

Original Research Article

## **Ethnic Identity and Physical Activity among African, African American, and Black Female College Students**

Aunamesha Henley<sup>1</sup>, Diadrey- Anne Sealy<sup>2</sup>, Joyce Hopp<sup>3</sup>, Gina S. Brown<sup>4</sup>

<sup>1</sup> DrPH, MPH, Loma Linda University School of Public Health, Loma Linda, California.

<sup>2</sup> PhD, MSc, Assistant Professor of Health Promotion and Education, Loma Linda University, School of Public Health, Loma Linda, California.

<sup>3</sup> PhD, MPH, RN, Distinguished Emeritus Professor of Health Promotion and Education, Loma Linda University, School of Public Health, Loma Linda, California.

<sup>4</sup> PhD, MSA, RN, Dean, College of Nursing and Allied Health Sciences, Howard University, Washington, DC.

Corresponding Author: Aunamesha Henley, DrPH

Received: 15/12/2015

Revised: 12/01/2016

Accepted: 17/01/2016

### **ABSTRACT**

Physical inactivity is a global public health issue. This study aimed to determine whether ethnic identity was associated with physical activity levels among Black female college students age 18 years and older attending two Historically Black Colleges and Universities in the Washington, DC, metropolitan area. Of the 302 students surveyed, 54.88% identified as African American, 24.58% identified as Black, 12.12% identified as African, and 8.42% identified as other. Eighty percent of the students were between the ages of 18 and 23 years. Ethnic identity was measured by using the Multigroup Ethnic Identity Measure, whereas physical activity level was measured using the International Physical Activity Questionnaire–Short Form. The study found that ethnic identity was positively associated with self-reported physical activity levels (Spearman: 0.1489; 0.0103). All subjects had high ethnic identity scores as African, African American, and Black female college students and were physically active; however, the physical activity levels was categorized as low. Among these three ethnic identities, there was no significant difference between metabolic-equivalent physical activity levels (Kruskal-Wallis: 4.86, 2; 0.0879). In conclusion, these findings imply that cultural identity matters among African, African American, and Black females and may influence physical activity participation, but not necessarily change the level of physical activity.

**Keywords:** Ethnic identity, Cultural identity, Physical activity, and College student.

### **INTRODUCTION**

Physical activity is one main lifestyle behaviors that can improve one's overall health. The Office of Disease Prevention and Health Promotion stated, "Americans should be regularly physically active to improve overall health and fitness and decrease health risk." [1,4,5]

According to the Centers for Disease Control and Prevention, adults need 150 minutes of moderate physical activity per week and at least 2 days per

week of muscle strength training. Some researchers have also discovered that participating in physical activity may influence academic achievement. [2] Only 52% of all adults in the United States met the 2008 Physical Activity Guidelines for Americans. [3] The Centers for Disease Control and Prevention reported that more Whites (22.8%) met the physical activity guidelines as compared to 17.3% of Blacks. [3]

The Centers for Disease Control and Prevention also found that younger individuals and those with a higher educational background tended to meet the physical activity guidelines compared to those with lower educational backgrounds. [3-5] Researchers have also found that younger adults tend to meet the weekly guidelines if they were physically active in their childhood. Driskell, Goebel, and Kim found that fitness and physical activity levels are more likely to decrease during the transition to college, and fitness and physical activity levels are less likely to improve, as college students grow older. [6,7]

An estimated 81% to 85% of adults continue the same physical activity patterns that they demonstrated during their final year of college. [6,7]

Other than age and educational background, race (ethnicity) has been shown to be another demographic factor influencing physical activity. According to the Centers for Disease Control and Prevention, only 41% of African Americans reported being moderately active, i.e., physical activity for 150 minutes. [8] This reported rate is approximately 10% lower than the reported rate for White Americans. [8] Among Black females, only 36% reported meeting the recommended 150 minutes per week, which is the lowest rate among any gender and race. [8] In addition to the low physical activity levels reported by Blacks, Black females have the highest prevalence of obesity. Blacks show a higher prevalence of chronic disease that may be associated with physical inactivity.

Ethnic identity and culture play important roles in an individual's daily health decisions. [9] A meta-analysis conducted by Smith and Silva in 2011 found a positive association between one's well-being and ethnic identity. Previous studies revealed that physical activity levels are different among several ethnic groups such as Whites, African Americans, Hispanics, and Asians; it is

unclear whether there is an association between physical activity levels and Black identity.

The aims of this study were to determine whether ethnic identity impacts physical activity levels among Black, African American, and African female students. The study also examined whether high affirmation and belonging to three ethnic groups (Black, African American, or African) were associated with a higher physical activity level. In particular, this study aimed to examine the association between ethnic identity and physical activity levels among African, African American, and Black female college students attending two Historically Black Colleges and Universities.

## **MATERIALS AND METHODS**

The participants in this study were female students enrolled at two Historically Black Colleges and Universities located in the Washington, DC, metropolitan area. Sampled were a total of 306 students' ages 18 years and older. Data were collected during the lunch and dinners hours at student union centers located on both campuses. Participants were informed that participation was voluntary and that responses would be confidential. Participants received refreshments for completing the questionnaire. The institutional review board of Loma Linda University approved the study.

Participants were asked to provide their demographic characteristics such as ethnic identity, age, years in college, marital status, number of children, type of housing, parental educational background, financial aid status, and status as a college athlete. The International Physical Activity Questionnaire-Short Form (IPAQ-SF) was used to assess the physical activity levels among Black female college students. This self-reported questionnaire consisted of a 7-item scale with items assessing respondents' physical activity level in the previous seven days. Participants

responded to each question by placing a time value or checking "don't know/not sure" as a response. All of the responses were continuous numbers using hours and minutes. The IPAQ-SF reported reliability and validity as  $r = .8$  and  $r = .3$ .<sup>[10]</sup>

Jean S. Phinney developed the Multigroup Ethnic Identity Measure (MEIM) in 1992.<sup>[4,11]</sup> The MEIM was used to assess the ethnic identity search, affirmation, and belonging to self-reported cultural/ethnic identity. Cultural identity was operationalized by the use of the MEIM scale. The affirmation and belonging subscale in the MEIM examines the good feelings, attachment, and level of pride associated with one's ethnicity. The ethnic identity exploration (search) subscale assesses one's behavior with being involved with their ethnic group.<sup>[11]</sup> Participants completed the 12-item questionnaire by responding on a 4-point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). The questionnaire attempted to identify ethnic identity search, affirmation, belonging, and commitment. Five questions assessed ethnic identity search, and seven questions assessed the affirmation, belonging, or commitment items. The preferred scoring method is to use the mean of the item scores, i.e., the mean of the 12 items for an overall score, and, if desired, the mean of the 5 items for search and the 7 items for affirmation.<sup>[11]</sup> A significantly high mean defines the person as having high cultural identification. The scale was scored based on the total number, which is the mean. The higher the score means, the higher the cultural identification.<sup>[11-21]</sup>

### **Statistical Methods**

For data analysis, SPSS version 22.0 was used. Descriptive analyses were used to determine the frequency and mean of all demographic variables. The sample size of 306 was decreased because nine participants were excluded from the study for not identifying themselves as African, African American, or Black. One participant was excluded because of an

extremely high physical activity metabolic-equivalent (MET) score, decreasing the sample size to 296. For the mean score of MEIM, those in the race category of "other" were excluded, including the outlier, for a total of 25 participants. The "other" category was created for those who did not identify themselves as Black, African, or African American. The total number for this statistical analysis was 271. The physical activity level was calculated using the IPAQ-SF, which assessed moderate to vigorous intensity physical activity, time spent sitting, time spent walking, and total physical activity during the previous 7 days. Physical activity time in hours was converted to minutes to calculate MET minutes. According to the IPAQ scoring protocols, the following equation was used to find the physical activity levels of each participant. Total MET minutes for 7 days was computed by summing walking, moderate, and vigorous MET minutes/week scores. Participants' sitting time was converted to minutes.<sup>[11-13]</sup> To calculate walking MET minutes/week, the following equation was used:  $3.3 \times \text{walking} \times \text{walking days}$ . To calculate moderate physical activity level, the following equation was used:  $4.0 \times \text{moderate-intensity minutes} \times \text{moderate days}$ . To obtain the number of participants who participated in vigorous physical activity, the following equation was used:  $8.0 \times \text{vigorous-intensity activity minutes} \times \text{vigorous-intensity days}$ . Last, to compute total physical activity MET, the following equation was used: the sum of walking + moderate + vigorous MET minutes/week scores.<sup>[10-13]</sup>

The MEIM scale is scored based on the mean. The highest score possible is a 48, and the lowest score possible is 12.<sup>[4,11]</sup> Five out of 12 items on the MEIM questionnaire assessed ethnic identity exploration (search). The ethnic identity search factor explores the meaning and implication of one's ethnic group. Seven out of 12 items on the MEIM

questionnaire assess ethnic commitment. [1,11]

Pearson correlation coefficients were calculated to examine the relation between low activity, moderate activity, vigorous activity, total MET, and ethnic identity measure. To determine whether ethnic identity was associated with physical activity levels the means of both questionnaires were compared using Spearman's correlation. To establish whether the affirmation and belonging variables of the MEIM were associated with self-reported physical activity levels among Black female college students, Kruskal-Wallis testing was performed. The Spearman test was used to determine whether exploration was associated with physical activity levels among the sample population. To assess whether African, African American, or Black female

students had a higher level of physical activity, Kruskal-Wallis test and analysis of variance (ANOVA) were used.

## RESULTS

The demographic characteristics of the sample revealed that 55% of female college student identified themselves as African American, 25% as Black, 12% as African, and 8% as other. Approximately 80% of the participants were between the ages of 18 and 23 years, whereas 8% were 24 to 30 years old and 13% were 30 years and older. The data indicated that 31% of the students were currently college freshmen. The majority of the participants were single (86%). Sixty-nine percent of the students received some type of federal student aid, and 69% currently lived on campus (see Table1).

**Table #1. Descriptive Statistics**

Variables	Categories	Frequency	Percent	Variables	Categories	Frequency	Percent
<b>Ethnic Identifiers</b>	African	36	12.12	<b>Number of Children</b>	None	260	87.54
	African Ameri	163	54.88		1 to 3	35	11.78
	Black	73	24.58		4 to 6	1	0.34
	Other	25	8.42		Greater than 6	1	0.34
<b>Age</b>	18-23	238	80.41	<b>Live on Campus</b>	Yes	206	69.59
	24-29	21	7.09		No	91	30.74
	30 and over	37	12.5	<b>Living Situation</b>	Live with Husband	20	6.73
<b>Year in College</b>	1 st year	92	31.19		Live with Parents or Family Members	23	7.74
	2nd year	65	22.03		Live Alone	49	16.5
	3rd year	56	18.98		Live with Other Adults	16	5.39
	4th year	69	23.39		Live with College Roommate	189	63.64
	5th year	13	4.41	<b>Financial Aid</b>	Yes	215	72.39
<b>Marital Status</b>	Married	25	8.42		No	82	27.61
	Divorced	4	1.35	<b>First Generation College</b>	Yes	85	28.62
	Separated	2	0.67		No	212	71.38
	Widowed	3	1.01	<b>Student Athlete</b>	Yes	14	4.73
	Single	263	88.55		No	282	95.27

Sixty-four percent of the female students did not participate in any vigorous physical activity. Only 46.6% reported participating in some type of moderate physical activity weekly. When the physical activity scores were broken down into categories, 57.4% of participants were categorized as participating in low physical activity, 12.2% as participating in moderate physical activity, and 30.4% as participating in vigorous physical activity weekly (see Table 2). In addition, 75% of the participants in the study reported that

they had walked for at least 10 minutes in the past 7 days (see Table 3).

Responses to the MEIM questionnaire and IPAQ-SF were compared. The mean, median, and standard deviation for the variables of interest are shown in Table 5. The mean cultural identity score had a significant positive association with median self-reported physical activity total score (Spearman: 0.1489; 0.0103) (Table 5). Results showed no significant difference between the MET levels of physical

activity and the mean cultural identity score (Kruskal-Wallis: 4.2557, 2: 0.1191). There was a significant positive association between mean scores of affirmation and belonging and median self-reported physical activity MET scores (Spearman: 0.1146; 0.0489) (Table 5). There was no significant difference, however, between the MET levels of self-reported physical activity and scores of affirmation and belonging (Kruskal-Wallis: 2.6698, 2: 0.2632). The mean scores of exploration were positively associated with median self-reported physical activity MET scores (Spearman: 0.1412; 0.0151) (Table 5). There was no significant difference between the MET levels of self-reported physical activity and mean scores of ethnic identity search (exploration) (Kruskal-Wallis: 4.16513, 2: 0.0977). At least one group (Blacks) had a different mean MEIM (Frequency: 4.91, 259;  $p = 0.0081$ ). Using post hoc Bonferroni and Scheffé demonstrated that Blacks have a significantly higher MEIM score than do Africans and African Americans. The  $R^2$  was very low (0.035) indicating that only 3.5% of the variation

in MEIM score is accounted for by ethnic identity, with a mean difference of 0.2633. The Tukey analysis also confirmed that Blacks have a higher MEIM score than do Africans, by a mean difference of 0.22067. Overall, there was a significant difference in ethnic identity within MEIM scores among the three ethnic groups (Kruskal-Wallis: 10.3714, 2; 0.0056) (Table 4). There was no significant difference in MET levels physical activity levels among the ethnic groups (Kruskal-Wallis: 4.86, 2; 0.0879).

Table 2: Descriptive Statistics of Physical Activity Levels

Physical Activity	Frequency	Percent
Low	170	57.43
Moderate	36	12.16
Vigorous	90	30.4

Table 3: Descriptive Statistics of Participants' Time Spent Walking in the Past 7 Days

Walking Minutes	Frequency	Percentage
0-30	96	32.4
31-60	46	15.5
61-90	7	2.3
91-120	26	8.8
121-150	0	0
151-180	17	5.7
181-	29	9.8
Total N	221	74.5
Missing Total	75	25.5
	296	100%

Table 4: Ethnic identifiers and total mean of the Multi-group Ethnic Identity Measurement Scale

	MEIM score Mean (SD)	Estimate	SE	t-value	P-Value
Intercept		3.317	0.0532	62.3	<0.0001
Black	3.5377 (0.4211)	0.2207	0.0927	2.38	<b>0.0179</b>
African	3.2754 (0.4486)	-0.0417	0.0641	-0.65	0.5162
African American	3.3170 (0.4839)				

ANOVA: Overall Model P-value = 0.0081  
African American as reference group  
Bold indicates significance

Table 5: Spearman Correlation Matrix of MEIM Scale and Subscale and Self-Reported Physical Activity Level

Measure	Self-Reported Physical Activity Levels	Cultural Identity Score	Affirmation of Belonging	Exploration
Self-Reported Physical Activity Levels	1	0.1489 (0.0151)	0.1146 (0.0489)	0.1412 (0.0151)
Cultural Identity Score		1	0.8848 (<0.0001)	0.9252 (<0.0001)
Affirmation of Belonging			1	0.6506 (<0.0001)
Exploration				1

\* $p < 0.05$ . \*\* $p < 0.0001$ .

## DISCUSSION

This study revealed that the majority of Africans, African Americans, and Blacks female college students had a low prevalence of participating in physical activity. This is supported by previous studies that have reported low physical

activity levels among Black females. Furthermore, studies have shown that physical activity tends to decline among females starting during their adolescent years. [12-15] In addition, those who did participate in physical activity reported activity levels that are categorized as low



physical activity. Participants who did not meet the standard guidelines of being physically active for 150 minutes per week may put themselves at risk for obesity and other chronic diseases later in life. As a result of the low levels of physical activity reported by participants, this risk may remain unchanged if health educators do not target this population in a culturally sensitive manner.

The present study demonstrated that cultural identity was positively associated with physical activity among African, African American, and Black female college students attending two Historically Black Colleges and Universities. There was no significant difference between the three ethnic identities associated with low, moderate, or high levels of physical activity. The participants who identified themselves as Black had a slightly higher MEIM score, but did not tend to participate in physical activity any more than did the Blacks or African Americans. This finding is consistent with studies by previous researchers who have found that race and cultural identity are associated with obese and sedentary lifestyles. [16] On the basis of the results of this study; participants had a positive ethnic identity. The scores might be fairly high given that the participants attended a Historically Black College and University; these students usually have a stronger sense of cultural identity than Black female students who attend predominately White colleges and universities. [17-20]

This study demonstrated that financial aid status, living on campus, and or being a first-generation college student did not significantly impact Black female college students' physical activity levels. The results from this study disagreed with previous studies; a 2011 survey of 150 Black female students found that those who lived on campus were more likely to participate in physical activity. [18] In the present study, there was no significant correlation between participation in

physical activity and living on campus. This may be because most colleges and universities do not require students to participate in physical education. [22-29]

The strength of this study is that it is one of the few conducted among African, African American, and Black female college students attending two Historically Black Colleges and Universities. Limitations of this study are that it was conducted only among females and had a small sample size. Another limitation is that all data collected were self-reported; participants may have responded falsely to create socially desirable responses.

## CONCLUSION

One of the results of this study concurs with previous literature showing that African, African American, and Black females do not regularly participate in physical activity. Physical activity levels among African, African American, and Black female college students continue to decline. The findings of this study indicate that there was no clear difference between these ethnic groups and physical activity levels. The prevalence of low physical activity level was demonstrated across the ethnic groups of Black, African American, and African. With these low levels, public health educators need to gain a better understanding of why this lifestyle practice continues to be a challenge among this population. This study aimed to examine whether cultural (ethnic) identity was associated with physical activity among African, African American, and Black female college students. Results suggest that a higher ethnic identity means that an individual is more likely to be physically active. Even though the students were physically active, they did not meet the recommended guidelines. Healthy Campus 2020 reported that 48% of the students currently met the federal guidelines for aerobic physical activity. [30] The Healthy Campus 2020 physical activity objective is

to increase the percentage of student's aerobic physical activity to 53.5%.

Future researchers may want to consider adding more questions regarding the type of physical activity and leisure time activities. To have an accurate report on physical activity levels, future researchers should consider incorporating pedometer use and using the American Time Use Survey instead of the IPAQ-SF. By doing so, researchers could gain a better insight into how students spend their time and learn what they are doing besides being physically active. Future researchers may consider observing fitness facilities to demonstrate frequency of use and what physical activities are taking place. By analyzing the usage of fitness facilities on college campuses, institutions could improve their health messages and target more students. The improvement of facilities might promote more physical activity participation among college students.

The findings from this study indicate that the rate of physical activity participation among African, African American, and Black young women could possibly increase if health educators increase their cultural affirmation, belonging, and commitment to their ethnic group. Participants in this survey had high affirmation, belonging, and commitment and the majority participated in some form of physical activity even if it was low according to the US physical activity guidelines. Researchers have demonstrated that having a physically active lifestyle can help reduce mortality and morbidity risk.<sup>[1]</sup> This study recommends that culturally centered physical activity interventions are needed that can incorporate self-pride and motivation in college students' participation in physical activity on a regular basis. Developing physical activity and fitness interventions for this vulnerable population may help them initiate a long-term lifestyle change.

## ACKNOWLEDGMENTS

The author gives a special thank you to all the young women who participated in this study and the universities that allowed the use of their facilities for data collection.

## REFERENCES

1. Office of Disease Prevention and Health Promotion. Physical activity has many health benefits. Available from: <http://www.health.gov/paguidelines/guidelines/chapter2.aspx>
2. Centers for Disease Control and Prevention. How much physical activity do adults need? Available from: <http://www.cdc.gov/physicalactivity/everyone/guidelines/adults.html>
3. Centers for Disease Control and Prevention. Facts about physical activity. Available from: <http://www.cdc.gov/physicalactivity/data/facts.html>
4. Fox C, Barr-Anderson D, Neumark-Sztainer D, Wall M. Physical activity and sports team participation: Associations with academic outcomes in middle school and high school students. *J School Health*. 2010 Jan [cited 2015 March 22]; 80(1):31–37. Available from: Academic Search Premier.
5. Skibo J. Academic achievement differences between aerobically active versus inactive advanced degree students. *AMAA J*. 2008 [cited 2015 March 22]; 21(2):5–13. Available from: Academic Search Premier.
6. Todd M, Czyszczon G, Carr J, Pratt C. Comparison of health and academic indices between campus recreation facility users and nonusers. *Recreational Sports J*. 2009 [cited 2015 March 22]; 33(1):43–53. Available from: Global Health.
7. Driskell J, Goebel K, Kim Y. Few differences found in the typical eating and physical activity habits of lower-level and upper-level university students. *J Am Diet Assoc*. 2005 May [cited 2015 March 22]; 105(5):798–801. Available from: Agricola.
8. Schoenborn CA, Adams PF. Health behaviors of adults: United States,

- 2005–2007. National Center for Health Statistics. *Vital Health Stat.* 2010; 10(245).
9. Mc Laughlin L, Braun K. Asian and Pacific Islander cultural values: considerations for health care decision-making. *Health Social Work* 1998; 23(2):116–126.
  10. Butler S, Black D, Blue C, Gretebeck R. Change in diet, physical activity, and body weight in female college freshman. *Am J Health Behav.* 2004 Jan [cited 2015 March 22]; 28(1):24–32. Available from: Academic Search Premier.
  11. Phinney, J. S. The Multi-Group Ethnic Identity Measure: A new scale for use with diverse groups. *J Adolesc Res* 1992; 7:156–176
  12. Racette S, Deusinger S, Strube M, Highstein G, Deusinger R. Weight changes, exercise, and dietary patterns during freshman and sophomore years of college. *J Am Coll Health.* 2005 May; 53(6):245–251. Available from: Academic Search Premier.
  13. Chepyator-Thomson J, Russell J, O'Neal Culp B. African American college women's reflections on physical activity involvement during public school years. *J Afr Am Stud.* 2007 Fall [cited 2015 March 22];11(2):101–116. Available from: Academic Search Premier.
  14. Siceloff ER, Wilson DK, Van Horn L. A longitudinal study of the effects of instrumental and emotional social support on physical activity in underserved adolescents in the ACT trial. *Annals Behav Med.* 2014 Aug; 48(1):71–79.
  15. Deng X, Castelli D, Castro-Pinero J, Guan H. University Students meeting the recommended standards of physical activity and body mass index. *ICHPER-SD J Res.* 2011 Mar [cited 2015; March 26];6(1):20–26. Available from: ERIC.
  16. Gross SM, Gary TL, Browne DC, LaVeist TA. Gender differences in body image and health perceptions among graduating seniors from a historically black college. *J Nat Med Assoc.* 2005;97(12):1608–1619.
  17. Grieser M, Neumark-Sztainer D, Saksvig B, Lee J, Felton G, Kubik M. Black, Hispanic, and White girls' perceptions of environmental and social support and enjoyment of physical activity. *J School Health.* 2008 June; 78(6):314–320.
  18. Ajibade P. Physical activity patterns by campus housing status among African American female college students. *J Black Studies.* 2011 Jan [cited 2015 March 22]; 42(4):548–560. Available from: Social Work Abstracts.
  19. Sussner KM, Edwards TA, Thompson HS, Jandorf L, Kwate NO, Forman A, et al. Ethnic, racial and cultural identity and perceived benefits and barriers related to genetic testing for breast cancer among at-risk women of African descent in New York City. *Pub Health Genomics.* 2011; 14(6):356–370.
  20. Eaton S, Livingston J, McAdoo H. Cultivating consciousness among Black women: Black nationalism and self-esteem revisited. *J Black Stud.* 2010 May [cited 2015 April 22]; 40(5):812–822. Available from: Academic Search Premier.
  21. Dulin-Keita A, Hannon L, Fernandez JR, Cockerham WC. The defining moment: children's conceptualization of race and experiences with racial discrimination. *Ethnic and racial studies.* 2011;34(4):662–82.
  22. Zanovec M, Johnson L, Marx B, Keenan M, Tuuri G. Self-reported physical activity improves prediction of body fatness in young adults. *Med Sci Sports Exerc.* 2009 [cited 2015 March 22]; 41(2):328–335. Available from: Global Health.
  23. Leach H, Mama S, Soltero E, Lee R. The influence of sitting time and physical activity on health outcomes in public housing residents. *Ethnicity Dis.* 2014 [cited 2015; March 22]; 24(3):370–375. Available from: Global Health.
  24. Seo D, Torabi M. Differences in vigorous and moderate physical activity by gender, race/ethnicity, age, education, and income among U.S. adults. *Am J Health Educ.* 2007 May



- [cited 2015 March 26]; 38(3):122–128. Available from: ERIC.
25. Nehl E, Blanchard C, Kupperman J, Sparling P, Rhodes R, Courneya K, et al. Exploring Physical activity by ethnicity and gender in college students using social cognitive theory. *ICHPER-SD J Res.* 2012 Sep [cited 2015 March 26]; 7(2):11–17. Available from: ERIC.
  26. Berg C, Goodwin S, Stratton E, Lowe K, Grimsley L, Foster B, et al. Physical activity and fruit and vegetable intake among Black and White female college students at two- and four-year colleges and universities. *Open J Prev Med.* 2014 [cited 2015 March 26]; 4(4):229–239. Available from: Global Health.
  27. Blanchard C, Fisher J, Sparling P, Nehl E, Rhodes R, Baker F, et al. Understanding physical activity behavior in African American and Caucasian college students: An application of the theory of planned behavior. *J Amer Coll Health.* 2008 Jan 1 [cited 2015 March 26]; 56(4):341–346. Available from: ERIC.
  28. McArthur L, Raedeke T. Race and sex differences in college student physical activity correlates. *Am J Health Behav.* 2009 [cited 2015 March 26]; 33(1):80–90. Available from: Global Health.
  29. Joseph R, Pekmezi D, Lewis T, Dutton G, Turner L, Durant N. Physical activity and social cognitive theory outcomes of an Internet-enhanced physical activity intervention for African American female college students. *J Health Dispar Res Pract.* 2013 Summer [cited 2015 March 22]; 6(2):1–18. Available from: Academic Search Premier.
  30. American College Health Association. Student objectives: Physical activity and fitness. [cited 2015 April 14]. Available from: <http://www.acha.org/HealthyCampus/student-obj.cfm#phys>

How to cite this article: Henley A, Diadrey-Anne S, Hopp J et. al. Ethnic identity and physical activity among African, African American, and Black female college students. *Int J Health Sci Res.* 2016; 6(2):286-294.

\*\*\*\*\*