

NEEDS ASSESSMENTS

Using the Exercise is Medicine® on Campus platform to assess college students' practice of physical activity in a rural setting

Bridget Melton, EdD, CSCS¹, Jazmin A. Williamson, MPH, BSHS², Helen Bland, PhD², and Jian Zhang, MD, DrPH³

¹College of Health and Human Sciences, School of Health and Kinesiology, Georgia Southern University, Statesboro, GA; ²Jiann-Ping Hsu College of Public Health, Department of Community Health Behavior and Education, Georgia Southern University, Statesboro, GA; ³Jiann-Ping Hsu College of Public Health, Epidemiology Department, Georgia Southern University, Statesboro, GA

Corresponding Author: Bridget Melton, EdD • PO Box 8076 Statesboro, GA 30460 • 912-478-1973 (phone) • bmelton@georgiasouthern.edu

ABSTRACT

Background: The college setting offers public health educators and exercise scientists a favorable environment to implement wide-spread change in levels of physical activities. With over two-thirds of all adults in the U.S. now categorized as obese or overweight (CDC, 2015), it has become necessary to increase physical activity levels on college campuses. Exercise is Medicine® on Campus (EIM®-OC) is a national initiative to increase physical activity on college campuses by creating an environment to change the subjective norm of diminished exercise movement and fitness among adults. The purpose of the present study was to use the EIM®-OC platform to assess college students' beliefs and practices of physical activity by implementing this program in a rural setting.

Methods: Implementation of EIM®-OC was conducted over a one-week period. More than 1,000 participants joined in the events led by a multi-disciplinary team. Data collected included self-reported daily physical activities, campus commuting, and level of exercise intensity. Descriptive statistics and chi-square reported frequencies and statistical differences.

Results: Overall, the campus turnout for EIM®-OC events was 7.6% higher than national norms. Physical inactivity was statistically different between racial groups ($P=0.04$). Males reported engagement in physical activity primarily for enjoyment and social interactions. Active transport was lower in the rural community than in urban counterparts.

Conclusions: Findings from this study described the successful engagement of a mid-sized rural campus population in an EIM®-OC campaign. The study revealed self-reported physical activity patterns of students comparable to national averages; however there was a disproportionate number of African Americans who did not participate in any vigorous physical activity.

Keywords: Physical activity, college students, obesity, college health

doi: 10-21663/jgpha.5.402

INTRODUCTION

Obesity and physical inactivity remain national concerns, with 69.0% of adults over 20 years of age being classified as overweight and with 35.1% categorized as obese (CDC, 2015). These disturbing numbers also extend to adolescents, with 21% of teens ages 12-19 now classified as obese. A report from the American College Health Association showed that 34.4% of college students surveyed in 2013 were overweight or obese based on self-reported values, up from 31.9% derived from self-reports in 2010 (ACHA, 2015). Along with the increase in obesity rates, college-aged students were insufficiently active, which led to an increased risk of chronic disease. Overall, only 46% of college students reported meeting either the recommendation for moderate exercise level, vigorous exercise level, or a combination of the two (ACHA, 2015).

There is evidence that campus infrastructures are necessary for delivering effective health promotion and services.

Established by the American College of Sports Medicine (ACSM), Exercise is Medicine® on Campus (EIM®-OC) is a global health initiative that encourages universities and colleges to promote physical activity on campus in order to make movement a part of the daily campus culture for both faculty/staff and students. EIM®-OC activities help improve the knowledge and promotion of physical activity on college campuses (ACSM, 2016).

Many colleges and universities have adopted the EIM®-OC initiative. As of spring 2016, 72 colleges and universities in the United States and 11 international universities had EIM®-OC recognition (EIM, 2016). University implementation strategies and success stories have been reported in physical activity research venues (Bopp et al, 2015; Lynn et al., 2015). For launching an EIM®-OC program, Winters & Sallis (2015) outlined general steps, including planning tips, implementation strategies, and suggestions for sustaining efforts. They also recommend that each university use its distinct environment and pointed

out that there is no standard for colleges to adopt (Winters & Sallis, 2015).

The aim of the present study was two-fold: (1) implement the EIM®-OC in a southeastern rural mid-sized public university; and (2) understand the college students' beliefs and practices of physical activity. The purpose was to use the EIM®-OC platform to assess college students' beliefs and practice of physical activity in a rural setting.

METHODS

Participants

Included in this study were current faculty/staff and students enrolled in spring 2015 at a mid-sized rural southeastern university and baseline data were its focus. Participant selection utilized a non-probability, convenient sample requiring that participants be 18 years of age and older. All faculty/staff and students belonging to any of the eight distinct colleges at the university were eligible to participate. Prior to implementation, the university's Institutional Review Board approved this study.

Procedures

The EIM®-OC initiative was launched during the spring 2015 semester. An interdisciplinary team that included personnel from the Health Services, Campus Recreational and Intramurals, and the Colleges of Health and Human Sciences and Public Health was created. These collaborative efforts built upon the established exercise structure, which included a recreation center, campus walkways and trails, health services, and physical activity classes. The interdisciplinary team added physical activity inquiries as a baseline health check for all patients at the university health services, a procedure is recommended by the EIM®-OC. Additionally, the health service department added a referral system for at-risk patients by the doctors and nurses. The present report is on evaluation of the EIM®-OC campus awareness week, which was implemented over the course of a 5-day period.

Each day, there were activities ranging from high-intensity fitness events and fitness assessments to obstacle courses and fitness contests. Exercise stations were rotated daily between four high-traffic outdoor locations throughout the campus. The leadership allotted one main location for EIM®-OC activities per day. Presidents of health-related student organizations and their faculty mentors took the lead on activity design and implementation, which included interactive ideas that incorporate physical activity and health benefit education. Student volunteers interacted with the students and faculty/staff to encourage participation in various physical activity practices for as long as the participants' schedule permitted. Subsequent to completing the activity of choice, participants were given the option of selecting EIM®-OC paraphernalia (e.g., water bottles, T-shirts, pedometers, or campus trail maps) and were asked to complete an optional short survey administered by researchers at the university. Additionally, one evening, a

nationally recognized speaker delivered a campus-wide presentation on active transportation.

Evaluation

The first sampling stage during EIM®-OC week consisted of the 4-item short survey and a daily count of participants. The short survey was derived from a previously validated study piloted at Pennsylvania State University (Bopp et al., 2015a). Information derived from the short survey included college classification, how the participants were notified about EIM®-OC week, and how often the participant exercised for at least 20 minutes a day per week. A 15-item extended version of the survey, validated by the pilot study, was administered two weeks post-EIM®-OC to students enrolled in required physical activity classes. This instrument assessed knowledge of the daily-recommended amount of physical activity, campus commuting, exercise frequency, level of exercise intensity, and perceived exercise motivators.

Statistical Analyses

Participants reported specific college classifications, which were further collapsed into categories of a health science-related college or non-health science-related college. All variables analyzed were categorical. Frequencies and percents were used to report variables and participant profiles, including sex, race and college. Data were analyzed using SAS software (version 9.4). Chi-square tests were used to evaluate the relationship between independent and dependent variables. Significant *p*-values were set at 0.05.

RESULTS

A total of 1,239 students and 15 faculty/staff members participated in this study. From the participants, 677 surveys were collected for analysis (sampling phase 1= 385; sampling phase 2= 292). Data from the short, on-site survey indicated that 63% of EIM®-OC participants heard about the campus initiative by walking to existing stations, 21% by classroom announcements, 5% by other students, and 10% by sources not listed. Most of the participation occurred during the presentation of the featured national speaker (N=421). The second most attended event was the EIM Block Party (N=225), and the third was during "Give me 25 for a Prize" event (N=137) which was held in front of a high-visibility dining hall on campus.

Data derived from phase 1 (short surveys) at the exercise stations indicated a widespread reach across the university undergraduate and graduate colleges (health science-related colleges = 29.3%; non-health science related colleges = 70.7%). Students surveyed during the second sampling phase ranged from 18-28 years old and were primarily male (60.9%). The largest percentage of students classified themselves as White/Caucasian (48.1%), followed by Black/African American (47.8%), Hispanic (1.9%), Asian (1.1%) and mixed (1.1%) (Table 1).

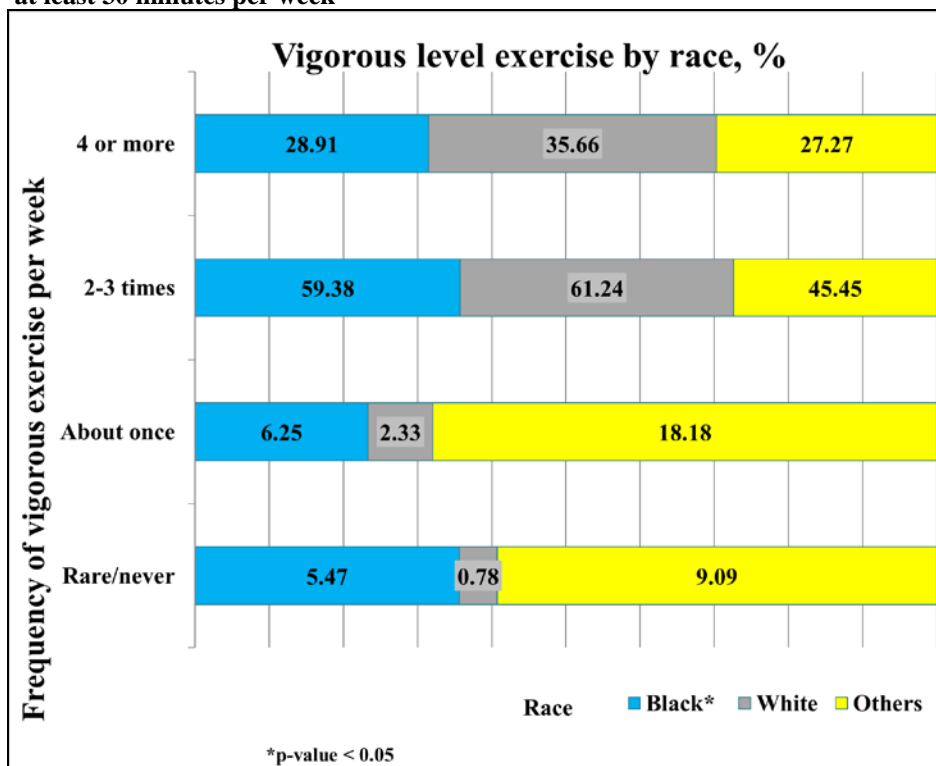
Table 1. Demographic data from an EIM®-OC initiative implemented at a rural, midsized university

| Variable | N | % |
|-------------------------------|-------------|------------|
| Total | 1254 | 100 |
| Student | 1239 | 98.2 |
| Faculty | 15 | 1.8 |
| <hr/> | | |
| Total Surveys | 677 | 100 |
| Analyzed (phase 2) | 292 | 43.1 |
| Race | 268 | 100 |
| White/Caucasian | 129 | 48.1 |
| Black/African American | 128 | 47.8 |
| Other | 11 | 4.1 |
| Gender | 276 | 100 |
| Male | 168 | 60.9 |
| Female | 108 | 39.1 |
| College Classification | 255 | 100 |
| Health science | 73 | 28.6 |
| Non-health science | 182 | 71.4 |

Of the respondents, 44% indicated that they met weekly recommendations for moderate exercise (4 or more days per week) and 59% of participants reported engaging in vigorous exercise for at least 30 minutes per day. Almost 4% of African Americans but <1% of their White/Caucasian counterparts reported rarely/never engaging in moderate

activity for at least 30 minutes a day. The rate of reported rarely/never engaged in vigorous physical activity for at least 30 minutes a day was 5 times greater for African American respondents when compared to White/Caucasian respondents (P=0.04) (Figure 1).

Figure 1. Racial distribution of engagement in vigorous level exercise for at least 30 minutes per week



Among participants, common themes regarding motivation for physical activity were health, weight control, and stress relief (females = 93.5%, males = 65.7%). Of the males, 34% reported social activity and enjoyment as a motivator; only 6% of females reported engaging in physical activity for social activity and enjoyment. In regard to how they commuted to and from campus, there was almost an equal distribution of those walking to campus (34.7%) and those driving to campus (37.6%), with only 2% reporting the use of bicycles to commute.

DISCUSSION

The aim of the study was two-fold. The first was to implement the EIM@-OC campaign in a Southeastern rural, mid-sized public university. The second was to use the EIM@-OC platform to assess college students' beliefs and practice of physical activity in a rural setting.

Of the student body, only 1,239 of 20,459 (about 6% of the population) participated in the EIM@-OC events. Currently, there is little data that highlights the reach of EIM@-OC in the student populations. One Midwestern large-sized, urban school reported participation slightly under 4% (Bopp et al., 2015a). In comparison, the present study extended that reach. Although the percentages are relatively small, they establish a benchmark for other schools to use as comparison in setting realistic expectations for implementation of the EIM@-OC. Bopp (2015) advocates that colleges and universities promote physical activity with national initiatives such as EIM@-OC.

The present study found that fewer than half of the participants met the weekly recommendations for moderate physical activity, a value consistent with national self-reported statistics of moderate physical activity (ACHA-NCHA, 2015). Additionally, 59% of participants reported engaging in vigorous exercise for at least 30 minutes per day, a value similar to the 54.4% of college students surveyed nationally (ACHA, 2015). The national initiatives to promote physical activity in the college setting include EIM@-OC and the Healthy Campus 2020. Healthy Campus 2020, which provides 10-year national objectives for improving the health of all students, staff, and faculty on campuses nationwide, found that, in 2010, 48.7% of students met the federal guidelines for aerobic physical activity; for 2020, the project goal was set at 53.5% (Healthy Campus, 2016). The combination of moderate and vigorous physical activities shows that students are on track to make the national goal. However, the present data are self-reported, and there is an overestimation of physical activity based on subjective measures (Garriguet & Colley, 2014). The use of objective measures is recommended to determine if physical activity patterns are actually increasing among college students.

There were differences, by racial groups, among individuals who do not engage in vigorous physical activity. Slightly more than 5% of African American/Black students relative to 0.78% of Caucasian/White students reported never

engaging in vigorous physical activity. This is consistent with previous research, which shows that minorities typically have lower levels of vigorous physical activity (August & Sorkin, 2011; & Marshall et al., 2007). However, the measures may lead to individuals' over estimation of their physical activity time, which is more likely to occur among White students than Black students (Garriguet & Colley, 2014; Downs et al., 2014). Nevertheless, Knox et al. (2015) suggest that national campaigns (such as EIM@-OC) can influence subjective norms instead of knowledge of guidelines, thereby raising awareness of personal moderate and vigorous physical activity (MVPA) behavior among inactive individuals and increasing motivation to engage in more MVPA.

Common themes regarding motivation perceptions of physical activity among participants were health, weight control, and stress relief, factors that are consistent with other research findings among college students (O'Hara et al., 2014; Egli et al., 2011). For males, 34% reported social activity and enjoyment as motivating reasons to exercise; only 6% of females reported the same response. This result is compatible with previous research, which finds that, relative to females, college males are more intrinsically motivated (Egli et al., 2011). National promotions of physical activity should be oriented towards increasing intrinsic motivators to help sustain physical activity patterns (Gardner & Lally, 2013).

When asked how they commuted to and from campus, approximately one third reported that they walked and another third drove to campus. Only 2% reported the use of bicycles to commute. This was different compared with students in a Midwestern urban university, in which 59.2% were active transporters (walker or cyclist) (Bopp et al., 2015b). Active transportation on campuses offers cost-effective means of raising physical activity among this population (Peachey & Baller, 2015). National initiatives, including EIM@-OC and National Physical Activity Plan, a collection of organizations and individuals dedicated to developing a plan to empower all Americans to be physically active every day, encourage use of active transportation as a strategy to create a healthy environment (Bopp et al., 2015b).

There were several limitations to this study. As a cross-sectional study, researchers were not able to establish the causalities, limiting the practical implications of the findings. Since the data were collected by self-report rather than direct observation, over-reporting may be a concern. The operational definitions of physical activity levels are also less specific than they should be. For example, the distinction between vigorous activity and moderate activity might be unclear, making it difficult for the respondents to address the relevant questions. As an exploratory study, the current research has a small sample size with implied, less rigorous statistical power.

CONCLUSIONS

Overall, findings from this study describe the successful engagement of a midsized rural campus population in an EIM@-OC campaign. The study reveals that self-reported physical activity patterns of students are comparable to national averages; however, there are disproportionate numbers of African American who do not participate in any vigorous physical activity. Further research is needed to explore the underlying reasons for this, including using objective measures of physical activity. When possible, motivators for physical activity should be included in the EIM@-OC promotional activities to encourage intrinsic stimuli. Furthermore, active modes of transportation can be the target in EIM@-OC activities, and objective measures can be used to track physical activity behaviors on campus.

References

- American College Health Association [ACHA]. (2015). American College Health Association-National College Health Assessment II: Reference group executive summary spring 2015. Hanover, MD: American College Health Association.
- American College of Sports Medicine [ACSM]. (2016). EIM in action. Retrieved from http://www.exerciseismedicine.org/support_page.php?p=17
- August, K. J., & Sorkin, D. H. (2011). Racial/ethnic disparities in exercise and dietary behaviors of middle-aged and older adults. *Journal of General Internal Medicine*, 26(3), 245-250.
- Bopp, M. (2015). Using national initiatives to guide engaged scholarship in the Kinesiology classroom. *Kinesiology Review*, 4(4), 385-391.
- Bopp, M., Bopp, C., & Schuchert, M. (2015b). Active transportation to and on campus is associated with objectively measured fitness outcomes among college students. *Journal of Physical Activity & Health*, 12(3), 418-423.
- Bopp, M., Bopp, C.M., Duffey, M.L., Ganim, R., & Proctor, D.N. (2015c). Implementation and evaluation of an Exercise is Medicine@ on campus week. *Evaluation & Program Planning*, 52, 176-181.
- CDC/National Center for Health Statistics_CDC/National Center for Health Statistics. (2015). Overweight and obesity. Retrieved from <http://www.cdc.gov/nchs/fastats/obesity-overweight.htm>
- Downs, A., Van Hooymissen, J., Lafrenz, A., & Julka, D. L. (2014). Accelerometer-measured versus self-reported physical activity in college students: implications for research and practice. *Journal of American College Health*, 62(3), 204-212.
- Egli, T., Bland, H., Melton, B., Czech, D. R. (2011). Effects of sex, race, and age on college students' exercise motivation of physical activity. *Journal of American College Health*, 59(5), 399-407.
- EIM on Campus program expands. (2009). Sports Medicine Bulletin. Exercise is Medicine (2014). Exercise is medicine on campus. Retrieved from: <http://exerciseismedicine.org/campus.htm>.
- EIM in action: Current schools. (2016). Retrieved from: http://www.exerciseismedicine.org/support_page.php/current-schools/
- Gardner, B., & Lally, P. (2013). Does intrinsic motivation strengthen physical activity habit? Modeling relationships between self-determination, past behaviour, and habit strength. *Journal of Behavioral Medicine*, 36(5), 488-497.
- Garriguet, D., & Colley, R. C. (2014). A comparison of self-reported leisure-time physical activity and measured moderate-to-vigorous physical activity in adolescents and adults. *Health Reports*, 25(7), 3-11.
- Healthy Campus 2020. (2016). Student objectives: Physical activity and fitness. Retrieved from https://www.acha.org/HealthyCampus/Objectives/Student_Objectives/HealthyCampus/Student_Objectives.aspx?hkey=a9f191de-243b-41c6-b913-c012961ecab9
- Knox, E. L., Taylor, I. M., Biddle, S. H., & Sherar, L. B. (2015). Awareness of moderate-to-vigorous physical activity: Can information on guidelines prevent overestimation?. *BMC Public Health*, 15: 392.
- Lynn, J., Urda, J., & Winters, C. S. (2015). On the floor. Slippery Rock University. *ACSM's Health & Fitness Journal*, 19(4), 34-36.
- Marshall, S. J., Jones, D. A., Ainsworth, B. E., Reis, J. P., Levy, S. S., & Macera, C. A. (2007). Race/ethnicity, social class, and leisure-time physical inactivity. *Medicine and Science In Sports And Exercise*, 39(1), 44-51.
- O'Hara, S.E., Cox, A.E., & Amorose, A.J. (2014). Emphasizing appearance versus health outcomes in exercise: The influence of the instructor and participants' reasons for exercise. *Body Image*, 11(2), 109-118.
- Peachey, A. A., & Baller, S. L. (2015). Perceived built environment characteristics of on-campus and off-campus neighborhoods associated with physical activity of college students. *Journal of American College Health*, 63(5), 337-342.
- Winters, C., & Sallis, R. E. (2015). Five steps to launching Exercise is Medicine@ in your campus. *ACSM's Health & Fitness Journal*, 19(4), 2833.

©Bridget Melton, Jazmin A. Williamson, Helen Bland, and Jian Zhang. Originally published in jGPHA (<http://www.gapha.org/jgpha/>) June 15, 2016. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial No-Derivatives License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work ("first published in the Journal of the Georgia Public Health Association...") is properly cited with original URL and bibliographic citation information. The complete bibliographic information, a link to the original publication on <http://www.gapha.jgpha.org/>, as well as this copyright and license information must be included.