

# A pilot study: Actual versus perceived health status of college students

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## ABSTRACT

**Background:** A relationship exists between perception of one's health based on body weight, and how they manage their health. Normal-weight college students who physically appear healthy may unknowingly develop a chronic disease because they view good physical appearance as verification of good health.  
**Objective:** The purpose of this study was twofold: 1) compare the perceived health status of TCU students to their actual health status; and 2) assess the health status of TCU students.  
**Design:** This study was a cross-sectional, descriptive design.  
**Methods:** Twenty-five normal-weight college students between ages 18-24 of any sex (n=11 men, n=14 women) and race were recruited to complete a health perception assessment survey 24-hours prior to their lab visit. Participant's anthropometric measurements (height, weight, body fat percentage (BF%), waist/hip circumference, and waist-hip ratio), blood pressure (BP), fasting blood glucose (BG, via finger prick) and 10mL blood sample were collected. Blood was analyzed for hemoglobin A1c and a lipid panel. Following the visit, self-reported survey results were compared with results obtained during the study visit to identify any discrepancies between actual and perceived health status and evaluate the overall health status of participants.  
**Results:** Average BMI and waist-hip ratio of participants were 22.39±1.94kg/m<sup>2</sup> and 0.76±0.04, respectively. The most commonly elevated measured values were fasting BG (29% prevalence), and BF%, BP, and LDL cholesterol (21% prevalence each). Fifty-two percent of participants presented with at least one measured value outside normal limits and 29% presented with two or more values outside normal limits. However, 92% described themselves as "very healthy", "healthy", or "somewhat healthy".  
**Conclusions:** Despite the appearance and perception of health, a significant proportion of college-aged students may risk developing a chronic disease. Our results suggest that regardless of self-perceived health status, students should receive regular check-ups to identify and manage physiological markers of health.

## INTRODUCTION

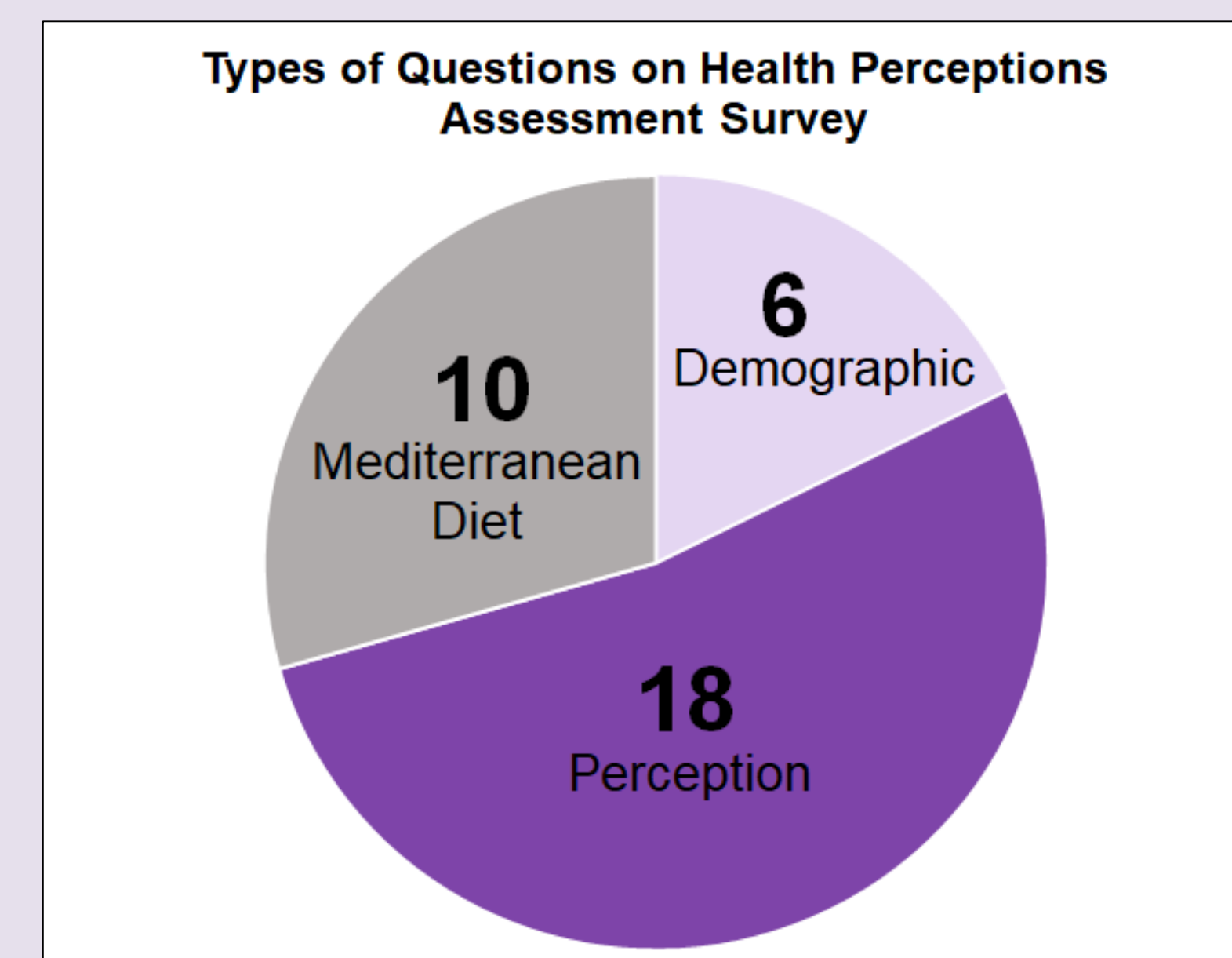
- In 2015-2016, 70.6% of adults were overweight or obese, 9.4% were living with diabetes (DM), 33.9% were living with prediabetes, and 30.2% were living with hypertension. 12.4% of adults had high cholesterol and 18.4% had low HDL cholesterol.<sup>1,2,3</sup>
- In Americans aged 12-19, 20.6% present with obesity, 8% have high cholesterol, 20% have abnormal lipids, and rates of type I and type II DM are rising 1.8% and 4.8% each year, respectively.<sup>1,4,5</sup>
- For more than ten consecutive years, 66% of surveyed adult Americans (n=74,000-113,000) have classified their personal and families' health as very good or excellent.<sup>6</sup>

## HYPOTHESES

- We hypothesize that **most participants will present with altered health status** (i.e. dyslipidemia – high levels of LDL, elevated triglycerides, and low levels of HDL – elevated blood pressure, elevated body fat percentage, etc.) as evidenced by measured values outside normal limits.
- Further, we hypothesize that TCU students will **have the impression that they are generally healthy** (without dyslipidemia, elevated blood pressure, etc.) as measured by the health perception assessment survey.

## METHODS

**Study Design:** This research project was an IRB approved cross-sectional, descriptive design study. A health perception assessment survey was used consisting of 34 questions.



**PERCEPTION**  
 How would you characterize your blood pressure? Please estimate to the best of your abilities.  
 a) Less than normal (120/80 mmHg)  
 b) Normal (120-129/80 mmHg)  
 c) Pre-hypertensive (120-139/80-89 mmHg)  
 d) Hypertensive (>130/>80 mmHg)

**MEDITERRANEAN DIET**  
 I eat 2 or more whole grains a day.  
 a) Yes  
 b) No

**Figure 1. Study Protocol**

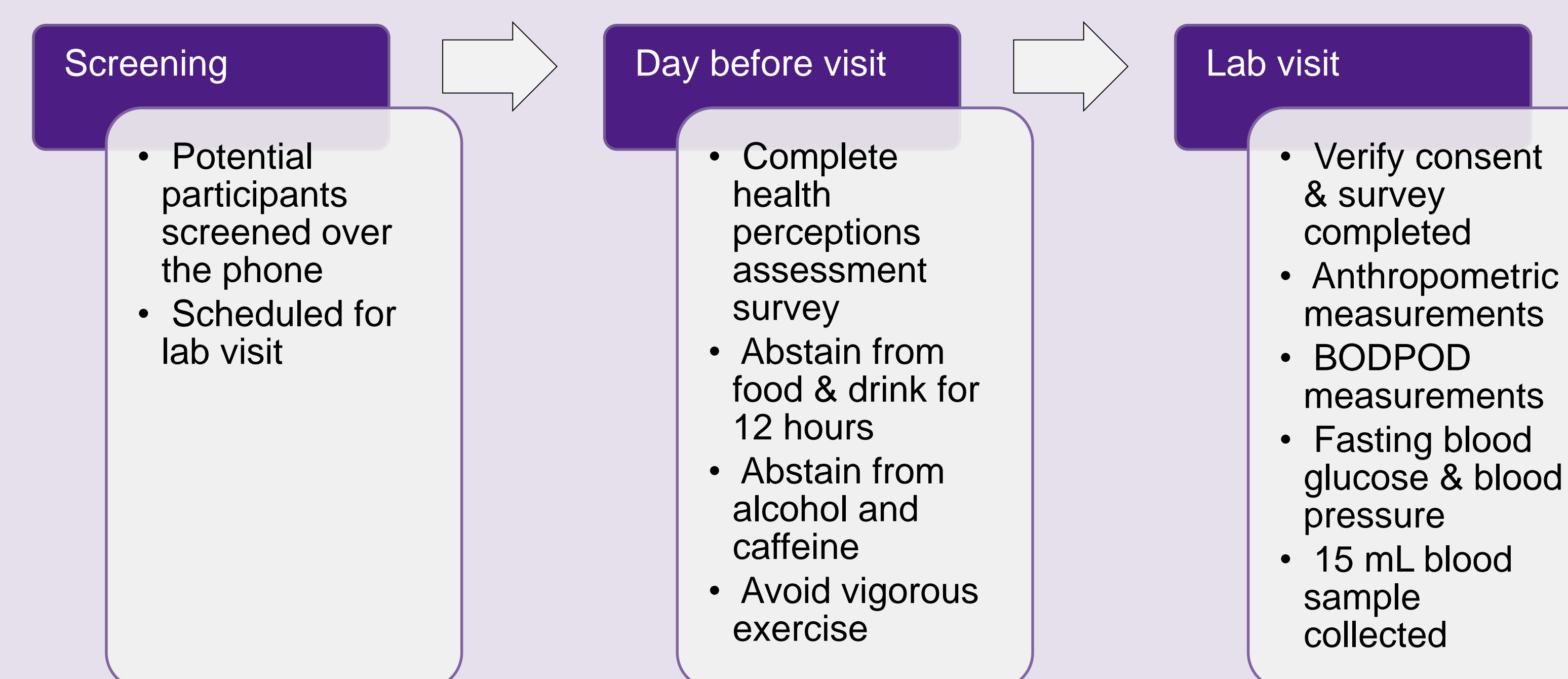
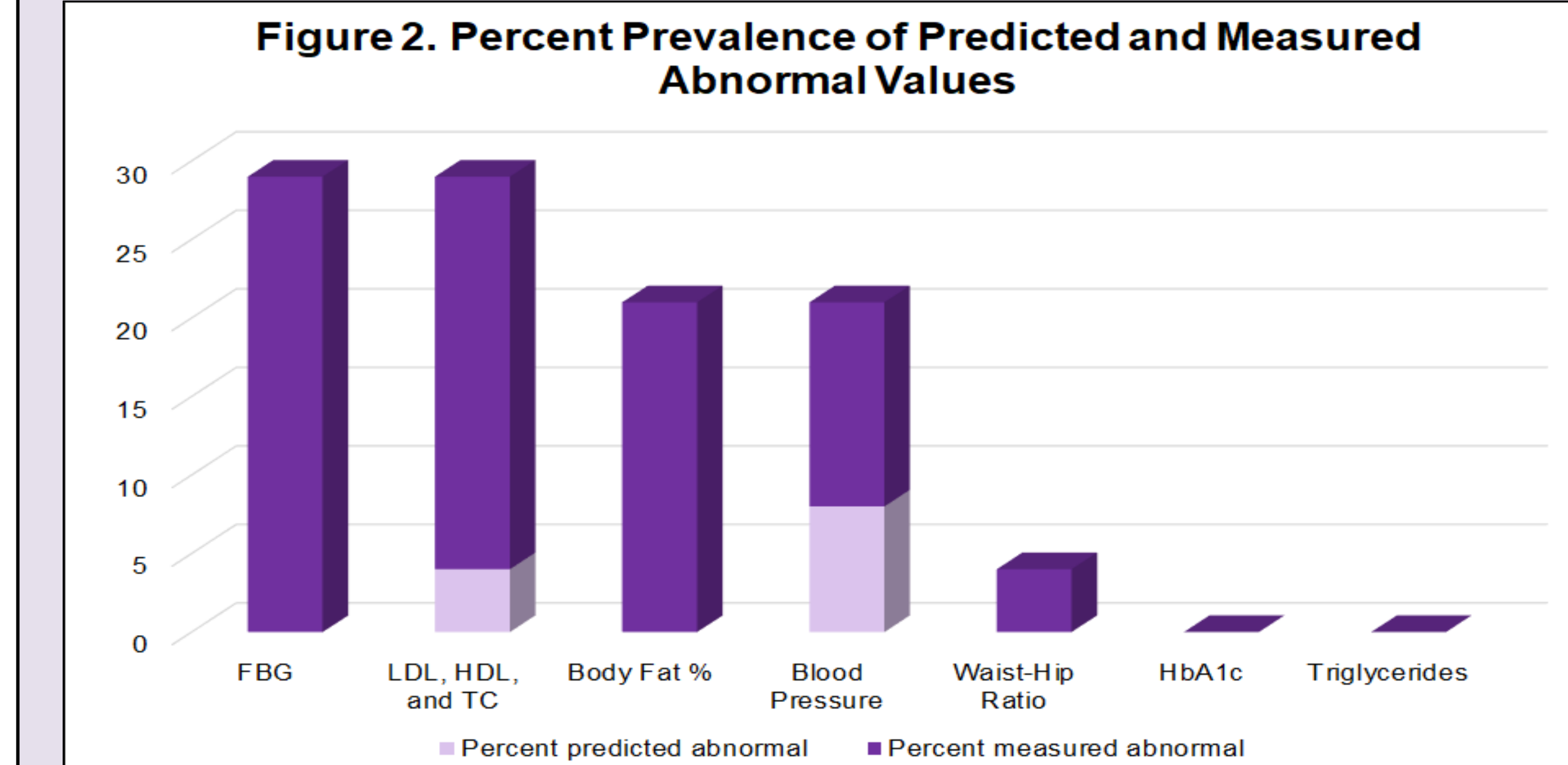


Table 1: Participant Population Characteristics		
	Participant Population (N=25) N (%)	TCU Student Population (N=9,474) N (%)
<b>AVERAGE AGE</b> (yr)	19.8±1.29	20.3
<b>GENDER</b>		
Male	11 (44)	3,945 (41)
Female	14 (56)	5,529 (58)
<b>RACE/ETHNICITY</b>		
White	11 (44)	6,461 (68)
Asian	5 (20)	275 (2)
Hispanic	4 (16)	1,385 (14)
Black	3 (12)	493 (5)
Other	2 (8)	
<b>MAJORS REPRESENTED</b>	22 (18.8)	117 (100)
<b>DIET</b>		
No restrictions	18	Not reported by TCU Fact Book
Vegetarian	3	
Pescatarian	2	
Paleo	1	

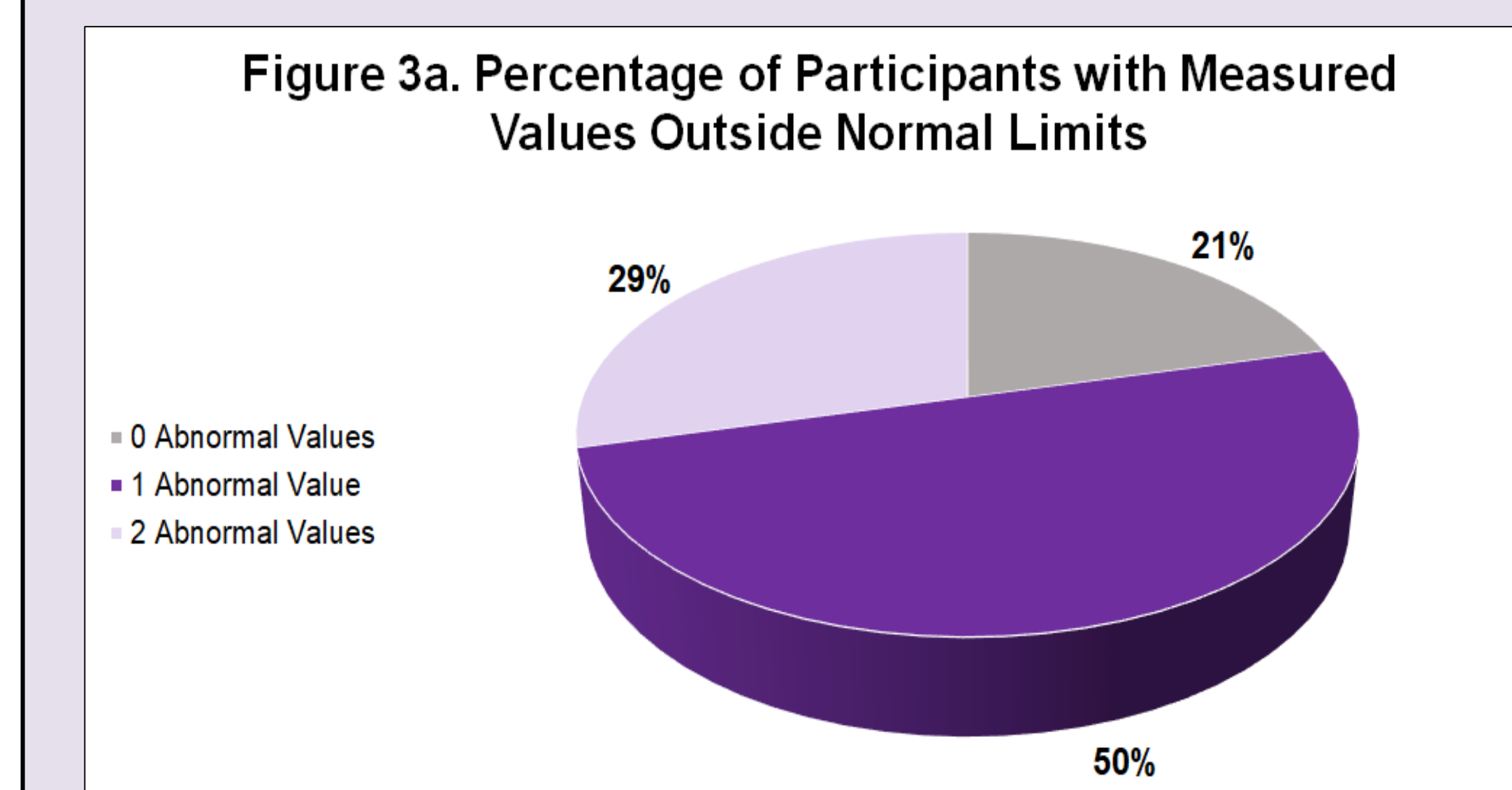
Table 2: Participant Measured Value Characteristics	
Characteristic	Value
<b>Age</b> (yr)	19.8 ± 1.29
<b>Height</b> (m)	1.7 ± 0.069
<b>Weight</b> (kg)	65.3 ± 7.7
<b>BMI</b>	22.4 ± 1.9
<b>Body Fat %</b>	21.4 ± 7.6
<b>Waist Circumference</b> (cm)	73.3 ± 6.0
<b>Hip Circumference</b> (cm)	96.0 ± 5.2
<b>Waist:Hip Ratio</b>	0.76 ± 0.05
<b>Blood Pressure</b>	109 ± 14.4/70 ± 7.2
<b>Fasting Blood Glucose</b>	94.4 ± 10.1



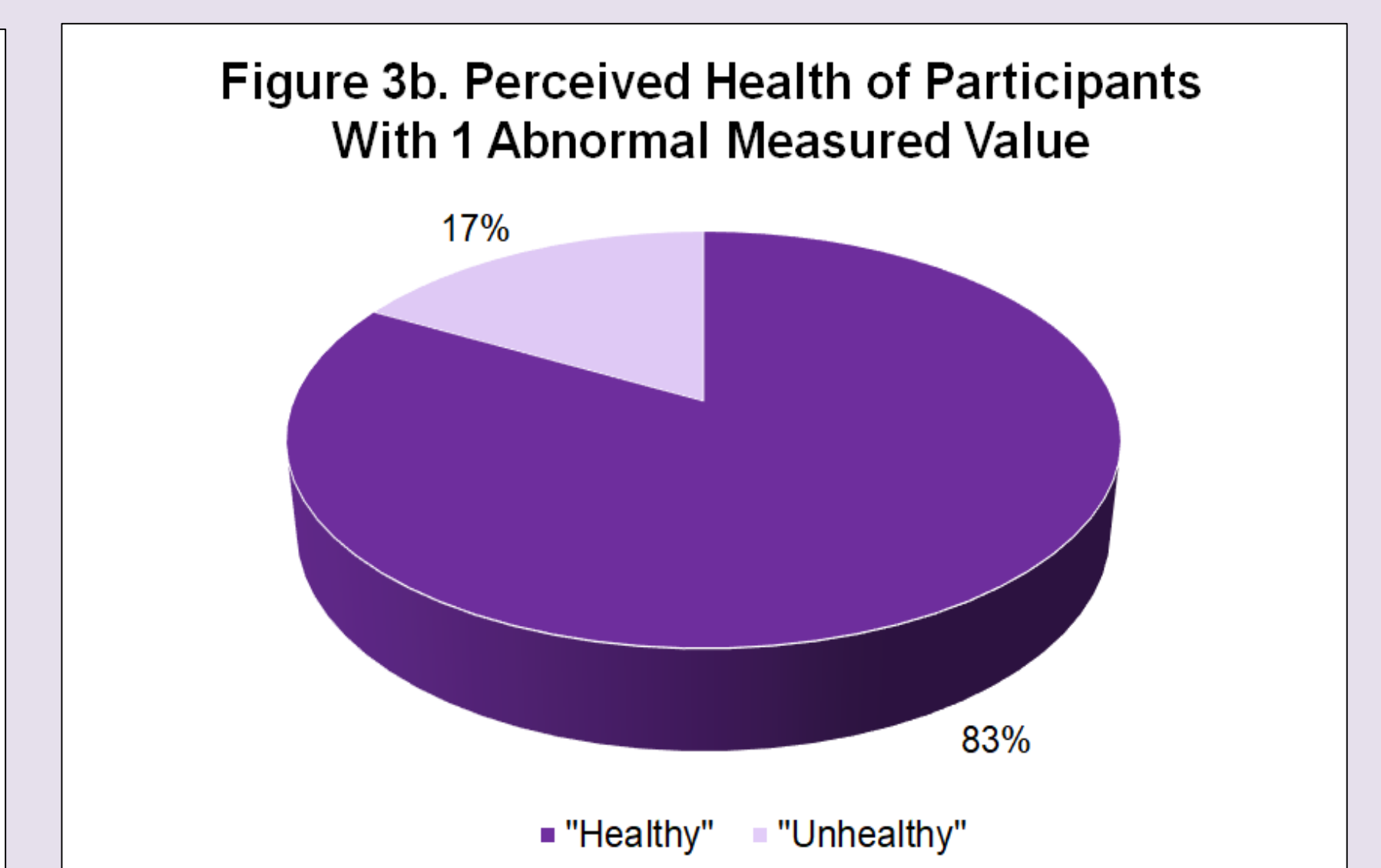
## RESULTS



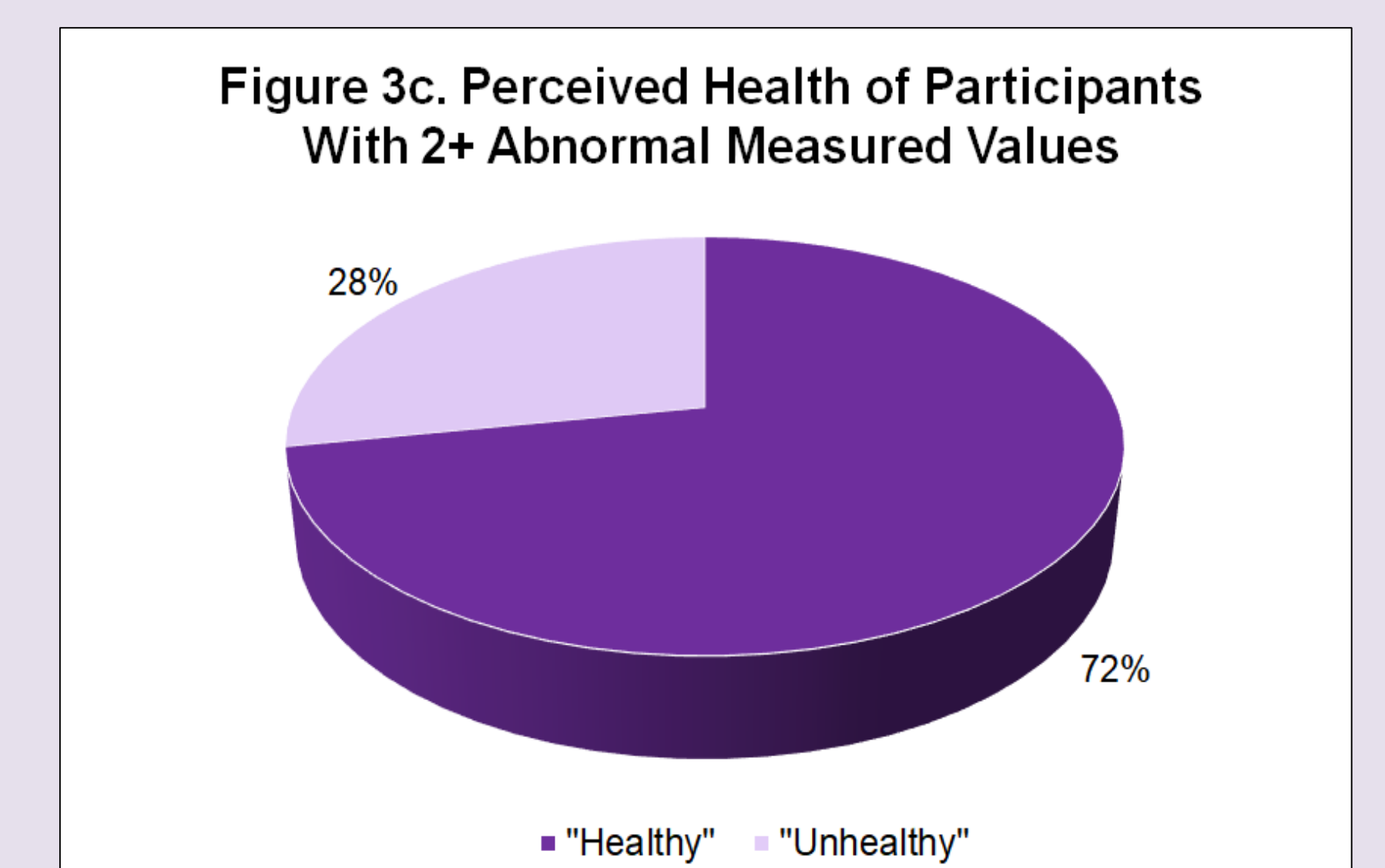
**Figure 2.** Figure represents the percent of study participants who predicted they would present with a specific value outside of the normal range and the percent of participants who measured to have a specific value outside of the normal range. FBG – fasting blood glucose. LDL, HDL, and TC – low-density lipoprotein cholesterol, high-density lipoprotein cholesterol, and total cholesterol, respectively. BP – blood pressure. HbA1c – hemoglobin A1c.



**Figure 3a.** Figure represents the percentage of study participants that had zero, one, or two measured values from lab visit outside of normal limits. Fifty percent of participants had at least 1 measured value outside normal limits, 29% had 2 or more measured values normal limits, and 21% of participants had 0 measured values outside normal limits.



**Figure 3b.** Figure represents the percentage of participants with one measured value outside normal limits who perceive themselves to be healthy or unhealthy. Of the 50% of participants who presented with one abnormal measured value, 83% described themselves as "very healthy", "healthy", or "somewhat healthy".



**Figure 3c.** Figure represents the percentage of participants with two or more measured values outside normal limits who perceive themselves to be healthy or unhealthy. Of the 29% of participants who presented with two or more abnormal measured values, 72% described themselves as "very healthy", "healthy", or "somewhat healthy".

**HEALTH SCREENINGS**

- 44% of participants reported their last check-up or physical occurred more than 1 year ago.
- 76% of participants reported their last lipid panel was "never" or "I don't know".
- 64% of participants reported their last fasting blood glucose reading was "never" or "I don't know".

**LIFESTYLE**

- Average Mediterranean diet score of 3.64 (out of 7).
- Average less than 1 day/week alcohol consumption, with 64% of participants not consuming any alcohol.
- Average 2.5 hours of exercise/week, with 92% of participants doing at least 30 min. of exercise/week.

## CONCLUSIONS

- Despite the appearance and perception of health, a significant proportion of college-aged students **may risk developing a chronic disease.**
- College-aged students should **receive regular check-ups** to identify and manage physiological markers of health.