A Practitioner-Based Asthma Intervention Program With African American Inner-City School Children

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ABSTRACT

Introduction: Asthma is the most prevalent chronic illness, affecting more than 7 million children younger than 17 years. Asthma has become a leading public health concern because of the dramatic rise in the incidence of this disease during the past 15 years, particularly in minority populations. This study tested a two-part intervention on selected psychosocial and health outcomes of 8- to 13-year-old inner city minority students with asthma.

Method: The intervention consisted of participation in an asthma education program (Open Airways) followed by 5 monthly visits with a nurse practitioner. The total sample of 52 children was composed of 28 children in the treatment group who received the intervention and 24 children who served as a control group.

Results: Students in the treatment group scored significantly higher than the control group over time on measures of asthma knowledge, asthma self-efficacy, general self-care practices, and asthma self-care practices. No significant differences were found between the two groups on health outcomes.

Discussion: A school-based intervention program can improve psychosocial outcomes for inner-city minority children with asthma. Recommendations for future research and clinical practice are discussed. J Pediatr Health Care. (2005). *19,* 163-171.

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Since the 1980s, there has been increasing concern regarding the health and quality of life issues for children with asthma. Approximately 20.3 million Americans, including 7 million children, have asthma. In 2001, the asthma prevalence rate was 23% higher in African Americans than in Whites (American Lung Association, 2004). In addition, the death rate for asthma in the African American population was three times that of the White population. Pediatric morbidity and mortality rates are also particularly high in urban minority populations (Joseph, Peterson, & Ownby, 1995; National Center for Environmental Health, 2002).

It is estimated that asthma incurs direct health care costs of $9.4 billion and indirect costs from lost productivity (work and school days) of another $4.6 billion per year (American Academy of Allergy Asthma and Immunology, 1999). The cost of asthma is high from both personal as well as financial aspects. The purpose of this article is to discuss the findings of a school-based intervention program on selected psychosocial and health outcomes of minority children with asthma.

LITERATURE REVIEW

Asthma Management

There have been several medical and pharmacologic advances in the

assessment and management of asthma during the past 8 years (American Academy of Allergy Asthma and Immunology, 1999; National Asthma Education and Prevention Program [NAEPP], 1997). Recently, selected topics of the NAEPP asthma management guidelines were reviewed and revised. The revisions were based on findings from asthma clinical studies (NAEPP, 2002). Recommendations were made in the areas of medications, monitoring, and prevention. Nonpharmacologic management of asthma includes avoidance of allergens and irritants, the use of peak flow meters to monitor respiratory function, and patient and family education (American Academy of Allergy Asthma and Immunology; Moffit, Gerhart, & Yates, 1994; NAEPP, 1997; National Center for Environmental Health, 2002).

During the past 20 years, several asthma education or self-management programs have been developed to promote changes in behavior and to improve asthma health and quality of life (Velsor-Friedrich & Srof, 2000a, 2000b). Children who participated in these programs experienced fewer emergency department and unscheduled physician visits, improvement in physical and social activities, better asthma self-management, enhanced self-efficacy, fewer school absences, and improved school performance (Evans et al., 1987; McNab, Wilson-Peassano, Hughes, & Scamagas, 1985; Schwartz, 1990; Velsor-Friedrich, Pigott, & Louloudes, 2004; Wigal, Creer, Kotses, & Lewis, 1990; Wilson-Peassano & Mellins, 1987).

A recent review of clinical trials that included educational interventions for the self-management of asthma in children and adolescents concluded that educational programs should be considered a part of routine care of young people with asthma (Guevara, Wolf, Gum, & Clark, 2003). The review of 32 clinical trials including 3706 patients aged 2 to 18 years found that participation in asthma educational programs was associated with improved lung function, self-efficacy, and reductions in school absences, number of days of restricted activity, and number of visits to an emergency department. Recently, there has been an increase in the number of asthma management programs offered through the schools. The delivery of health care to children in the school setting offers an effective way to increase access to care while having an impact on large numbers of children. This is especially important for minority inner-city children who may have less access to care.

A school-based asthma intervention program conducted with inner-city minority students demonstrated significant differences between the treatment and control group on health outcomes (Velsor-Friedrich et al., 2004). The sample was composed of 102 African American students who attended eight inner-city elementary public schools. The children ranged in age from 8 to 13 years with a mean age of 10.8 years. The students in the treatment group participated in the asthma education program, Open Airways, held over a 7-week period. Students completed five instruments (asthma knowledge, asthma self-efficacy, general self-care, asthma self-care, and self-esteem) and an asthma health diary (peak flow readings, symptoms, medication use, and urgent visits to the physician) at baseline, 2 weeks, and 5 months after program completion.

School-aged children with asthma showed significant improvements in self-care ability following participation in a school-based asthma intervention.

Students in the treatment group had significant increases in peak flow readings at both posttest periods. In addition, the treatment group had significantly fewer asthma symptoms than did the comparison group at both posttest times. Although the mean scores of the treatment group were higher than the comparison group on several of the psychosocial measures, these changes were not significant. This may have been due to the fact that children in the comparison group were significantly older than those in the treatment group. In addition, the majority of students in the study were reading well below their grade level. Recommendations for future research included randomization of the sample and an assessment of reading levels prior to enrollment. The authors also proposed conducting future studies in schools with school-based clinics, incorporating a nurse practitioner (NP) in the intervention. This study became the foundation for the current study discussed.

PURPOSE

The primary purpose of this study was to examine the effect of a school-based intervention program, Open Airways (American Lung Association, 2004; U.S. Department of Health and Human Services, 1984) combined with five monthly follow-up visits with an NP on selected psychosocial and health outcomes of 8- to 13-year-old inner-city minority children with asthma. The following hypotheses were tested:

- School-aged children with asthma will show greater improvement on measures of self-care ability (asthma knowledge, asthma self-efficacy, general self-care, and self-esteem), asthma self-care practices, and health out-