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Report of a Curriculum Used in a Peer-Delivered Intervention to Reduce Obesity of Adolescents in Southern Appalachia and its Relationship to the National Health Education Standards

Introduction

The proportion of obese high school students in Southern Appalachia are among the highest in the nation (US Dept. of Health and Human Services, 2005). Health risk habits, including unhealthy eating and physical inactivity, are often established during adolescence and may contribute significantly to this chronic disease disparity. Although adolescent obesity is an urgent public health issue, effective prevention programs are limited, especially in rural settings (Waters et al., 2011). *Team Up for Healthy Living* is a cluster-randomized control trial examining an academia-community partnership approach using college students as peer facilitators to prevent obesity among high school students in Southern Appalachia. Additional details of the larger study may be found elsewhere (Slawson et al., in press). The purpose of this instructional article is to describe the 8-week curriculum utilized for *Team Up for Healthy Living* with an emphasis on its relationship to the National Health Education Standards (Centers for Disease Control and Prevention, 2013). Examining this relationship is important given that the national standards were created to provide expectations and a framework to guide schools in efforts to promote and support health-enhancing student behaviors.

Team Up for Healthy Living Curriculum

Curriculum Development

Six months prior to delivering the intervention, a multidisciplinary team representing the fields of kinesiology, medicine, nutrition, psychology, and public health was brought together to begin to dissect and refine a 12-week curriculum that had been pilot tested and described in a grant-funded research proposal. These investigators had all previously indicated interest in research on child obesity issues and via local networking opportunities began to form the research team for the larger grant funded project. They each provided expertise from their fields to incorporate into the curriculum. They also taught their subject areas to the peer facilitators. Undergraduate students majoring in Kinesiology, Nutrition, or Public Health were recruited to serve as the college peer facilitators and received training in both content and delivery of the curriculum. The original curriculum included 11 group sessions lasting approximately 55 minutes and delivered over the course of 12 weeks. Due to the realities of school schedules, the curriculum had to be modified and included an 8-week, 40-minute program. Further, in an effort to ensure treatment integrity, a highly structured curriculum based on the latest evidence supported tools was developed during regular meetings of the multidisciplinary team. Multidisciplinary team members presented updated content and activities to peer facilitators as part of training and solicited peer and researcher/investigator feedback to make the information relevant and appropriate for rural high school students. Observations of peer facilitators conducting the modified sessions as part of their training as well as one focus group with high school students ($N=10$) and teachers ($N=2$) at a nearby high school were used to further refine the curriculum. As part of the focus group, students and teachers were presented with several elements of the first three intervention sessions, and subsequent focus groups involved a critique of intervention delivery methods and materials, as well as interventionists' methods of curriculum delivery. Insights provided during this discussion confirmed the utility of the intervention concepts covered and the methods used in delivery of the curriculum. The combination of these efforts resulted in a modified and refined 8-week curriculum. See Table 1 for an overview of the

curriculum, lesson objectives and team challenges (adapted from Slawson et al., in press). The Challenges were an integral part of the intervention designed to be conducted in class or assigned to be completed at home.

Curriculum Objectives

The *Team Up for Healthy Living* curriculum is intended to establish positive peer norms and relationships toward healthy eating and physical activity behaviors in high school students. Specifically, the curriculum was designed to provide education on healthy eating, physical activity, and behavioral strategies for modifying these behaviors as well as the development of group cooperation and leadership skills. Additionally, the curriculum included 6 challenges where students worked with others in or out of class. For example, during Lesson 3 students were instructed to create a poster of favorite healthy foods to promote healthy eating for other students at the school. The posters were designed to be displayed in the school and publicized through school resources such as the school newspaper, website, or announcements generated by students. See Table 1 for specific lesson overviews and objectives (adapted from Slawson et al., in press).

Curriculum Activities, Strategies and Assessments

All lessons included lecture and active learning exercises including discussion. For example, during Week 2 (Nutrition Awareness), peer facilitators introduced Choose MyPlate, benefits of having a colorful diet, the Go, Slow, Whoa strategy for making healthy food choices, and how to read nutrition food labels. Students engaged in discussion on these topics and participated in a food demonstration and taste challenge followed again by discussion and introduction of *Challenge 1* (See Table 1). All lessons concluded with a journal entry where students were asked to think through and record at least one thing they learned for the day, one thing that troubled or confused them about the information for the day, and one way in which they would apply or use something they learned within the next 24 hours.

College peer facilitators utilized informal assessments via class discussions and checking for understanding of vocabulary and concepts. Additionally, as described previously, students completed a journal entry at the conclusion of each lesson allowing peer facilitators to further assess understanding and address any areas of difficulty at the following meeting. Summative assessments for each lesson were also completed through the *Challenges* listed in Table 1. Finally, a Jeopardy game was delivered in the last lesson and served as an additional informal summative evaluation of all the material presented. As part of the larger research study, students completed surveys assessing eating and physical activity behaviors at baseline and 3- and 12-months post baseline. In addition, height and weight measurements were also obtained at these time points allowing for further assessment of the impact of the *Team Up for Healthy Living* project.

Curriculum Relationship to National Health Education Standards

The *Team Up for Healthy Living* curriculum was reviewed against the National Health Education Standards (NHES) by a co-investigator and faculty in the College of Education at the affiliated university. She also served as the coordinator for student teachers in health and physical

education during the study time frame. The National Health Education Standards are specific expectations for what students should know and be able to do to promote personal, family, and community health. They provide a framework for curriculum development, instruction, and student assessment in health education. This framework helps administrators and educators make decisions about resources. The standards provide concrete expectations for students and the community. They have been adopted by most states. The NHES are designed to challenge schools and communities to continue efforts toward excellence in health education (CDC, 2013). The following National Health Standards and Performance Indicators are matched with application of lesson material.

Standard 1: *Students will comprehend concepts related to health promotion and disease prevention to enhance health.*

Lessons #1 and #4 meet the performance indicator of predicting how healthy behaviors can affect health status by students discussing consequences of poor food choices and sedentary behaviors. They also meet the performance indicator of learning the benefits of and barriers to practicing a variety of healthy behaviors relating to food choices and physical activity.

Standard 2: *Students will analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors.*

Lesson #3 includes a discussion that incorporates all the performance indicators of evaluating the effects of family, peers, culture, media, technology, school, convenience, and cost on their dietary choices. Lesson #5 has the students analyzing the influence of family, peers and technology on screen time which is defined as any amount of time spent in front of a screen such as a TV, computer, or video game.

Standard 3: *Students will demonstrate the ability to access valid information, products, and services to enhance health.*

When learning to read and understand food labels in Lesson #2, students are meeting the performance indicator of using resources that provide valid health information. They also are introduced to the website “MyPlate.gov” that has resources for measuring everything about their diet.

Standard 4: *Students will demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks.*

By creating a poster to promote healthy eating for their school during Lesson #3, the performance indicator of communicating effectively with peers to enhance health is met. Students meet the performance indicator for offering assistance to enhance the health of others by completing the Challenge in Lesson #5 of supporting a friend or family member in improving their diet or increasing their physical fitness activities.

Standard 5: *Students will demonstrate the ability to use decision-making skills to enhance health.*

Students meet the performance indicator of examining barriers that can hinder healthy decision making in Lesson #2 concerning a healthy diet and in Lesson #5 concerning getting enough physical activity. Students meet the performance indicator of generating alternatives to health-related issues in Lesson #5 by discussing ways to reduce screen time, and in Lesson #7 by discussing ways to prevent weight teasing.

Standard 6: *Students will demonstrate the ability to use goal-setting skills to enhance health.*

Students meet the performance indicator of assessing personal health practices by self-monitoring their intake of fruits and vegetables, as well as tracking type and minutes of physical activity in Lesson #4. In Lesson #5, students meet the performance indicator for developing a plan to attain a personal health goal by applying SMART (Specific, Measureable, Achievable, Realistic, Time-Specific) goal-setting criteria.

Standard 7: *Students will demonstrate the ability to practice health-enhancing behaviors and avoid or reduce health risks.*

Students meet the performance indicator of demonstrating a variety of healthy behaviors that will maintain or improve their health by trying new, healthy foods in Lessons #2 and #3 and by creating fitness activity routines in Lesson #5. Students meet the performance indicator of demonstrating a variety of behaviors to avoid or reduce health risks to self and others in Lesson #7 by pledging different ways to prevent weight teasing and bullying, and in Lesson #5 by demonstrating ways to reduce screen time.

Standard 8: *Students will demonstrate the ability to advocate for personal, family, and community health.*

Performance indicators are met by the students designing posters for their school in Lesson #3 advocating for healthier eating, and Lesson #7 advocating the prevention of weight teasing and bullying. Students meet the performance indicator for working cooperatively as an advocate for improving personal, family and community health by completing Challenge #1 of trying a variety of fruits and vegetables at home and rating them for Lesson #2. They also meet this performance indicator by completing Challenge #5 of talking with a friend or family member about their diet and physical fitness activities and helping them improve their food choices and increase their activity time for Lesson #7.

Summary

The current study showed that the *Team Up for Healthy Living* Curriculum addressed expectations for all 8 National Health Education Standards. Because these standards are accepted in many states, if also proven effective, this curriculum may be easily transferable from research to action without substantial additional resources. This program may meet the critical community needs for adolescent obesity prevention by engaging higher education institutions and students in

service, and fostering within them an ethic of civic responsibility. This could offer a win-win relationship between the community and the academy.

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Table 1. Team-Up for Healthy Living Curriculum: Lesson Names, Overviews, Objectives, and Challenges

Lesson	Lesson Name	Overview	Objectives	Challenges (In and Out of Class Activities)
1	Get to Know You	This is the first week of the program where teams are formed, introductions are made, and students are engaged in discussion surrounding leadership and cooperation as well as health behaviors. Questions are answered about <i>Team Up for Healthy Living</i> .	By the end of this session, the students will be able to: <ul style="list-style-type: none"> ▪ Describe characteristics of leaders and how groups work as teams. • Describe factors associated with health behaviors. 	
2	Nutrition Awareness	Students are introduced to nutrition information (i.e., food pyramid, colorful diet, Go, Slow, Whoa, and Nutrition Food Labels) and taste and rate a new healthy food. Additionally, students are introduced to <i>Challenge 1</i> and journaling.	By the end of this session, the students will be able to: <ul style="list-style-type: none"> ▪ Recognize major food groups and benefits of a healthy diet. ▪ Describe a strategy for making healthy food choices. ▪ Recognize important components of a food label. ▪ Discover new foods and healthier ways of eating. 	<i>Challenge 1 (at home):</i> Students will try a variety of fruits and vegetables at home. They will rate flavor and texture.
3	Eating Styles and Portion Distortion	Students are introduced to factors that influence eating such as serving sizes and portions, taste a new healthy food, and complete <i>Challenge 2</i> . Additionally, students are encouraged to become aware of portions consumed at home.	By the end of this session, the students will be able to: <ul style="list-style-type: none"> ▪ Recognize factors that influence eating. ▪ Describe serving sizes and portions. ▪ Discover a strategy for portion control. ▪ Create an illustration to promote healthy eating. 	<i>Challenge 2 (in class):</i> Students will create energy posters or come up with another poster idea for presenting favorite healthy foods to promote healthy eating for students at their school. They are to consider a creative presentation of their healthy meal ideas. These will be displayed in the school and publicized through the school newspaper, website, or announcements generated by participants.

<p>4</p>	<p>Small Steps Count</p>	<p>Students are introduced to physical activity including health benefits, types, and guidelines. Students will also learn about self-monitoring health behaviors and be challenged to do this at home via <i>Challenge 3</i>.</p>	<p>By the end of this session, the students will be able to:</p> <ul style="list-style-type: none"> ▪ Explain the health benefits of physical activity. ▪ Give examples of types of physical activity. ▪ State physical activity recommendations. ▪ Employ self-monitoring of health behaviors. 	<p><i>Challenge 3 (at home):</i> Students will gain a baseline measure of steps using a pedometer and the Self-Monitoring Form. Additionally, students will track type and minutes of physical activity as well as number of fruits and vegetables eaten each day until the following class.</p>
<p>5</p>	<p>Active Living</p>	<p>Students are introduced to screen time including types, statistics, and guidelines. Students will also learn about goal-setting and apply this knowledge by developing an individual goal. Additionally, students will complete <i>Challenge 4</i> in class.</p>	<p>By the end of this session, the students will be able to:</p> <ul style="list-style-type: none"> ▪ Give examples of types of screen time. ▪ State screen time statistics and guidelines. ▪ Demonstrate understanding of SMART goal-setting criteria. ▪ Apply SMART goal-setting criteria to an individual goal. ▪ Develop a brief physical activity routine to incorporate physical activity during screen time. 	<p><i>Challenge 4 (in class):</i> Students will use physical activity materials provided to develop a physical activity routine emphasizing at least one type of physical activity (i.e., aerobic, muscle-strengthening, bone-strengthening). The routine will be able to be completed in as short a time frame as a television commercial (60 seconds). Teams will work together for 4 minutes to develop a routine and afterwards each team will demonstrate the routine to the larger class. Teams will vote on the best routine (besides their own) and members of the winning team will receive a reward.</p>
<p>6</p>	<p>Effective Communication and Leadership</p>	<p>Students are introduced to active listening and characteristics of leaders. Students will imagine themselves as leaders and assume leadership roles in health promotion activities. Additionally, students will complete <i>Challenge 5</i> at home.</p>	<p>By the end of this session, the students will be able to:</p> <ul style="list-style-type: none"> ▪ List components of active listening. ▪ Describe characteristics of leaders. ▪ Apply active listening and leadership skills to case scenarios. 	<p><i>Challenge 5 (at home):</i> Students will find a friend or family member that would be willing to talk about their diet and physical fitness activities. Students will practice their active listening skills and demonstrate leadership characteristics when talking to them about ways to improve their health.</p>

7	Caring and Sharing	Students are introduced to weight prejudice, ridicule, and teasing. Students will recognize experiences in their own lives during which they have been the victim of prejudice, ridicule, and/or teasing and increase acceptance of others along with practicing a supportive role. Additionally, students will complete <i>Challenge 6</i> .	By the end of this session, the students will be able to: <ul style="list-style-type: none"> ▪ Recognize weight prejudice, ridicule, and teasing. ▪ Recognize experiences in their own lives during which they have been the victim of prejudice, ridicule, or teasing. ▪ Show increased commitment to supporting others. 	<i>Challenge 6 (in class):</i> Students will create a poster on ways to prevent weight teasing and bullying. They will include an “I Will” pledge that lists at least 3 specific actions team members will take to address this problem. Students will sign the pledge and display the posters in their school.
8	Team Up for Change	Students explore and establish team agreements, develop group cohesion and trust, and understand teamwork. Additionally, students will review concepts learned during <i>Team Up for Healthy Living</i> via a team competition based on Jeopardy.	By the end of this session, the students will be able to: <ul style="list-style-type: none"> ▪ Define teamwork and develop rules for working effectively in teams. ▪ Demonstrate material learned throughout the <i>Team Up for Healthy Living</i> program. 	

Note. This is a combined and slightly modified version of lesson summary and team challenge tables found in the design and methods manuscript (Slawson et al., in press).

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