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Diabetes Awareness of Low-Income Middle School Students Participating in the Help a Friend, Help Yourself Youth Diabetes Awareness Education Program

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Abstract: The study reported here investigated the effectiveness of the LSU AgCenter Help a Friend, Help Yourself youth diabetes education curriculum to increase knowledge and awareness of diabetes and its symptoms in low-income middle school students participating in the Boys and Girls Club after-school program. The curriculum includes four lessons with multimedia presentations, art projects, and demonstrations designed to teach children about diabetes, with a specific focus on the signs and symptoms. Results indicated that students' knowledge of diabetes and its symptoms increased following participation in the four-session series.

Introduction

Diabetes has become epidemic in the United States. The estimated total national cost of diabetes in the United States is \$174 billion (American Diabetes Association, 2010).

Type 1 diabetes is a common disease of childhood with serious health consequences. Type 2 diabetes, more commonly diagnosed in people 40 years and above, is increasing in children and youth. Each year, about 15,000 youth in the United States are diagnosed with type 1 diabetes, and about 3,700 are diagnosed with type 2 diabetes. Although type 2 diabetes in youth is not common, it is being diagnosed more frequently in children and adolescents, particularly in American Indians, African Americans, and Hispanic populations. Children who develop type 2 diabetes are typically overweight or obese and have a family history of the disease (U.S. Dept. of Health and Human Services National Diabetes Education Program, 2006).

Research shows that awareness of the signs and symptoms of diabetes and early diagnosis affect the course of the disease and that lifestyle practices, including a healthful diet and physical activity, may prevent or delay the development of type 2 diabetes (National Institute of Diabetes and Digestive and Kidney Diseases, 2011). The quality of care, as well as the development of and degree of complications, are affected by knowledge of the disease. Research suggests that low-income populations have little knowledge of the disease, placing them at high risk for complications (Rabi et al., 2006; Cox, Carpenter, Bruce, Poole, & Gaylord, 2004).

Studies have shown that providing nutrition education does result in an increase in knowledge. One such study was conducted in Ohio and involved teaching a four-session youth Expanded Food and Nutrition Education (EFNEP) program to third and fourth graders. Students receiving the curriculum had significant increases in knowledge compared to those who did not (Rabe, Ohri-Vachaspati, & Scheer, 2006). Additionally, lifestyle changes have been reported to be best influenced early in life by an age and culturally appropriate disease prevention education program (Association of American Indian Physicians, 2010).

Objectives/Purpose

The purpose of the study reported here was to assess the effectiveness of a youth diabetes awareness program on increasing knowledge and awareness of diabetes and its symptoms in low-income middle school students.

Methods

Subjects

Participants (n=42) included low-income African-American students attending the Boys and Girls Club after-school program in a middle school (grades 6-8) in Baton Rouge LA. Household income status was determined by a participant's qualifying to receive free lunch as part of the National School Lunch Program. The students ranged from 11 to 15 years of age, and the group had a mean age of 12.8 ± 1.2 years.

Education Curriculum

The Help a Friend, Help Yourself youth diabetes awareness education curriculum was developed in response to Louisiana state legislation requesting the development and implementation of age- and grade-appropriate curricula for diabetes awareness education. The curriculum was developed by a state nutrition

Extension specialist and a 4-H Extension agent, and was reviewed by a team of health and education professionals. The curriculum was pilot-tested. The curriculum provides information about type 1 and type 2 diabetes, explains the two major types of diabetes and their symptoms, and encourages children to alert an adult if they or a friend experiences those symptoms. The curriculum also focuses on healthy eating and physical activity to maintain a healthy weight, which may help prevent or delay type 2 diabetes.

The curriculum includes a series of four lessons with lesson plans, fact sheets, a poster (Figure 1), multimedia presentations, an interactive exhibit, and an evaluation instrument. The evaluation instrument given to participants pre-course and post-course was a 10-question open-ended instrument that requested simple listings of symptoms and information to determine diabetes awareness knowledge.

The sessions were presented once a week for 4 weeks by a Louisiana State University School of Human Ecology senior dietetic student as part of her enrollment in an independent study course. The Extension nutrition specialist who coordinated the curriculum development provided training and supervision for the student presenter.

Figure 1.
Youth Diabetes Poster



Statistics

Descriptive statistics collected included age, gender, race/ethnicity, and eligibility to receive free or reduced-price lunch through the National Child Nutrition Program. Change in knowledge of diabetes and its symptoms was examined using paired t-tests. Significance was set at $p < 0.05$.

Results

Of the 42 youth who participated in the 4-week, four-session curriculum, 13 students with parent consent gave assent to participate and completed both baseline and post-intervention questionnaires. All 13 individuals (six girls and seven boys) were African American and from low-income households. (100% qualified to receive free lunch as part of the National School Lunch Program.) None of the participants reported having diabetes, and seven (54%) stated that they knew someone with diabetes. Change in knowledge about diabetes and its associated symptoms were evaluated using open-ended questions. A paired t-test indicated that student knowledge increased after participating in the program ($t = 7.0$, $df = 12$, $p = .00$).

Conclusion and Applicability

The results from the study reported here indicated that students' knowledge of diabetes and its symptoms increased following participation in the Help a Friend, Help Yourself youth diabetes awareness program. While the program was developed for students in upper elementary and middle school grades, it provides information that could be beneficial for other age groups. The study focused on low-income children; however, the program could be used for children of any socio-economic group. Groups that would benefit from this program include children and youth in 4-H clubs and classroom settings and adult- and youth-oriented community groups. Appropriate presenters of the program include 4-H and nutrition Extension agents, health and physical education teachers, family and community volunteers, and youth leaders. Additionally, fact sheets distributed in schools, health fairs, doctors' offices, and public health offices would provide children, health educators, and community workers basic information on the signs and symptoms of diabetes.

Acknowledgment

The program was exhibited at the 2010 Priester Conference in Mobile, AL to Extension educators, health professionals, and paraprofessionals.

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