Examining Differences in CVD Knowledge and Body Image Perceptions in Racial/Ethnic Groups

by

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Master of Public Health, California Baptist University, 2021

Thesis Submitted in Partial Fulfillment

of the Requirements for the Degree of

Master of Public Health

California Baptist University

August 2021

The College of Health Science

California Baptist University

Riverside, California

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Abstract

Females with low-income levels are disproportionally affected by both obesity and cardiovascular disease, with Non-Hispanic Blacks as the leading ethnic group. Despite representing significantly higher levels of obesity than other racial groups, black females still hold positive views of their body image- which may indicate a normalization of their overweight circumstances. The purpose of this study is to examine influences on obesity and CVD knowledge amongst racial groups. A sample of 225 participants were asked to participate in a cross-sectional study. After receiving consent, a 42-question survey comprised of demographic information, Heart Disease Fact Questionnaire created by Wagner, and the Body Shape Questionnaire created by Cooper was used to measure overall CVD knowledge and perceived body image. An Analysis of Variance (ANOVA) test was conducted to find differences between test groups. The results of the ANOVAs showed no differences in CVD knowledge among females. In addition, no differences were found in CVD knowledge amongst Non-Hispanic Black males and females. Significant differences were found in body image perceptions between obese African American females and both other BMI groups ($F(2,52) = 6.69$, $p = .03$).

Key Words: obesity, African American, heart disease, body image, BMI.

Acknowledgments

I first off would like to thank my former boss, Matthew Lawson, for his constant support in my graduate degree journey. Thank you for all the times you allowed me to take time away from work to complete homework, study for exams, take mental health breaks to cry a little, and write this manuscript- one of the biggest accomplishments of my life.

Thank you to my dad- and by extension, grandad- for always encouraging me to take the next step in my accomplishments and to never settle. That constant nudge forward is what allowed me to make it through this program, and graduate with my master's degree at 24 years old. I appreciate you more than you know. I hope your peanut did you proud on this one.

Thank you to my mommy and sissy for being my best friends in life. My belief in myself comes from the belief you both have always instilled in me. I sincerely don't know how I would function without having the both of you to make me smile. Thank you for being excited for all of my accomplishments- regardless of how large or small they were.

Finally, thank you to the love of my life, Marlon, for being my rock through it all. In times where I thought I doubted myself, my work, and was exhausted beyond measure, you always found a way to make me feel secure, loved, happy, and motivated. Thank you for being such a light in my life. My name is on this project and degree, but I can't act like you weren't instrumental in me attaining this.

Love,

Evy

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Introduction

Overview of the Literature

Of the 12 leading causes of deaths in 2018, heart disease is responsible for approximately 630,000 deaths in the United States (Van Dyke et al., 2018). According to a recent report on the prevalence of obesity and severe obesity among adults in the U.S., more than 70% of the U.S. adult populations' body mass index (BMI) were classified as either overweight or obese (Hales et al., 2020). Additionally, obesity is reportedly linked to the development of cardiovascular disease and other chronic conditions such as a stroke, heart disease, hypercholesterolemia, type II diabetes, and depression. Despite over 70% of adults in the U.S. being overweight and obese, heart disease death rates decreased 68% for the total population from 1968 to 2015 (Van Dyke et al., 2018). Even with the decline of overall heart disease death rates in the general population, African American adults' heart disease mortality rate still remains much higher than that of White and other minority groups, in particular that of African American females. This disparity cannot be explained by a single factor; rather it is rooted in multiple factors including access to health care, provider and patient trust, food insecurity, access to quality foods, lack of physical activity, poor diet, job security, etc. To comprehend this disparity in depth, a systematic review was conducted by Graham in 2015 and his study has summarized this as: (1) Higher rate of obesity due to cultural beliefs on large body size that is acceptable, (2) low adherence to diet and exercise.

Obesity in African Americans

High poverty-stricken neighborhoods and neighborhoods primarily comprised of persons of color both share a disproportionate risk of obesity development over the lifetime (Mendez, et al., 2016). Persons of lower SES are less likely to have access to health education resources than

high SES counterparts, which is believed to be a result of modern-day Jim Crow laws- also termed as redlining (Grossfeld, 2017; Handbury et al., 2015). Redlining, or the practice of perpetuating discrimination against racial groups to limit resource access and services, is found primarily throughout housing and financial institutions. However, it has more recently been associated with adverse health outcomes in the Black community- specifically in birth, obesity, and cardiac health (Bailey et al., 2017; Lynch et al., 2021; Singleton et al., 2016). SES segregation permits racial and ethnic inequalities to occur, as high poverty neighborhoods are highly composed of Non-Hispanic Black and Latino persons (Foulks-Black, 2008; Goodwin, 2014; LaVoice, 2021). In 2019, 34 of 50 states had obesity prevalence rates of over 35% in Non-Hispanic Blacks, more than any other ethnic group. 47% of Non-Hispanic Blacks in San Bernardino County were considered obese in 2018-2019, and 29.3% in Riverside County- both higher than the state average (CHIS, 2019). Increased access and advertisement for unhealthy foods in low SES neighborhoods contribute towards obesity disparities, which encourage African American populations to continue weight gain tracts (Best & Papies, 2019).

In 2019, 33 out of 50 states reported obesity prevalence higher in females than in males (Behavioral Risk Factor Surveillance System [BRFSS], 2020; Centers for Disease Control and Prevention [CDC], 2020). Although trends for both male and female obesity prevalence continues to increase, obesity and extreme obesity have been found to be higher in females- which was statistically significant according to the National Institute of Diabetes and Digestive and Kidney Diseases (NIH, 2020). In addition to significant gender differences in physical health, ethnic and racial disparities have also been linked to long term obesity prevalence trends (Hales et al., 2018; Wong et al., 2014). Approximately four out of five African American females are considered obese- higher than any other racial or ethnic group (Office of Minority

Health [OMH], 2020). On average, over the last 10 years Black females have been 1.3 times as likely to develop obesity over their lifetimes, in comparison to their white counterparts (CDC, 2020; OMH, 2020). Both obesity and severe obesity prevalence are higher in African American females when compared to all other racial and ethnic groups (National Health Statistics Reports, 2021).

Cardiovascular disease (CVD) is a general term coined for illnesses and conditions which negatively affect the heart and surrounding blood vessels. The most common forms of CVD represent blockages of the arteries which lead to the heart, preventing the heart and, by extension, the body- from receiving an appropriate amount of blood for optimal functionality. Clogged or blocked arteries have the potential to cause damage to other bodily organs, creating devastating damage to the body as a whole.

CVD in African Americans

Cardiovascular disease represents both the global and US leading cause of death (CDC, 2020; World Health Organization [WHO], 2020). In 2017, approximately 17.9 million deaths were attributed to cardiovascular disease, which is anticipated to increase to 22.2 million annual deaths by 2030 (American Heart Association [AHA], 2021). CVD morbidity and mortality are disproportionately high in Non-Hispanic Black communities for both males and females, sustaining over any other racial/ethnic groupings (Tabaei et al., 2019). In 2018, Non-Hispanic Blacks were approximately 30% more likely to die as a result of heart disease, in comparison to their White counterparts (OMH, 2020). 23.5% of all cardiovascular disease deaths are attributed to the non-Hispanic Black population, with 23.7% being attributed to Non-Hispanic Whites (CDC, 2020). As Non-Hispanic Whites hold a majority of the population and persons of Black or

African American descent contribute towards approximately 13% of the population, this percentage is of extreme concern.

As the sustained increase of CVD morbidity and mortality continues to be of concern on a national level, disparities which may affect CVD risk has shown to be significant on both racial and gender levels (AHA, 2021; Sun & Du, 2017). Non-Hispanic Black females are approximately 1.3 times as likely as their white counterparts to suffer from CVD mortality (OMH, 2020). According to the Center of Disease Prevention and Control, in 2018, Non-Hispanic Black females were 1.9 times as likely to die a CVD related death than females with Hispanic origins (CDC, 2020). Not only do Black females experience CVD at higher rates than other racial groups, but they also experience earlier onset of the chronic disease (Jones et al., 2007; Robinson, 2016). In 2013, over 40% of Non-Hispanic Black females had high blood pressure and cholesterol levels, and 15% were diagnosed with diabetes- all of which significant risk factors of CVD- and are higher than their white counterparts (Mozaffarian et al., 2015; Robinson, 2016). These risk factors, along with socioeconomic status, have been shown to explain large disparities in CVD prevalence between the two racial groups (Tajeu et al., 2020).

Body Image Perceptions. *Body image* is a man-created construct related to the emotional and cognitional perceptions regarding body type (Mitchell, 2020). Body image can be viewed positively or negatively, affecting both male's and female's mental health status. Western and European cultures, predominantly the United States, have created body image as a construct for what it believes to be the "ideal" body type. Through social media, representation in films, modeling, and increased advertisement for liposuctions, among other cosmetic surgeries, the U.S. has forged a community where thin is ideal to be considered attractive. As a result, males and females may find themselves with lower views of self-esteem by finding their body image

unappealing. Although both males and females suffer from these decreased self-love levels, females experience significantly higher levels of negative body image perceptions than their male counterparts (Feingold & Mazella, 1998; Mitchell, 2020; Phares et al., 2004). Females suffering from body image dissatisfaction are shown to be more likely to develop depressive symptoms (Barnes et al., 2020; Marks et al., 2020). Social media trends such as 'thinspiration' create a stigma for younger girls about weight perception, which leads to an increased incidence of unhealthy eating patterns and coping mechanisms, including eating disorders (Marks et al., 2020). Body image perceptions have been shown to identify overweight or obese persons, especially when compared to other methods of measurement, including BMI (Cooper et al., 1986).

Black females specifically report overall happiness with their weight and self-image- despite being overweight (Chithambo & Huey, 2013). Through reporting positive body image despite negative health behaviors and poor physical health in public health standards, black females may have created their own social construct in which being overweight or obese is normalized- or even encouraged.

Statement of the Problem

With heredity serving as a risk factor for the development of CVD, Black Americans being disproportionally affected, and the anticipated multi-million rise in CVD deaths, there is a lack of literature on the status of health knowledge transfers within communities- specifically, whether they occur at all (Edpuganti, 2020). No information thus far has been gathered to determine if CVD knowledge differs between racial groups, or between gender within these racial groups. Literature is sparse in establishing a relationship between body image perception

and the development of overweight or obese tendencies, particularly in black females, as they continue to hold positive self-views despite being labeled obese or overweight.

Purpose of the Study

The purpose of this study is to examine differences in body image perceptions and CVD knowledge amongst racial/ethnic groups.

Research Questions

Research Question #1. Is there a difference in females' cardiovascular disease knowledge between racial and ethnic groups?

Research Question #2. Among Blacks, is there a difference in cardiovascular disease knowledge between males and females?

Research Question #3: Among Black females, is there a relationship between body shape perceptions and BMI?

Hypotheses

For research question #1, the hypothesis is as follows:

H_1: There is no difference in female's cardiovascular disease knowledge between racial and ethnic groups.

For research question #2, the hypothesis is as follows:

H_1: There is no difference in cardiovascular disease knowledge between Non-Hispanic Black males and females.

For research question #3, the hypothesis is as follows:

H_1: There is no relationship between body shape perceptions and BMI categories among African American females.

Method

Design

It was a cross-sectional study that examined differences in CVD knowledge amongst racial groups, as measured by the Heart Disease Fact Questionnaire (Wagner et al., 2005). This study also assesses differences in perceived body shape amongst Non-Hispanic Black females, based on BMI groupings, as measured by the Body Shape Questionnaire, to reduce the prevalence and incidence of obesity and CVD in middle-aged African American females and males (Cooper et al., 1986).

Participants

Of the 1,100 African American churches available from Alzheimer's Association in Southern California, a random cluster sample of 10 churches was drawn. Upon selecting the 10 churches, they were contacted via phone call and follow up email to request participation. As a result, a total of two churches were agreed to participate in this study. To fulfill the purpose of this study, this study used the following criteria to meet the required sample size for statistical analysis. The inclusion criteria were age and ethnic groups. Participants who are 20-year of age and older were included. The second stratum used was ethnicity, and thus, participants who are African American, Caucasian, and Hispanic Americans were only included in this study. Other ethnic groups such as Native Indian Americans, Asian Americans, and Pacific Islanders were excluded from this study. The required sample size was determined to be approximately 134 persons. With a total population of 205 persons between the two churches, 154 persons resulted in study participation for a response rate of over 75%.

Procedures

The Institutional Review Board approved this study at California Baptist University before proceeding with this study. Upon the approval from the IRB, pastors of the two churches were informed about the conformed consent and data collection time frame. The data was collected from May 30th until June 19th, immediately during Sunday service at two churches. Before the ending of Sunday service, information pertaining to the purpose of the study, informed consent, and instructions for completing questionnaires were discussed. Participants were verbally told, in addition to the hard copy form they possessed, about the risks and benefits of the study, their voluntary nature, as well as their right to cease participating at any time. Participants were asked to complete a 4-page survey questionnaire that measures their heart disease knowledge and their body image. In addition, participants' demographic information such as age, gender, ethnicity, and education were collected. As an incentive to improve the response rate, two $75 Amazon gift cards were offered through a raffle at each church for any person who completed the questionnaire.

Measures

A self-administered, 42 question survey was distributed to participants following church service. Participants were informed the voluntary nature of this study, and that they could decline to participate at any time. The questionnaires were comprised of three separate sections: (1) demographic information, (2) heart disease fact questionnaire, and (3) the body shape questionnaire. Demographic information acquired includes age, approximate height and weight, education level, race/ethnicity, residing county, as well as whether participants have personal or family history of cardiovascular disease. The Heart Disease Fact Questionnaire (HDFQ) instrument contains 25 true/false questions measuring participant knowledge of CVD-related risk

factors and symptoms (Wagner et al., 2005). Higher scores on this questionnaire indicate high heart disease risk factor knowledge, whereas lower scores indicate the latter. Questions are written in statement form, such as "High blood pressure puts a strain on the heart". The HDFQ serves as a both a reliable and valid instrument source, with a reliability coefficient of 0.77, which was statistically significant (Wagner et al., 2005). To report validity, several Discriminant Function Analyses (DFAs) were performed to compare the number of valid respondents to the number of accurate results based on chance alone. In all DFAs ran, percentages of accurate participant results were higher than those of correct classification based on chance (Wagner et al., 2005). The Body Shape Questionnaire (BSQ) instrument contains 16 questions ranked on a 6-point scale from never to always, detailing feelings of appearance over the past month. Higher scores on the BSQ indicate negative views of appearance, and lower scores indicate more favorable opinions of appearance. The BSQ serves as a reliable and valid instrument, with a test-retest reliability coefficient of 0.88, which was significant for all items tested. To report validity, the BSQ was compared to several body image instruments, including BMI, which also assess negative body image views. Correlations with all other body image measures were significant (Cooper et al., 1986). A copy of the survey instrument can be found in the Appendices.

Independent and Dependent Variables

HDFQ responses served as the primary instrument of assessing CVD knowledge within the given populations. Combined scores were used as the dependent variable for both research question one and two, to further assess lack of CVD knowledge among multiple populations. As Non-Hispanic Black females were shown to have increased risk of CVD morbidity and mortality, it was questioned whether they displayed significantly less CVD knowledge than other racial or ethnic groups; so it was determined to assess these differences race and ethnicity as the

independent variables, with options including Non-Hispanic Whites, Latinx or Hispanics, and Non-Hispanic Blacks (OMH, 2020). These groups represent top three risk of CVD development in comparison to Asian, Pacific Islander, and Native American counterparts (AHA, 2020).

Both males and females among the Black community represent highest risk of CVD development than any other racial or ethnic group (CDC, 2020). It was questioned whether there were significant differences within CVD knowledge among the Black community, which could attribute to high incidence and prevalence of CVD among females subsequently; so it was determined that gender would be used as the independent variable.

BSQ responses served as the primary instrument to assess perceived body shapes among Non-Hispanic Black females. Combined scores were used as the dependent variable for research question three. Non-Hispanic Black females represent highest risk of the development of obesity over any other racial group and are speculated to also maintain high body image views (Chithambo & Huey, 2013). It was questioned whether there were significant differences in body shape perceptions among underweight, normal, overweight, and obese groups; so it was determined that BMI would serve as the independent variables. BMI was calculated using self-reported height and weight within the questionnaire. BMI was then grouped into categorial variables- underweight, normal, overweight, and obese prior to analysis-based on the CDC's definition of BMI groupings (CDC, 2020).

Data Analysis

Data analysis was conducted using the Statistical Package for Social Sciences (SPSS) v28 software. For the first research question, *do racial and ethnic groupings influence cardiovascular disease knowledge in females?,* an analysis of variance was conducted. HDFQ responses were transformed into sum scores prior to analysis. Within this 25-item questionnaire, each individual question represents 4 points if answered correctly and 0 points for incorrect responses; thus, the score ranges from 0 – 100. For the second research question, *among blacks, is there a difference in cardiovascular disease knowledge between males and females?,* an independent samples T-test was conducted, with HDFQ responses ranging from 0-100. For the third research question, *is there a relationship between body shape perceptions and BMI among Non-Hispanic Black females?,* an analysis of variance was conducted. Data pulled from the body shape questionnaire were transformed into sum scores prior to analysis, scores ranging from 8-48. Scores less than 19 indicate no marked concern with shape, 19 to 25 indicate mild concern, 26 to 33 moderate concerns, with the remainder of scores above this point indicating extreme shape concern.

Results

Demographic Information

The purpose of this study is to examine differences in body image perceptions and CVD knowledge amongst racial/ethnic groups.

Of the 142 participants, approximately 54.5% (n = 76) were of Non-Hispanic Black descent with other racial and ethnic group participation including 20.4% Non-Hispanic Whites (n = 29), 1.4% Pacific Islander or Native Hawaiians (n = 2), 1.4% Native Americans (n = 2), 21.8% Hispanic or Latinx (n = 31), and 1.4% others which were not clarified (n = 2). 77.5% of the participants were female (n = 110). Further demographic information such as education level, family history of cardiovascular disease, and BMI levels can be found in Table 1.

Major Findings

Research Hypothesis 1. There is no difference in female's cardiovascular disease knowledge between racial and ethnic groups.

Cardiovascular disease knowledge test scores were compared across three racial and ethnic groups amongst females using a one-way ANOVA, in which results will be comparable to a previous study using the HDFQ among these same racial and ethnic groupings. No significant difference was found ($F(2,107) = 2.09$, $p = .13$). CVD knowledge scores did not differ significantly amongst females of varying ethnic origins. Hispanic females had a mean HDFQ score of 66.31 (sd = 23.79). Non-Hispanic White females had a mean HDFQ score of 73.66 (sd = 16.51). Non-Hispanic Black females had a mean HDFQ score of 74.98 (sd = 15.76). The average HDFQ score among females was 72.58 (sd = 18.34).

Research Hypothesis 2. There is no difference in cardiovascular disease knowledge between Non-Hispanic Black males and females.

An independent-samples *t* test was calculated comparing the mean cardiovascular disease knowledge test scores between males and females. No significant difference was found ($t(74) = .36$, $p = .36$). The mean HDFQ score of Black males ($M = 77.83$, $sd = 13.86$) was not significantly different from the mean HDFQ score of Black females ($M = 75.46$, $sd = 15.34$). The average HDFQ score among Non-Hispanic Blacks was 76.64 ($sd = 14.60$).

Research Hypothesis 3. There is no relationship between body shape perceptions and BMI categories among African American Females.

A one-way ANOVA was computed, comparing the mean BSQ scores among females across BMI categories. A significant difference was found in BSQ score between BMI categories ($F(2,52) = 6.69$, $p = .03$). Tukey's HSD was used to determine the nature of the differences between the BMI groupings. This analysis revealed that Non-Hispanic Black females who were classified as obese report greater negative body image perceptions ($M = 23.97$, $sd = 6.06$) than females who were classified as normal ($M = 17.33$, $sd = 5.01$) and females who were classified as overweight ($M = 18.19$, $sd = 6.15$). There were no participants who were identified as underweight. The average BSQ score among Non-Hispanic Black females was 21.56 ($sd = 6.59$).

Discussion

Summary of Major Findings

The purpose of this study was to examine differences in body image perceptions and CVD knowledge amongst racial/ethnic groups. This cross-sectional study found that there was no significant difference found in CVD knowledge in females based on ethnic groupings. This result differs from similar studies concerning CVD knowledge amongst racial groups, in which it was found that persons of Non-Hispanic White descent reported greater CVD knowledge than their minority counterparts (Wagner et al., 2005). The lack of significance within these findings may be due to underrepresentation among Non-Hispanic Whites and Latinx or Hispanic females. Within a previous research study completed in which racial and ethnic groups were more equally distributed, Black females were found to have significantly less knowledge about CVD than other racial and ethnic groups (Wagner et al., 2006). CVD knowledge scores may identify whether increased CVD morbidity and mortality are due to the population not knowing how to prevent chronic disease, or if knowledge is high and populations coherently choose their negative health behavior patterns.

It was also found that there were no significant differences in CVD knowledge among Non-Hispanic Blacks between gender groups. This discovery differs from similar studies concerning CVD knowledge between gender groups, in which it was found that females demonstrated significantly higher CVD knowledge- though it did not include information in Non-Hispanic Blacks specifically (Wagner et al., 2005). Past studies have shown that overall, CVD morbidity and mortality are higher among females in comparison to males. With Non-Hispanic Blacks as the leading racial group for CVD morbidity and mortality, efforts toward

increasing gender-specific health education programs should be increased, and dependent upon which group shows significantly lower CVD knowledge.

Significant differences in body shape perceptions were found between BMI groups amongst Non-Hispanic Black females. Females who were classified as obese reported greater body image issues than females of normal or overweight status. Females within these two other categories had similar body image perceptions to one another- despite some females classifying as being overweight. This could be attributed to issues within the BMI scale, as it pertains to assessing body shape and muscle density compared to just weight and height. The speculation that the BMI scale may not be best suited to assess obesity risk is similar to other studies, in which it was found that compared to BMI, body adipose index, body fat percentage, and waist circumference, waist-to-hip ratio was the best predictor of CVD risk factors- including obesity- in adults (Ardesch et al., 2020; Kiremitli, 2021; Lam et al., 2015). This study contained a high proportion of educated persons; but it should be noted that both CVD knowledge and body image perceptions may differ with the inclusion of more lesser-educated persons. This study did not assess how education level may influence overall CVD knowledge between racial groups, as well as how it may affect body image views amongst Non-Hispanic Black females. Without additional statistical analyses, it is unclear whether education level influences these variables.

Public Health Implications

The results of this study show no major differences in CVD knowledge between racial and ethnic groups in females nor across gender groups among Non-Hispanic Blacks. Despite a lack of differences being shown, however, overall CVD knowledge remains low across the board. Practitioners should focus more on providing education to these population groups, prior to their development of risk factors leading to a CVD diagnosis. CVD education programs

should be implemented in young adults between ages 18-24, as to implement positive health behaviors before major and unreversible bodily damage occurs (Cooper & Radom-Aizik, 2020). Employing practitioners who best represent demographics in each community may improve the acceptance of preventative care among these populations. Cultural boundaries due to racial disparities in healthcare professionals may influence the spread of knowledge within minority communities (Alvidrez et al., 2019; Patel et al., 2019; Robinson & Clark, 2017). Despite more than half of the study population being overweight or obese, participants still did not understand implications of risk on their health. Furthermore, the results of this study show that obese African American females are not complacent with weight gain and are in fact more unhappy with their body image than others, which differed from the researcher's hypothesis. Females who are overweight, however, contain very little body image issues, very similarly to females within normal weight limits.

Research is required to assess whether family history of CVD influences CVD knowledge- and by extension whether health knowledge transfers occur within communities. Practitioners and health educators should focus on distributing heart disease information to patients early on in life to support preventative service in comparison to reactionary. Further research is also required to assess the efficacy of BMI as a tool for the development of obesity in Black and Hispanic females. High muscle or fat concentrations among hip and chest areas will still present itself as being overweight or obese on BMI scales, even if gut fat is minimal. New methods of weight category scales which adjust for varying body types among females may need to be created to be more indicative of true weight gain issues (Gosse, 2014; Nevill et al., 2011).

Study Strengths

Strengths of the study include inclusion of reliable and valid questionnaires. Chronbach's Alpha tests were calculated for both the Heart Disease Fact Questionnaire and Body Shape Questionnaire to determine internal consistency. It was found that both the HDFQ and BSQ measure high levels of reliability, with alpha levels of 0.84 and 0.88, respectfully.

Study Limitations

Study limitations include recall bias, due to the self-administered nature of the questionnaire. Within the disseminated BSQ, all questions required body shape concerns within a time frame of the last 30 days, which may have resulted in incorrect responses for the consistency of body image issues.

It was also unknown how CVD diagnosis among participants would affect CVD knowledge; leading it possible to have confounding effects in mean scores for the HDFQ, though only 8.5% of the study population (N = 12) stated yes to having been diagnosed with CVD.

Currently, the influence that family history of CVD has on CVD knowledge is unknown; with heredity serving as a risk factor for the development of CVD, a lack of knowledge transfer within families is a concern and could potentially contribute to the anticipated increase of CVD mortality over the next ten years (AHA, 2021).

Conclusion

Health knowledge within all population groups remains low. There was no evidence indicating Non-Hispanic Black females demonstrate less CVD knowledge than other racial groups. There was also no evidence indicating females demonstrating less CVD knowledge than males in Non-Hispanic Blacks. Body shape perceptions among obese Non-Hispanic Black females remains low. Results from this study can be used to support practitioners and health educators offering preventative services to females and Non-Hispanic Blacks, and for researchers hoping to identify influences on obesity.

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Appendices

Table 1

Demographic details for Survey Respondents (N=142)

Characteristic	*n*	%
Gender		
Male	32	22.5%
Female	110	77.5%
Ethnicity		
Non-Hispanic White	29	20.4%
Pacific Islander	2	1.4%
Non-Hispanic Black	76	53.5%
Native American	2	1.4%
Hispanic or Latinx	31	21.8%
Other	2	1.4%
Age		
18 - 25	3	2.1%
26 - 48	40	28.2%
49 - 63	79	55.6%
≥ 64	20	14.1%
Education Level		
Less than 12th grade	2	1.4%
High School	18	12.7%
Some College	58	40.8%
College Degree	64	45.1%
BMI Level		
Normal	26	18.3%
Overweight	41	28.9%
Obese	75	52.8%
CVD Diagnosis		
Yes	12	8.5%
No	130	91.5%
Family History of CVD		
Yes	67	47.2%
No	75	52.8%

Appendix B

Part I: Demographic Information

Gender:
- Male
- Female
- I'd rather not say

Age: _

Race/Ethnicity:
- Non-Hispanic White
- Asian
- Pacific Islander or Native Hawaiian
- Non-Hispanic Black
- Native American
- Hispanic or Latinx
- Other

Approximate Height (ex: 5'7"): _____

Approximate Weight in lbs: _____

Which county do you live in?
- San Bernardino
- Riverside
- Los Angeles
- None of the above

Education
- Less than 12th grade
- High school
- Some college
- College degree

Have you ever been diagnosed with heart disease?
- Yes
- No

Do you have family history of heart disease?

- Yes
- No

Part II: Heart Disease

These next questions ask about heart disease. Please circle true or false; if you are unsure about thecorrect answer, you may circle "I don't know".

1. A person always knows when they have heart disease:
   a. True b. False c. I don't know

2. If you have a family history of heart disease you are at risk for developing heart disease:
   a. True b. False c. I don't know

3. The older a person is, the greater their risk of having heart disease:
   a. True b. False c. I don't know

4. Smoking is a risk factor for heart disease:
   a. True b. False c. I don't know

5. A person who stops smoking will lower their risk of developing heart disease:
   a. True b. False c. I don't know

6. High blood pressure is a risk factor for heart disease:
   a. True b. False c. I don't know

7. Keeping blood pressure under control will reduce a person's risk for developing heartdisease:
   a. True b. False c. I don't know

8. High cholesterol is a risk factor for developing heart disease:
a. True b. False c. I don't know

9. Eating fatty foods does not affect blood cholesterol levels:
a. True b. False c. I don't know

10. If your "good" cholesterol (HDL) is high you are at risk for heart disease:
a. True b. False c. I don't know

11. If your "bad" cholesterol (LDL) is high you are at risk factor for heart disease:
a. True b. False c. I don't know

12. Being overweight increases a person's risk for heart disease:
a. True b. False c. I don't know

13. Regular physical activity will lower a person's chance of getting heart disease:
a. True b. False c. I don't know

14. Only exercising at a gym or in an exercise class will help lower a person's chance ofdeveloping heart disease:
a. True b. False c. I don't know

15. Walking and gardening are considered exercise that will help lower a person's chance ofdeveloping heart disease:
a. True b. False c. I don't know

16. Diabetes is a risk factor for developing heart disease:
a. True b. False c. I don't know

17. High blood sugar puts a strain on the heart:
a. True b. False c. I don't know

18. If your blood sugar is high over several months it can cause your cholesterol level to go upand increase your risk of heart disease:

a. True b. False c. I don't know

19. A person who has diabetes can reduce their risk of developing heart disease if they keep theirblood sugar levels under control:
a. True b. False c. I don't know

20. People with diabetes rarely have high cholesterol:
a. True b. False c. I don't know

21. If a person has diabetes, keeping their cholesterol under control will help to lower theirchance of developing heart disease:
a. True b. False c. I don't know

22. People with diabetes tend to have low HDL (good) cholesterol:
a. True b. False c. I don't know

23. A person who has diabetes can reduce their risk of developing heart disease if they keep theirblood pressure under control:
a. True b. False c. I don't know

24. A person who has diabetes can reduce their risk of developing heart disease if they keep theirweight under control:
a. True b. False c. I don't know

25. Men with diabetes have a higher risk of heart disease than women with diabetes:
a. True b. False c. I don't know

Part III: BSQ

We should like to know how you have been feeling about your appearance over the **PAST FOUR WEEKS**. Please read each question and circle the appropriate number to the right. Please answer all the questions.

OVER THE PAST FOUR WEEKS:

	Never	Rarely	Sometimes	Often	Very often	Always
1. Have you been so worried about your shape that you have been feeling you ought to diet?.....	1	2	3	4	5	6
2. Have you noticed the shape of other men/women and felt that your own shape compared unfavourably?.....	1	2	3	4	5	6
3. Has being naked, such as when taking a bath, made you feel fat?.....	1	2	3	4	5	6
4. Have you not gone out to social occasions (e.g. parties) because you have felt bad about your shape?.....	1	2	3	4	5	6
5. Have you worried about other people seeing rolls of fat around your waist or stomach?.....	1	2	3	4	5	6
6. When in company have your worried about taking up too much room (e.g. sitting on a sofa, or a bus seat)?.....	1	2	3	4	5	6
7. Have you pinched areas of your body to see how much fat there is?.....	1	2	3	4	5	6
8. Have you avoided situations where people could see your body (e.g. communal changing rooms or swimming baths)?.....	1	2	3	4	5	6