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Effectiveness of a Child's Fable on the Cognition of Preschools When Used to Address Childhood Obesity



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The study investigated the effectiveness of a child's fable on the cognition of preschoolers when used to address childhood obesity. A single group, pretest/posttest design was used with 57 preschool children. Analysis of variance compared pre-existing differences between the four classes with respect to pre-test scores. A repeated measures t-test analyzed changes in scores as a result of the intervention. Following the fable intervention, students showed a significant difference (0.5) between their pre- and post-test scores, indicating this method to an effective learning strategy in this setting and age population.

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Problem Statement

PEDIATRIC OBESITY IS currently viewed as a worldwide epidemic that exists among all ethnic groups, social categories, and economic classes (Lee, 2007). The rising prevalence of both overweight and obese children has evolved into an indisputable public health concern and is placing a tremendous burden on the country's health care system (Wake, Hardy, Canterford, Sawyer, & Carlin, 2007). According to the Centers for Disease Control (CDC, 2013), obese children have a 70% chance of becoming obese adults, resulting in higher risks for diseases such as heart disease, diabetes, stroke, and several types of cancer. Proper nutrition and adequate physical activity are vital for the growth and development of preschool children and for the establishment of a healthy lifestyle that prevents pediatric obesity (Bellows, Anderson, Gould, & Auld, 2008). Pediatric obesity is affecting children of all races, ethnicities, and income levels (CDC, 2013). The number of overweight and obese preschoolers continues to

rise despite efforts to combat pediatric obesity (Bellows et al., 2008). Although numerous preventive efforts have targeted school-age children and adolescents, few strides have been made on the behalf of preschool children. Proper nutrition and adequate physical activity are vital for the growth and development of preschool children and for the establishment of a healthy lifestyle that prevents pediatric obesity. By the time children reach elementary school, nutrition and physical activity preferences and patterns are set. At this point, many children are well on their way to a lifetime of being overweight or obese (Johnson, Clark, Goree, O'Conner, & Zimmer, 2008). Therefore, the preschool years present an optimal time to help establish healthy lifestyle patterns for the child. An innovative preventive strategy is necessary to guide preschoolers onto the path of healthy nutrition and physical activity.

Review of the Literature

Pediatric obesity is a serious public health challenge that ushers in a variety of physical and psychological co-morbidities burdening the United States' health care system (Small,

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Anderson, & Melnyk, 2007). Adiposity rebound (AR) refers to the point at which a child's body fatness begins to rise and has been identified as a period of increased risk for the development of obesity in childhood that may persist into adulthood (CDC, 2013). Some scientists have suggested that this critical period usually occurs between the ages of 5 to 7 and that children who experience rapid weight gain during AR have an increased risk of becoming obese (Dietz & Robinson, 2005). This makes the preschool years a critical time in which to establish healthy behaviors. When compared to obesity that develops during adulthood, childhood obesity results in more severe cases of adult obesity (Chan, Lam, Leung, Wong, & Botelho, 2005). Overweight and obesity have nearly quadrupled among U.S. children ages 8 through 12, resulting in increased attention being given to this age group. Even with the recent increased efforts toward health promotion and intervention with school-age children, no decline in overweight and obesity has been noted that coincides with the time and resources invested. Evidence suggests that promoting healthy behaviors may be more effective during the preschool years, before unhealthy lifestyle behaviors develop (Small et al., 2007).

Existing educational programs that target obesity include Walking School Bus (Kong et al., 2009), which encouraged physical activity by requiring its participants to walk to and from school rather than riding the bus. Although effective, this intervention required a great deal of adult supervision in order to keep the participants safe during the walking sessions. Sahota et al. (2001) evaluated a school-based program that promoted healthy eating and physical activity in reducing the risk for obesity, with the key components of teacher training, modification of school meals through increasing the number of vegetables offered, and the development of school action plans targeting the curriculum, physical education, and playground activities. The findings revealed success in producing minimal school wide change; however, there was no notable change in physical activity regardless of the increase in physical education and playground activity involved.

Additionally, several school based projects have explored various educational methods. Muller, Asbeck, Mast, Langnase, and Grund (2001) evaluated the effectiveness of a school program targeting students and their caregivers. Students were provided with health and wellness information in the classroom setting as well as an exercise component where the children were encouraged to participate in physical activity as they learned a new game or skill, such as tennis or volleyball. Children who received the intervention had some decrease in triceps skin fold measurements compared with the control group at 6 months. The researchers also noted improvement in nutrition knowledge, increased fruit and vegetable consumption, and a decrease in screen viewing (i.e., television, computer, and video games) as a result of the program.

Other studies explored parental involvement and motivation in nutrition and health (Epstein et al., 2001; Gunnarsdottir, Njardvik, Olafsdottir, Craighead, & Bjarnason, 2011; Watson et al., 2011). These parent-focused, targeted behavioral intervention on the dietary intake of parents and children

demonstrated parental participation and motivation positively affected weight loss and healthier food choices, including a higher consumption of fruits and vegetables (Epstein et al., 2001; Gunnarsdottir et al., 2011). Researchers demonstrated a strong correlation between adult BMI change and child BMI change patterns, demonstrating children with adults who reduced their BMI were more likely to show a decrease in BMI and again support the positive effects of active participation of adult family members in weight loss activities for children (Watson et al., 2011). Bellows et al., 2008 found that although parents play a crucial role in the level of physical activity demonstrated by each child, the preschool teacher also has a huge impact on the child.

Other research evaluated the use of games with preschoolers, using an affordable flash card game with healthy food recognition among the Mexican-American population of 148 preschool children (Mier, Piziak, & Valdez, 2005). This method proved successful in educating preschool children as evidenced by pre and post assessment scores. Teachers who were involved recommended the game be played at home as well as in the classroom, but suggested limiting play time to match 30 minute average attention span of children ages 3 through 5 years.

The preceding literature review provided some evidence for the success of interventions aimed at preschool children that target obesity, including: (a) creative education that encourages proper nutrition, (b) games and fun activities that incorporate physical activity, (c) the use of animated characters as an instructional strategy, and (d) increased parent and teacher involvement. These four approaches resulted in changing children's (and parents') habits and in improving overall health. However, these studies were not always successful in producing the expected results, and many addressed the issue in children who were already overweight versus obesity prevention efforts. The literature review revealed few efforts are aimed at preventing childhood obesity by targeting preschool children through educational means. The preschool years are an important stage in a child's life: a stage when children develop healthful eating habits, essential for normal growth and development, which prevent nutrition-related illnesses later in life. The current study contributes to the body of knowledge by demonstrating the effectiveness of using a low cost, easy to administer educational intervention in the preschool population.

Significance of the Study

The pediatric population can benefit from an innovative preventive strategy that is age-appropriate, cost-effective and manageable within the settings. Many obesity prevention and intervention programs are costly, time consuming and inappropriate for preschool children (Kong et al., 2009; Sahota et al., 2001; Watson et al., 2011). Although some programs found in the literature may be effective, they are not possible for educators and health care professionals

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