)	454 (63.7%)
Other	404 (2.7)	24 (3.4%)
Body Mass Index		(n=712)
Underweight	N/A*	41 (5.8%)
Normal	N/A	397 (55.8%)
Overweight	N/A	173 (24.3%)
Obese- Class I	N/A	64 (9.1%)
Obese- Class II	N/A	17 (2.4%)
Extreme Obese- Class III	N/A	19 (2.7%)

\*N/A- Not available

ioral intention and behavior were adapted from a previously developed instrument for elementary school children, the Shared Activities Questionnaire (SAQ). The original SAQ was a questionnaire that focused on behavioral intention toward a handicapped child in a wheelchair.<sup>34</sup> The SAQ-B was a virtually similar instrument developed to address behavioral intention toward overweight/obese peers.<sup>9</sup> Internal reliability was confirmed for the SAQ with a Cronbach's alpha<sup>35</sup> of 0.95, and the SAQ-B with a 0.94. Based on a sample of 180 children, there is evidence that supports concurrent validity for the SAQ using correlations between this instrument and the Adjective Checklist,<sup>36</sup> another measure of stereotypic attitudes, with all correlations scoring in the highly significant range.<sup>37</sup> The specific statements included in the SAQ and the SAQ-B were developed using three main scenarios of the elementary school experience. These sce-

narios included Social, General Recreation and/or Sport, and Academic situations.

With permission from the author of the SAQ-B, the instrument was modified for the purposes of this study to address a college student target audience. The new scale mirrored the specific SAQ-B statements as closely as possible and the three main scenario categories (Social, General Recreation and/or Sport, and Academic) were kept in mind throughout the formation of the scales. The modified 24-item version (8 items representing each of the three scenarios- Social, General Recreation/Sport, and Academic), the College Obesity Behavioral Intention Scale (COBIS), served as the instrument to measure the variable of behavioral intention in this study (Figure 2).

Along with the COBIS, a vignette, or brief, narrative description, was developed for subjects describing a typical male or female obese person. This written depiction

included heights, weights, and approximate clothing sizes for both males and females that expressed an approximate BMI of 35. For example, the vignette described an obese male as 6'0"; 300 pounds (not overly muscular); has a waist circumference of more than 44 inches; and wears a pants' size of 44/30. Description of a female obese person indicated that she could be 5'5", 230 pounds; has a waist circumference of more than 37 inches; and wears a size 20 or 22. Subjects were asked to consider the person in the vignette when responding to the COBIS statements. The actual sex of this imagined obese person was left up to the subject's determination based on the statement scenario. For example, one statement described going out on a date with this obese person. Therefore, the sex of the imagined obese person would be determined by the subject's specific sexual orientation. Potential subjects were asked not to participate if they did not know of someone very much like the male and female described in the vignette. Each subject responded to the 24 items on the COBIS using a 4-point Likert scale (1=Strongly disagree; 2=Disagree; 3=Agree; 4=Strongly agree).

Additionally, six items were chosen from the COBIS, and altered to represent general statements denoting self-reported behavior. These six items, two from each of the three scenarios (Social, General Recreation and/or Sport, and Academic), were placed together to form the College Obesity Behavior Scale (COBS), which was used to measure self-reported behaviors toward the obese (Figure 3). Again, each subject responded to the six behavior statements on the COBS using the formerly mentioned 4-point Likert scale. Demographic questions were the last part included on the instrument. There were six items which included the following: age in years, sex, academic major, height (English or metric), weight (English or metric), and racial identity.

To establish face and content validity, a panel of experts, including the author of the SAQ-B, scrutinized the COBIS and the COBS. Next, to assess reliability and validity, both instruments were pilot tested



Figure 2. The College Obesity Behavioral Intention Scale (COBIS)

	Strongly Disagree.....Strongly Agree			
1. I would invite this person over to where I live.	1	2	3	4
2. I would <b>not</b> sit next to this person in class.	1	2	3	4
3. I would <b>not</b> study with this person.	1	2	3	4
4. I would lend my books/notes to this person.	1	2	3	4
5. I would <b>not</b> work on a group project with this person.	1	2	3	4
6. I would be in the same study group with this person.	1	2	3	4
7. I would tell this person about assignments if they didn't know.	1	2	3	4
8. I would invite this person to a party I was hosting.	1	2	3	4
9. I would go to a party with this person.	1	2	3	4
10. I would <b>not</b> workout (exercise) with this person.	1	2	3	4
11. I would <b>not</b> eat lunch with this person.	1	2	3	4
12. I would laugh at jokes about this person.	1	2	3	4
13. I would work on an assignment (a different class) with this person.	1	2	3	4
14. I would <b>not</b> go for a walk in the park with this person.	1	2	3	4
15. I would <b>not</b> study other subjects with this person.	1	2	3	4
16. I would do a partner class project with this person.	1	2	3	4
17. I would invite this person to join my fraternity/sorority/club.	1	2	3	4
18. I would not study with this person at the library.	1	2	3	4
19. I would go to the movies with this person.	1	2	3	4
20. I would <b>not</b> have a soft drink with this person in the UC.	1	2	3	4
21. I would put this person in my e-mail address book.	1	2	3	4
22. I would <b>not</b> be a close friend with this person.	1	2	3	4
23. I would <b>not</b> go to a sports event with this person.	1	2	3	4
24. I would date this person.	1	2	3	4



**Figure 3. The College Obesity Behavior Scale (COBS)**

	Strongly Disagree.....Strongly Agree			
1. I have close friends that are like this person.	1	2	3	4
2. I have worked/studied with this person.	1	2	3	4
3. I have socialized with this person.	1	2	3	4
4. I have sat next to this person in class.	1	2	3	4
5. I have laughed at jokes about this person.	1	2	3	4
6. I have been out in public with this person.	1	2	3	4

**Demographic Information Inventory**

Directions: **Please Print Clearly!!** Answer the following information to the best of your knowledge.

1. Age (years) \_\_\_\_\_
2. Sex (M=Male; F=Female) \_\_\_\_\_
3. Academic major \_\_\_\_\_
4. Height (without shoes; use either English or metric system—best guess)
  - \_\_\_\_\_ (feet & inches) **OR**
  - \_\_\_\_\_ (meters & centimeters)
5. Weight (without clothes/shoes; use either English or metric system—best guess)
  - \_\_\_\_\_ (pounds) **OR**
  - \_\_\_\_\_ (kilograms)
6. Race/ethnicity (check the category that **you believe** is the one that mostly/best describes you)
 

a. Asian _____	c. Hispanic _____	e. Multi-racial _____
b. Black _____	d. White _____	f. Other _____
(specify race/ethnicity below)		
_____		

three times with college students at the same university that closely matched the formal study’s demographic composition. As seen in Table 2, the Cronbach’s alphas measured in all three pilots as well as the formal study were found to fall in the acceptable to excellent range.<sup>38,39</sup>

**Data Analysis**

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) Windows version 15.0 (SPSS Inc., Chicago, IL). Level of significance was set at  $p < 0.05$ . Pearson product moment coefficient of correlation was utilized to determine if there

was a relationship between behavioral intention (the COBIS) and behavior (the COBS). Total scores were calculated individually for each student on each of the instruments, the COBIS and the COBS. Then, an overall mean score was determined for each instrument to be the final score used in the analysis.



Linear regression was applied to establish the amount of variability that could be explained due to the relationship between behavioral intention and behavior toward the obese. Finally, using multiple regression, significant demographic variables were analyzed for predictability regarding intention to behave and self-reported behavior toward the obese. Although there is a formalized methodology using path analysis to test the various constructs of the TPB,<sup>40</sup> the current study tested the connection between the last two constructs only, behavioral intention and behavior, using discriminatory behavior for the first time.

**RESULTS**

The overall mean for the COBIS (the behavioral intention measure) was 3.2644 with a standard deviation of 0.5328. The overall mean for the COBS (the behavior measure) was 3.2010 with a standard deviation of 0.6080. The resultant 2-tailed correlation coefficient was 0.6642, which was statistically significant ( $p < .001$ ). This result indicates that intention to behave had a strong connection to how the subject behaved toward the obese. Therefore, study participants with

positive behavioral intentions were more likely to behave positively toward the obese. Conversely, subjects with negative intentions toward the obese were more likely to behave negatively (Table 3).

Additionally, linear regression analysis revealed that the COBIS overall score predicted the COBS result at a statistically significant level ( $P < 0.001$ ). The multiple R score was 0.6642 with the resultant  $R^2$  of 0.4412, which indicates that approximately 44% of the variability within the behavior scores could be explained by the behavioral intention responses. This result points to a strong link between behavioral intention and behavior regarding the obese. Additionally, the Durbin-Watson statistic was calculated at 1.983, which signified there was no evidence of autocorrelation.<sup>41</sup> This test result along with the standard error of the estimate confirm that all assumptions for regression were met.

Multiple regression analysis to test the predictability of demographic variables was the next step in this analysis. These variables were selected based on their statistical significance ( $P < 0.05$ ) to both behavioral intention and behavior using analysis of variance tests.

Significant demographic variables on both dependent variables (COBIS and COBS) were age, sex, and BMI status. The variable of race was not significant and, therefore, was excluded. Also, there were over 60 different academic majors listed by students and many had fewer than 20 cases. Therefore, individual academic major was eliminated as a viable factor. Post-hoc analysis (LSD) was then applied to significant variables with 3 or more levels. These results indicated how these multilevel variables should be transformed into categories appropriate for multiple regression analysis.

Significant post-hoc results revealed that the variable of age, a continuous variable, fell into two groups, which were 18-25 years and 26 years and older. Using this same testing procedure, the BMI variable in this study conformed into two groups with one consisting of the Underweight and Normal Weight subjects together, and second category consisted of the Overweight plus the Obese (Class 1-3) subjects. Descriptive results for these selected variables are found in Table 4.

Multiple regression results for demographic variables on both intention to

**Table 2. Reliability Coefficients for the COBIS and the COBS (Pilot 1, 2, 3 and the formal investigation)**

Scale	Alpha Pilot 1 n=28	Alpha Pilot 2 n=19	Alpha Pilot 3 n=69	Alpha Formal Investigation n=718
COBIS	0.8300	0.9096	0.9206	0.9309
COBS	0.7714	0.7523	0.7372	0.7504

**Table 3. Descriptive Statistics, Pearson Correlation Coefficients, and Linear Regression Results for COBIS and COBS Total Scores**

Scale (n)	Mean	Standard Deviation	Coefficient	P
COBIS (n=717)	3.2644	0.5328		
COBS (n=717)	3.2000	0.6080		
Multiple R		0.6642	0.6642	0.000**
R <sup>2</sup>		0.4412**		
Standard Error of the Estimate 0.39851				





**Table 4. Means and Standard Deviations (SD) for Significant Demographic Variables by COBIS (total score) and COBS (total score)**

Variable	COBIS		COBS	
	Mean	SD	Mean	SD
Age				
18-25 years (n=600)	3.239	.534	3.170	.607
26> years (n=116)	3.394	.510	3.352	.595
Sex				
Male (n=336)	3.148	.530	3.104	.578
Female (n=380)	3.367	.515	3.284	.623
BMI Status				
Underweight/Normal (n=437)	3.208	.540	3.142	.621
Overweight/Obese (n=238)	3.321	.520	3.254	.581

behave and behavior toward the obese appear in Table 5. Both regression models were significant ( $P < 0.001$ ) and assumptions for regression were met. The behavioral intention model (COBIS) included all three variables, but only two variables, sex and BMI, produced significant betas; age group did not. The behavior model (COBS) also loaded all three variables, and all three variables, sex, age group, and BMI, showed predictable significance. Both models' explained variance scores were low (COBIS  $R^2 = .060$ ; COBS  $R^2 = .036$ ), which shows that a large proportion of the variance is consumed by other factors not explored in the current study.

Inspection of the specific means on behavioral intention and behavior toward the obese helps to explain the direction of the significant differences within the regression analysis. Females in this sample scored higher means on both instruments than their male counterparts. Therefore, females were significantly more positive in their responses toward the obese on the behavioral intention and the behavior measure than their male counterparts. Males were more likely to be negative toward the obese than were females.

Means for BMI status on behavioral intention and behavior toward the obese were noted, and the Underweight/Normal BMI subjects responded more negatively than did their Overweight/Obese counterparts. Further, regarding behavior toward the

obese, participants who fell into the underweight or normal weight BMI categories also responded more negatively compared to participants who indicated that they fell within the obese group who were significantly more positive.

Although the age group variable was included in both significant models, it only produced a significant beta with the behavior measure. Comparing the different age group means involved with the COBS reveals the older age group, 26 years or older, was significantly more positive in their behavior toward the obese. The younger group's mean on behavior was significantly lower, and illustrates more negative behavior toward the obese.

In conclusion, measures for behavioral intention and behavior, the COBIS and the COBS, were significantly related with this sample. And there were statistically significant differences found between the dependent variables (the total scores of the COBIS and the COBS) and three of the four demographic variables. These results revealed that there are explicit predictable relationships among the participant's age group, sex, and BMI level and how that individual intended to behave and then behaved toward the obese.

## DISCUSSION

Close to half the variance of how this sample of college students behaved toward the obese could be explained by their be-

havioral intention. These findings confirm that behavioral intention is a significant precursor to actual behavior toward the obese among college students. This statistically significant result between behavioral intention and behavior toward the obese supports the theoretical premise presented in the Theory of Planned Behavior (TPB), which proposes that behavioral intention has a direct connection with actual behavior.<sup>14</sup> In today's society, the obese have many obstacles to overcome,<sup>5</sup> and investigating what influences these obstacles could possibly alleviate and eventually eliminate them.

Students in this study did not suddenly evoke values and opinions concerning the obese while they were completing the surveys. Early educational intervention helps to influence lifelong attitudes and behaviors for all individuals.<sup>42,43</sup> Since attitudes are based on prior knowledge, schools (PreK-12) should provide learning opportunities to allow for the development of positive attitudes regarding the obese. This, in turn, could affect other constructs that are tied to attitude formation, such as peer pressure. If a student's friends act positively toward obese individuals, it is likely the student will as well.

Schools are not the only organizations in society that need to evaluate how they treat the obese. Children receive transparent messages about how to behave toward the obese from other adults and other establishments outside their school walls. All adults and other foundational institutions are called on to consider their behavior toward the obese. One obvious example is the medical profession, which has been shown to discriminate against the obese in a most damaging manner.<sup>18-20</sup> Not only should health care workers be much-needed advocates for the obese regarding their overall health status, but they should step forward to be a much-needed role model for all of us. Television and other media outlets that children attend to should also take care with statements broadcast about the obese to set an example.

Regression analysis results point to possible predictor dynamics of this discriminatory behavior toward the obese. Despite



**Table 5. Multiple Regression Results for COBIS and COBS by Selected Demographic Variables**

Variable	r	P	Beta	P	R2
COBIS Model				0.000	.060
Sex	.204	0.000	.210	0.000	
BMI	.101	0.004	.109	0.004	
Age Group	.098	0.006	.068	0.074	
COBS Model				0.000	.036
Sex	.141	.000	.145	0.000	
BMI	.088	.011	.089	0.021	
Age Group	.098	.005	.075	0.050	

the fact that the variance explained was low, the regression model was significant. Females were significantly more positive toward the obese than males. This research illustrated that if someone is already overweight or obese, they will intend to behave and then behave in a more helpful manner toward another obese individual compared to their thinner counterparts. Past research verifies all of these findings with other populations.<sup>4,5,8</sup> These differences suggest that males are exposed to experiences and educational programming that permit and possibly encourage more negative responses to obese individuals. Younger subjects, aged 18-25 years, who had significantly more negative views regarding people with excess weight, have not experienced life enough to understand that excess weight does not make a person disagreeable and unproductive. There is now a growing population of overweight and obese individuals. It is understandable that an obese person will be more positive toward another, but people who are not obese maintain behavior that is harmful to this population.

Surprisingly, a variable that was not significant was race. Investigations have noted that some racial groups are more accepting of people with excess weight as compared to other races.<sup>15</sup> However, no differences with respect to race/ethnicity were found in this sample for planned behavior and actual behavior toward the obese. More research using this population should be conducted to fur-

ther examine this finding. This result might indicate that university students of all races and ethnicities treat the obese the same, and the racial groups that used to be more tolerant of the obese are now regressing toward others who are not as accommodating.

Using the TPB framework we can travel backwards from the constructs of behavior and behavioral intention to explore the foundational concepts on which behavior is nurtured. Given that this research found a robust connection between intention and behavior toward the obese with the college student population, additional research should be conducted to determine what specific attitudes, subjective norms, and factors that affect perceived control are the most crucial to the formation of behavioral intention. The implication would be that modifying these influential constructs may be effective for changing discriminatory behavioral intentions and behaviors.

#### **Limitations**

The most notable limitation involved the individuals from whom data were collected. The participant pool was a convenience sample drawn from a population of college students at only one university campus in the southeastern region of the United States. This sampling method notwithstanding, the specific course used for recruitment was a general class that all students were required to take. Additionally, the demographic characteristics of this sample were representative of the student population of this particular

campus. Nevertheless, because only one university was involved, results cannot be generalized to all college students.

Also, the statements included on the COBIS and the COBS did not encompass every social, academic, and recreational option available to college students in which their behavioral intentions and behaviors toward the obese could be observed. During the instrument design of the COBIS and the COBS, efforts were made to include all typical, campus-wide activities in which students might participate within a college setting. In addition, fidelity to the original instrument (the SAQ-B) was given the utmost priority. However, some events were not included in the instruments. For example, many college students regularly visit bars and other drinking establishments, and this particular activity was not specified within the instruments.

This research attempted to measure only the last two constructs in the TPB, intention to behave and actual behavior. The other foundational constructs of attitude, subjective norms, and perceived behavioral control were not operationalized and not measured. Previous investigations using the TPB have used path analysis to verify the theory's validity and reliability, a procedure not viable in the current research.<sup>40</sup> Further, research exploring discriminatory behavior using the TPB framework should include measures for the constructs of attitude, subjective norms, and perceived behavioral control.



Prejudicial behavior can be difficult to explain. There are numerous variables that could account for the variance regarding why someone behaves negatively toward a marginalized group. This research attempted to explore some of these variables related to this damaging behavior so as to assist this group whose health is at risk. Again, additional research is strongly recommended to help clarify a most perplexing health dilemma.

## TRANSLATION TO HEALTH EDUCATION PRACTICE

It has been noted that lifelong values and opinions are formed during the college years, and the college campus is an important venue to pass on information that may lead to positive health behaviors.<sup>44</sup> Knowledge of the oppression that the obese face daily and comprehension of the negative health consequences this discrimination can cause is crucial to changing attitudes and behaviors toward the obese. The current research indicates that negative behavioral intentions and behaviors are commonplace within this sample of university students. More research is necessary to fully understand how discrimination effects the obese both physically and mentally, as well as what interventions are most effective to limiting, or eliminating, this negative behavior.

How college students form their preconceived attitudes and perceptions about the obese is another area to be investigated. Examining individuals' previous school experience is warranted. The prekindergarten to high school years are formidable times and solid, standards-based health education programming delivered during this span of time is crucial to a person's understanding and empathy toward underrepresented groups. Typical curricula include lessons and/or units concerning physical activity, nutrition, and ways to avoid excess weight, but these health education lessons also need to include information about how to acknowledge the feelings and support the mental health of the obese. Along with this suggestion, results of this study indicate that special attention needs to be given to shaping

male behaviors regarding the obese. This research found that males report significantly more negative behavioral intentions and behaviors toward the obese. This finding has been documented often in the literature.<sup>8-11</sup> Corresponding with this gender difference is the result that shows thinner individuals have similar negative patterns. More research is called for to better understand why these differences occur, and from this new knowledge can evolve educational interventions or curricular inclusions to assist these groups who intend to behave and do behave negatively toward the obese. Professional development for teachers that focuses on classroom strategies to best deliver new information is a sustainable and effective practice<sup>45</sup> and is highly recommended.

The present reality is that health education is not considered a core curricular content area under the federally-mandated program, "No Child Left Behind." Recent research shows that this important content area is being minimized or not taught in lieu of the other core curricular areas, such as literacy and math.<sup>46</sup> Some states (Tennessee, Texas, Michigan, North Dakota, and Maine) have instituted and funded Coordinated School Health programs into their PreK-12 public school systems in order to supplement health education shortfalls and as an answer to the ever-increasing childhood obesity issue. They have even passed specific legislation mandating healthy foods and drinks, and requiring a certain number of minutes of physical activity in these schools. For example, the state of Tennessee has a long list of these directives for schools, as well as recommendations listed on their Coordinated School Health web site to help children avoid excess weight.<sup>47</sup> This list does indicate that obese children have emotional problems, but does not include one suggestion regarding how to emotionally support these children or how to guide young people to treat the obese. This oversight should be corrected if the state officials feel compassion for the 43% of Tennessee school-aged children who are either at-risk or are overweight.<sup>47</sup>

At the college level, a personal health course required for graduation is recom-

mended, but will be largely ineffective if previous PreK-12 school experiences are devoid of health education. Best practices indicate that a progression of developmentally appropriate information is the most effective way to effect health behavior change. Along with this course, campuses should implement social norm campaigns<sup>48</sup> using several outlets, coordinated health programming from the student health center, healthier food choices at campus restaurants, and print media messages that support understanding and empathy for the obese.

Most schools, colleges, and other places of business in the public and private sectors now require new employees to undergo diversity training for legal purposes. Because prejudice toward the obese is considered socially acceptable,<sup>5</sup> this population can be a forgotten discriminated-against group. Care should be taken to include strategies in this training that could assist all attendees to behave more positively toward the obese, as well as other marginalized groups. Health care organizations should prioritize this diversity training and stress that the obese need their consistent positive support throughout any treatment process, no matter how much weight the patient may possess.

Media outlets, such as television and radio, are predominant sources for shaping subjective norms that help form opinions on any social issue, but especially the beliefs and mores associated with body image.<sup>49,50,51</sup> Comprehension of the huge influence that these media messages have on a population regarding the obese is imperative. If a majority of society can be led to believe that ultra-thin women and muscle-bound men are the norm, then using these same media channels, communication could be accomplished to foster more positive attitudes toward the obese.

Finally, parents and/or caregivers of children are their child's first health educator and the final line of defense. They are the major influences that help to develop subjective norms, attitudes, and eventual behaviors.<sup>9</sup> They should be the highest authority and garner the most responsibility regarding what children learn and how they



will treat others. They should be monitoring the media by changing channels or turning it off in order to teach and encourage appropriate behaviors. Parents/caregivers need to filter any message children obtain with immediate and consistent feedback that approves or disapproves new information. And they need to demand that health education is a priority at their child's school. One beneficial intervention idea to assist this group is specially-designed training sessions that schools sponsor for their parents. These sessions have been found to be effective in giving attending parents successful strategies to implement sound parenting.<sup>52</sup>

Negative behaviors toward the obese will no doubt beget negative health consequences for the obese, which in turn will compromise their self-efficacy to attain a healthy weight, and manage their emotional health.<sup>5</sup> Recognition and management of these negative beliefs and behaviors regarding individuals who are overweight and obese is a critical step to dismantling the repressive barriers that prevent this oppressed group from achieving their potential optimum health status.<sup>51</sup> Comprehending why someone behaves in this manner can assist the health care professional in treating the problem.<sup>30,53</sup> Using the TPB could be an effective and valuable tool for college health professionals to better understand this health issue. Information gleaned from this model could then be applied by university health center personnel to develop meaningful educational programs and support groups for the obese on campus. Future investigations are needed to promote a more healthful lifestyle for the obese through the unveiling of variables linked to behavioral intention that might be a basis for the oppression of this group. A more robust way of life for the obese can only lead to a more productive and favorable future for society as a whole.

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