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Original Research Article

Validity of Self-Reported High Blood Pressure among Black and White Seventh-Day Adventists

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ABSTRACT

Background: Self-reported diagnosis of high blood pressure is frequently used to study representative samples of a population.
Objective: Using a cross-sectional design, we examined the relationship between self-reported high blood pressure and clinical evidence for the disease, such as use of antihypertensive medications.
Methods: A community-based sample of older Seventh-day Adventist adults aged 50 years and older (n = 457) was recruited from a prospective cohort study. Confirmed high blood pressure was defined as using an antihypertensive medication, having a systolic blood pressure ≥ 140 mmHg, or a diastolic blood pressure ≥ 90 mmHg.
Results: There were 236 (52.0%) out of 457 participants with self-reported high blood pressure. Blacks (n = 118, 64.8%) reported higher rates of high blood pressure compared to Whites (n = 118, 42.9%). Based on the diagnostic criteria 13.6% (n = 62) were undiagnosed with high blood pressure. Blacks (49.7%) were more likely to report a true positive diagnosis and Whites (50.2%) were more likely to report a true negative diagnosis of high blood pressure. Sensitivity was 72% and specificity 80%. Sensitivity was significantly higher for Blacks (80%) than for Whites (62%). Agreement between self-report and diagnostic criteria for high blood pressure was substantial (kappa 0.68) across all participants.
Conclusions: Our findings add to the evidence that self-report is usually a valid method for assessing high blood pressure, at least for studies with large sample sizes. The greater sensitivity rate for Blacks than Whites suggests that self-report of high blood pressure is more accurate for Blacks.
Key words: validity, high blood pressure, Seventh-day Adventist, self-reports

INTRODUCTION

The demand to study large, representative samples of a population often results in the use of self-reported diagnosis of a disease condition. [(1)] Questionnaires or surveys are often used instead of clinical examinations and biometric measurements, which are more expensive and time intensive. These low cost and efficient data collection tools have been tested and found to be valid for cardiovascular disease conditions. [(2,3)] However, self-report methods are affected by measurement error and inaccuracies often differ by type of disease and the health status of the population. [(4-6)] Accuracy of self-report data is largely dependent on the participant's understanding of the pathology of the disease and their recall. [(7)] In addition, some research indicates that self-report methods underestimate the prevalence of hypertension and other chronic disease conditions. [(7,8)]

Self-report data obtained from questionnaires are nevertheless often used to estimate high blood pressure risk for a population. [1,9] High blood pressure is a public health concern and has been described as a public health crisis. [1] For instance, high blood pressure increases a person's risk for heart disease and stroke-the two leading causes of death in the United States. [9] According to the US National Health and Nutrition Examination Survey (NHANES), one in three American adults (approximately 75 million) has high blood pressure. Reported high blood pressure cost each year for the US is $48.6 billion, and includes cost of health care services, treatment and absenteeism. In addition, Black Americans are more likely to report high blood pressure than White Americans. [10,11] While there are clear cost and convenience advantages to using self-report measures of hypertension, it is important to accurately identify the validity of these self-report measures by at risk population groups.

Few studies have explored the validity of self-reported high blood pressure between Black and White populations. [12] Giles, Croft [12] reported lower sensitivity and higher specificity rates for Whites when compared to Blacks. Similar results were described by Vargas, Burt [13] in a national sample of Black, White and Mexican Americans.

This study, therefore, examined the accuracy of self-report measures of high blood pressure when compared to the biometric measurements in a population of Black and White Seventh-day Adventist (SDA) adults who participated in a prospective community-based cohort study. SDA adults are a useful population for this study due to their lifestyle habits and health beliefs, [14] limiting possible confounders since SDA church members are encouraged to eat a vegetarian based diet, exercise, not smoke, and not consume alcoholic beverages. Members' adherence to these recommendations has been shown to lower their risk for hypertension and other chronic diseases, [15] as well as improve their quality of life. [16]

MATERIALS AND METHODS

Participants and procedures

Source of data. The data used for this study come from the Biological Manifestations of Religion Sub study (BioMRS) collected in 2006-7. The BioMRS study is a part of the Adventist Health Study-2 (AHS-2) [17] and the Biopsychosocial Religion and Health Study (BRHS). [18] AHS-2 is a prospective longitudinal study designed to examine the role of foods, nutrients, lifestyle factors and cancer risk among Seventh-day Adventists. Approximately 97,000 participants completed a comprehensive questionnaire starting in February 2002 and ending in May 2007.

BRHS, also a longitudinal study, was designed to examine the associations of religion and health outcomes in a random sample of AHS-2 participants. The BRHS was divided into two sub-studies: The Psychosocial Manifestations of Religion Sub-study (PsyMRS) and the Biological Manifestations of Religion Sub-study (BioMRS). A random sample of about 21,000 AHS-2 study participants were mailed the 20-page, PsyMRS questionnaire in 2006-2007. Of those 11,004 participants returned the questionnaire. There were 532 of these individuals who lived within driving distance of Loma Linda University or one additional clinic location in Los Angeles County and who agreed to participate in BioMRS. The participants completed the 20-page questionnaire PsyMRS questionnaire assessing physical health and diet, as well as a medication inventory and had their systolic and diastolic blood pressure measured by clinic personnel. The Loma Linda University Institutional Review Board approved the study, and participants provided written consent.

Exclusion and inclusion criteria. For validation of self-reported high blood pressure 30 individuals who were missing

data on age, race or religious group were excluded. Participants were also excluded if they were: (a) less than 50 years of age (*n* = 5); (b) neither Black (African American, Caribbean, African) nor White (*n* = 35); and (c) not Seventh-day Adventist (*n* = 5). This resulted in a sample of 457 individuals. Participants who were missing other demographic information were kept in the sample by using multiple imputation. [(19)]

Participant Characteristics. The characteristics of the sample are shown in tables 1 and 2. As shown in Table 1, the complete final sample consisted of 172 males (37.6%) and 285 females (62.4%), with an overall mean age of 69.2 (*SD* = 11.4). The age range was 50 to 102 years. Most participants were White (60.2%), had little to no difficulties meeting expenses of basic needs in the past year (81.0%), and were overweight or obese (*n* = 288, 63% with BMI = 25 or greater). More than half (52%) of the participants reported *yes* to having high blood pressure. There were statistically significant differences between participants with and without a self-reported high blood pressure diagnoses. Those reporting a high blood pressure diagnosis were: more likely to be (a) older, (b) Black, and (c) overweight, but less likely to have (d) a graduate degree or (e) be vegetarian.

As indicated in Table 2, significant baseline differences were assessed for several demographic variables between Black and White participants. When compared to Whites, Black participants were: (a) younger, (b) more likely to be female, (c) less educated, (d) had more difficulty meeting expenses in the last year, and (e) less likely to be vegetarian or have a regular exercise program.

Table 1: Characteristics of 457 Participants with and without High Blood Pressure

	All participants		Self-reported High Blood Pressure				
			No (n= 221)		Yes (n= 236)		p-value
	n (%)	Mean (SD)	n (%)	Mean (SD)	n (%)	Mean (SD)	
Age (years)		69.2 (11.4)		66.88 (11.4)		71.33 (11.0)	<.001
Gender							.109
Female	285 (62.4)		136 (47.7)		149 (52.3)		
Male	172 (37.6)		85 (49.4)		87 (50.6)		
Race							<.001
White	275 (60.2)		157 (57.1)		118 (42.9)		
Black	182 (39.8)		64 (35.2)		118 (64.8)		
Education							.009
Trade, high school or less	31 (6.8)		6 (19.4)		25 (80.6)		
Associate's degree or some college	140 (30.6)		62 (44.3)		78 (55.7)		
Bachelor's degree	105 (23.0)		54 (51.4)		51 (48.6)		
Graduate degree[a]	181 (39.6)		99 (54.7)		82 (45.3)		
Difficulty meeting expenses[b]							.908
Yes	87 (19.0)		36 (41.4)		51 (58.6)		
No	370 (81.0)		185 (50.0)		185 (50.0)		
Body Mass Index		27.6 (5.95)		26.2 (4.96)		28.9 (6.50)	<.001
Exercise Program[c]							.089
Yes	282 (61.7)		149 (52.8)		133 (47.2)		
No	175 (38.3)		72 (41.1)		103 (58.9)		
Diet[d]							.018
Vegetarian	204 (44.6)		116 (56.9)		88 (43.1)		
Non-vegetarian	253 (55.4)		105 (41.5)		148 (58.5)		

[a]Participants with Masters or Doctoral degrees.
[b]Difficulty meeting expenses referred to the number of participants who responded *a little*, *somewhat*, *fairly*, or *very* rather than *not at all* to the question "on average how difficult was it for your family to meet expenses for basic needs like food, clothing, and housing in the last year?".
[c]Participants were counted as having a regular exercise program if they responded *yes* to the question "do you have a regular exercise program?".
[d]Participants were counted as vegetarians if they responded *never or rarely* to consuming meat products (red meats, turkey or chicken, and fish).

Measures

Measured blood pressure. A standardized testing protocol was used to obtain blood pressure and pulse measurements from participants. Participants sat quietly for 10 minutes prior to their first measurement.

Blood pressure was assessed three times using an automatic Omron blood pressure monitor. The three measures were averaged to provide mean systolic and mean diastolic blood pressure.

Table 2: Demographic Differences between Black and White Participants (*n* = 457)

	All participants		Racial Groups				
			Whites (n = 275)		Blacks (n = 182)		p-value
	n (%)	Mean (SD)	n (%)	Mean (SD)	n (%)	Mean (SD)	
Age (years)		69.2 (11.4)		72.0 (11.7)		65.0 (9.55)	<.001
Gender							<.001
Female	292 (62.5)		158 (54.1)		127 (43.5)		
Male	175 (37.5)		117 (66.9)		55 (31.4)		
Education							<.001
Trade, high school or less	31 (6.8)		7 (22.6)		24 (77.4)		
Associate's degree	140 (30.6)		60 (42.9)		80 (57.1)		
Bachelor's degree	105 (23.0)		64 (61.0)		41 (39.0)		
Graduate degree [a]	181 (39.6)		143 (79.0)		38 (21.0)		
Difficulty meeting expenses [b]							<.001
Yes	87 (19.0)		37 (42.5)		50 (57.5)		
No	370 (81.0)		238 (64.3)		132 (35.7)		
Body Mass Index		27.6 (5.95)		26.2 (4.81)		29.8 (6.80)	<.001
Regular exercise [c]							.032
Yes	282 (61.7)		183 (64.9)		99 (35.1)		
No	175 (38.3)		92 (52.6)		83 (47.4)		
Diet [d]							<.001
Vegetarian	204 (44.6)		153(75.0)		51 (25.0)		
Non-vegetarian	253 (55.4)		122 (48.2)		131 (51.8)		

[a]Participants with Masters or Doctoral degrees.
[b]Difficulty meeting expenses referred to the number of participants who responded *a little*, *somewhat*, *fairly*, or *very* rather than *not at all* to the question "on average how difficult was it for your family to meet expenses for basic needs like food, clothing, and housing in the last year?".
[c]Participants were counted as having a regular exercise program if they responded *yes* to the question "do you have a regular exercise program?".
[d]Participants were counted as vegetarians if they responded *never or rarely* to consuming meat products (red meats, turkey or chicken, and fish)

Self-reported high blood pressure diagnosis. Hypertension diagnosis was based on participants' self-report of ever having been diagnosed with high blood pressure. The diagnosis question was reported as *yes* or *no*. Participants who did not respond either *yes* or *no* to this question were excluded from the analyses.

Reference definitions of high blood pressure. Two sources of information collected at the BioMRS clinic were used to create a reference hypertension variable for use in validating the self-reports of hypertension: (a) measured systolic and diastolic blood pressure and (b) the medications which the participants wrote down in a list of all the medications they use. A person was considered to have hypertension if *any* of the following were true:

The participant had a measured systolic blood pressure greater than or equal to 140 mmHg or diastolic blood pressure greater than or equal to 90 mmHg. [(20)]

Any medications commonly used to treat hypertension were included in the list of medications the participant reported using. The specific medications to be considered as hypertension medication were determined in consultation with a cardiologist, and included diuretics, beta-blockers, ACE inhibitors, Angiotensin II receptor blockers, calcium channel blockers, and renin inhibitors.

Statistical Analysis

Self-reported hypertension was compared to the reference definition of hypertension to determine sensitivity. Sensitivity is the probability of correctly identifying someone who actually has a condition and is the number of true positives divided by the total number of individuals who actually have the condition. True positives are individuals who self-reported hypertension and diagnostically indeed were proven to have hypertension by the criteria noted above. False negatives represent individuals who reported no hypertension

but did in fact have hypertension (Type II error). Specificity on the other hand is the probability of correctly identifying someone who *does not* have a condition and is defined as the number of true negatives divided by the number of individuals who actually *do not* have the condition (true negatives plus false positives). True negatives are individuals who *did not* report hypertension and *do not* have hypertension. False positives (Type I error) are individuals who self-reported hypertension but diagnostically *did not* have hypertension.

Self-reported hypertension was compared to the reference definition of hypertension to determine sensitivity and specificity. Positive predictive value was calculated by dividing the number of true positives/ (true positives + false positives). Negative predictive value was calculated as true negatives/ (true negative + false negatives).

Agreement between self-reported diagnosis of blood pressure, medication responses and measured blood pressure was assessed with kappa statistics. [(21)] The relative strength of agreement associated with kappa statistics included the following kappa range descriptions: *0.01-.20 =none to slight, 0.21-0.40=fair, 0.41-0.60=moderate, 0.61-0.80=substantial, 0.81-1.00= Almost Perfect*. Baseline occurrence of hypertension was compared between Blacks and Whites using χ^2. Analyses were performed using IBM SPSS Version 24 with *p*-value of <0.05 for determining statistical significance.

We conducted a multiple imputation procedure for missing data values. The procedure was set to conduct five imputations using the study variables and 17 additional variables (e.g., general health status, mental health composite, vigorous exercise minutes per week, positive & negative religious coping). These variables were selected because they are related to the study variables and, thus, could improve the imputation.

RESULTS

As shown in Table 3, each diagnostic criterion was tested separately and then altogether; however, only the all criteria criterion will be described here. Within the total sample population (n = 457), 13.6% (n = 62) were undiagnosed with high blood pressure (false negatives). While not statistically significant, the percentage of Whites (14.5%, n = 40) undiagnosed with high blood pressure was higher than Blacks (12.2%, n = 25). Of the individuals who self-reported a diagnosis of high blood pressure, 10.3% (n = 47) had normal blood pressure measures (false positive). Though not statistically significant, the percentage of Whites (11.3%, n = 31) who self-reported high blood pressure when blood pressure measures were normal was higher compared to Blacks (8.8%, n = 16). Forty-two percent of all participants correctly reported a negative high blood pressure diagnosis, which was confirmed with blood pressure measurements and use of antihypertensive medications.

When compared to Whites (24.0%), Blacks (49.7%) who had hypertension were more likely to self-report hypertension (true positives) at p = < .001. However, Blacks (29.3%) were less likely to self-report not having hypertension, when they did not have hypertension (true negatives) when compared to Whites (50.2%) at p =< .001. Blacks thus were more likely to report a true positive diagnosis of high blood pressure than Whites while Whites were more likely to report a true negative diagnosis of high blood pressure than Blacks.

Table 4 shows validation statistics (e.g., sensitivity and specificity) for each diagnostic criterion separately and then when all three criteria were applied together. Only the latter will be described here. The sensitivity of self-reported high blood pressure was 72% and specificity 80%. Based on the non-overlap of confidence intervals, sensitivity rates were higher for Blacks (80%) when compared to Whites (62%).

To better understand these results, we used a logistic regression analysis to determine whether any of the lifestyle and/or demographic variables predicted a true negative or true positive rate. We hypothesized that White participants might have been motivated to modify their lifestyle habits and change their risk for high blood pressure resulting in lower rates of high blood pressure and, hence, lower sensitivity. Age (OR = 1.03, p = .015,CI = 1.01, 1.05), and race (OR = 2.97, p = <.001,CI = 1.76, 5.02) were found to be significant predictors of true positive rates. Race (OR = 0.30, p = <.001,CI = 0.18, 0.51), Age (OR = 0.94, p = <.001,CI = 0.92, 0.96) and vegetarian status (OR = 1.68, p = .049,CI = 1.00, 2.80) were found be significant predictors of true negative rates. Thus, it it is unlikely that lifestyle among Whites explains why their true positive rate is lower than that of Blacks and why their true negative rate is higher.

Table 3: True and False Positive and Negative Rates for Diagnosis of High Blood Pressure by Race

	True Positives		False Positives		True Negatives		False Negatives	
Diagnostic Criteria	n	% (95% CI)	n	% (95% CI)	n	% (95% CI)	n	% (95% CI)
All Participants								
Systolic[a]	73	16.0 (12.8-19.5)	130	28.4 (24.5-32.7)	223	48.8 (44.2-53.4)	31	6.8 (4.7-9.4)
Diastolic[b]	21	4.6 (3.0-6.8)	182	39.8 (35.4-44.4)	246	53.8 (49.2-58.4)	8	1.8 (0.8-3.3)
Medication[c]	125	27.4 (23.5-31.6)	78	17.1 (13.8-20.7)	221	48.4 (43.8-52.9)	33	7.2 (5.1-9.9)
All Criteria[d]	156	34.1 (29.9-38.6)	47	10.3 (7.8-13.3)	192	42.0 (37.6-46.6)	62	13.6 (10.7-16.9)
Blacks								
Systolic[a]	45	24.7 (18.9-31.4)*	62	34.1 (27.5-41.2)	64	35.2 (28.5-42.3)*	11	6.0 (3.3-10.2)
Diastolic[b]	17	9.3 (5.8-14.2)*	90	49.5 (42.2-56.7)	69	37.9 (31.1-45.1)*	6	3.3 (1.4-6.7)
Medication[c]	73	39.9 (33.0-47.1)*	34	18.6 (13.5-24.7)	64	35.0 (28.3-42.1)*	12	6.6 (3.6-10.8)
All Criteria[d]	90	49.7 (42.5-57.0)*	16	8.8 (5.4-13.6)	53	29.3 (23.0-36.2)*	22	12.2 (8.0-17.5)
Whites								
Systolic[a]	29	10.5 (7.3-14.6)*	68	24.7 (19.9-30.1)	158	57.5 (51.6-63.2)*	20	7.3 (4.6-10.8)
Diastolic[b]	4	1.5 (0.5-3.4)*	93	33.8 (28.4-39.6)	176	64.0 (58.2-69.5)*	2	0.7 (0.2-2.3)
Medication[c]	52	19.0 (14.7-23.9)*	44	16.1 (12.1-20.8)	157	57.3 (51.4-63.1)*	21	7.7 (5.0-11.3)
All Criteria[d]	66	24.0 (19.2-29.3)*	31	11.3 (7.9-15.4)	138	50.2 (44.3-56.1)*	40	14.5 (10.8-19.1)

[a] ≥ 140 mmHg.
[b] ≥ 90 mmHg.
[c] Use of antihypertensive medication.
[d] Using medication *or* systolic ≥ 140 mmHg *or* diastolic ≥ 90 mmHg.
*Significant differences between Black and White participants at p-value < 0.05.

Table 4: Validation of Self-Reported High Blood Pressure by Race

	Kappa[e]	p-value	Sensitivity	Specificity	Predictive Value	
					Negative	Positive
Diagnostic Criteria			% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
All Participants						
Systolic[a]	0.27	<.001	70.2 (60.4-78.8)	63.2 (57.9-68.2)	87.8 (84.1-90.7)	36.0 (31.8-40.3)
Diastolic[b]	0.07	.002	72.4 (52.8-87.3)	57.5 (52.6-62.2)	96.9 (94.4-98.2)	10.3 (8.24-13.0)
Medication[c]	0.59	<.001	79.1(71.9-85.2)	74.0 (68.6-78.8)	87.0 (83.1-90.1)	61.6 (56.6-66.3)
All Criteria[d]	0.68	<.001	71.6 (65.1-77.5)	80.3 (74.7-85.2)	75.6 (71.3-79.4)	76.9 (71.7-81.3)
Blacks						
Systolic[a]	0.34	<.001	80.4 (67.6-89.8)	50.8 (42.0-60.0)	85.3 (77.0-91.0)	42.1 (36.8-47.5)
Diastolic[b]	0.08	.103	73.9 (51.6-89.8)	43.4 (35.6-51.5)	92.0 (85.0-96.0)	16.0 (12.5-20.0)
Medication[c]	0.74	<.001	85.8 (76.6-92.5)	65.3 (55.0-74.6)	84.2 (75.6-90.2)	68.2 (61.8-74.1)
All Criteria[d]	0.88	<.001	80.4 (71.8-87.3)	76.8 (65.1-86.1)	70.7 (61.8-78.2)	85.0 (78.4-89.7)
Whites						
Systolic[a]	0.19	<.001	59.2 (44.2-73.0)	70.0 (63.5-75.8)	88.8 (84.8-91.8)	29.9 (23.9-36.7)
Diastolic[b]	0.03	.104	66.7 (22.3-95.7)	65.4 (59.4-71.0)	98.9 (96.6-99.6)	4.12 (2.33-7.20)
Medication[c]	0.44	<.001	71.2 (59.5-81.2)	78.1 (71.8-83.6)	83.8 (83.8-91.5)	54.2 (46.7-61.5)
All Criteria[d]	0.50	<.001	62.3 (53.3-71.5)	81.7 (75.0-87.2)	77.5 (72.8-81.7)	68.0 (60.0-75.2)

Note. Self-reported high blood pressure (total n = 457, self-reported high blood pressure n = 236) was defined as "Yes" if participants answered "Yes" to "ever diagnosed with high blood pressure by a physician?". All diagnostic criteria include use of antihypertensive (diuretics, beta-blockers, ACE inhibitors, Angiotensin II receptor blockers, calcium channel blockers, and renin inhibitors) and/or the high blood pressure indicators.
[a] ≥ 140 mmHg.
[b] ≥ 90 mmHg.
[c] Use of antihypertensive.
[d] Using medication *and/or* systolic ≥ 140 mmHg *and/or* diastolic ≥ 90 mmHg.
[e] The relative strength of agreement associated with kappa statistics included the following kappa range descriptions: *0.01-0.20 = none to slight, 0.21-0.40=fair, 0.41-0.60=moderate, 0.61-0.80=substantial, 0.81-1.00= almost Perfect* [(21)]

Furthermore, when a single diagnostic criterion was used, the negative predictive value was better than the all criteria criterion. On the contrary, the all criteria criterion for the positive predictive value was better than when a single diagnostic criterion was used. In addition, the use of all three diagnostic indicators (antihypertensive medication use or high systolic or high diastolic blood pressure) yielded the highest specificity rates for the overall population (80.3%) and Whites (81.7%). Agreement between self-report and clinical measures was substantial (kappa 0.68) for all participants.

DISCUSSION

Findings from our study add to the evidence that self-report is a reasonably valid method of assessing hypertension in Blacks and Whites. Specificity rates were better than sensitivity rates for all participants. Sensitivity was, however, higher for Blacks than Whites. Substantial agreement was shown for self-reported diagnosis of blood pressure with the joint criteria of reported hypertensive medication use and measured blood pressure. Other studies with larger representative samples comparing self-reported high blood pressure and measured high blood pressure have shown results with moderate kappa agreement and similar sensitivity and specificity rates but have lacked comparisons between Black and White racial groups. [22,23] However, when comparing Black and White participants, lower sensitivity rates were found for Whites, which is similar to results from Giles, Croft. [12] Our attempt to understand these results using lifestyle modification factors did not provide an explanation for the higher sensitivity rates for Blacks.

Furthermore, the percentage of undiagnosed high blood pressure in our sample (13.6%) was higher than the U.S. adult population (7.8%). [24] In addition, Whites had higher undiagnosed high blood pressure than Blacks though not significantly. Our results differ from other studies of the U.S. population, where Whites (7.5%), rather than Blacks (8.7%) had lower rates of undiagnosed blood pressure. [24]

The racial difference in prevalence of hypertension of our sample was similar to the U.S. population-that is, there was higher prevalence of hypertension in Blacks than Whites. [25] In addition, the overall prevalence of hypertension for our sample (52.0%) was lower than the U.S. adult population among adults 40 years and older (65%) between 2001-2012. [25] These results are similar to other studies comparing the health of Seventh-day Adventist (SDA) adults to the general U.S. population. For example, SDAs have lower blood pressure than non-SDAs perhaps due to lifestyle choices influenced by their religious beliefs (e.g., vegetarian diet, exercise). [14,26]

The strengths of our study included the validation of self-reports through a small community sample and a comparison between Black and White adults. The generalizability of our study findings may be limited due to the sample including only Seventh-day Adventist adults with their healthier lifestyle practices. Furthermore, knowledge of high blood pressure diagnosis may have prompted participants to make additional lifestyle adjustments to better control disease or decrease blood pressure measurements.

CONCLUSION

Heart disease remains one of the leading causes of deaths in the United States. [9] In general, the results were acceptable for both Blacks and Whites, with some notable differences between the groups. Self-report is an appropriate tool and addresses concerns about the health of the Black population. This is important, as the Centers for Disease Control and Prevention and similar organizations continue to use self-report methods to monitor health disparities. While the literature suggests there is error in using self-report methods, [7] findings from this study indicate self-report is an acceptable

method for assessing high blood pressure in a community-based sample.

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Contributors

D. Teteh originated the research question and was responsible for the analysis of the data and writing up the study findings. J. Lee is the principal investigator of the Biopsychosocial Religion and Health Study and contributed to the interpretation of findings and critically reviewed drafts of the article. S. Montgomery and C. Wilson advised, edited and critically reviewed drafts of this article.

Human Participation Protection

The institutional review board of the Loma Linda University approved this study.

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