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Relationships of asthma knowledge, self-management, and social support in African American adolescents with asthma

Mo-Kyung Sin[a,*], Duck-Hee Kang[b], Michael Weaver[b]

[a]School of Nursing, University of Washington, Box 357266, Seattle, WA 98195-7266, USA
[b]School of Nursing, University of Alabama at Birmingham, 1530 3rd Avenue South, Birmingham, AL 35294-1210, USA

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Abstract

Despite nationwide efforts to manage asthma, the adverse outcomes of asthma continue to increase, especially in African American adolescents. The purpose of this study was to examine the relationships among asthma knowledge, self-management, and social support in African American adolescents with asthma. A correlational descriptive study was conducted using a convenience sample of 53 identified asthmatic adolescents from the Southern metropolitan school system in Alabama. Asthma knowledge was measured by the Parcel Knowledge about Asthma Questionnaire, social support by the Norbeck Social Support Questionnaire, and asthma self-management behaviors by the Asthma Behavioral Assessment Questionnaire. Both asthma knowledge and social support had significant positive relationships ($r = 0.31$, $r = 0.30$, respectively) with asthma self-management behaviors and accounted for 14% of self-management behaviors variability. Further studies are needed to understand how to better manage asthma in adolescents.

Keywords: African American adolescents; Asthma; Knowledge; Self-management; Social support

1. Introduction

Asthma is a common chronic disease in adolescents in the United States and a cause of frequent school absences, ER visits, and hospitalization (American Lung Association, 2004). Asthma-related hospitalizations, morbidity and mortality have been increasing, especially in African American asthmatic adolescents (American Lung Association, 2004). The causes of a higher prevalence of asthma in African American adolescents are uncertain, but environmental precipitants, poor self-management of asthma, inadequate knowledge about the disease, and poor social support could be contributing factors. This study looked at the relationships among asthma knowledge, self-management, and social support in African American adolescents with asthma.

2. Background

2.1. Asthma in African American adolescents

Asthma prevalence ranks eighth among chronic conditions in the United States. An estimated 17.7 million Americans suffer from asthma, including more than 5.6 million children under 18 (American Lung Association, 2002). The prevalence of asthma is higher in African Americans compared with whites, in 2001, the asthma prevalence rate was 22.7% higher in African Americans than in whites (American Lung Association,

*Corresponding author. Tel.: +1-206-616-6642; fax: +206-543-4771.
E-mail address: mosin@u.washington.edu (M.-K. Sin).

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2004). Studies have shown strong relationships between African American race/ethnicity and asthma-related hospitalizations ($r = 0.69$) (Carr et al., 1992), (odds ratio = 1.70, 95% confidence interval 1.34–2.15) (Lozano et al., 1995) and asthma-related deaths (odds ratio = 1.42, 95% confidence interval 1.03–1.96) (Lozano et al., 1995). A high prevalence of asthma was reported in African American students in low income families and those living in low-income neighborhoods (Ray et al., 1998; Yeatts et al., 2000; Litonjua et al., 1999).

Despite nationwide efforts to manage asthma (CDC, 2003), it is apparent that adverse outcomes of asthma continue to increase, especially in African-Americans. For example, emergency visits for asthma in African Americans are more than four times (22.9 visits per thousand population) the rate in whites (4.9 per thousand) and other races (3.3 per thousand) (American Lung Association, 2002). The annual asthma-related deaths are higher in African Americans (38.7 per million) than in whites (14.2 per million) (Mannino et al., 2002).

The causes of continued presence of substantial racial disparities in asthma prevalence and asthma-related adverse outcomes are uncertain. Although asthma epidemiology and mortality in African Americans are known in several studies (Ray et al., 1998; Yeatts et al., 2000; Litonjua et al., 1999; American Lung Association, 2002; Mannino et al., 2002), research on the causes of the racial disparities of asthma in African Americans is not available. However, environmental precipitants, poor medical management, and poor access to health care have been proposed as contributing factors (Corn et al., 1995). It is also possible that inadequate knowledge, poor social support, and poor self-management of asthma may be significant problems in this population.

2.2. Asthma knowledge

Asthma knowledge is a necessary determinant of asthma self-management (Carson et al., 1991). Having appropriate knowledge is the first step toward better management of the disease. Gibson and colleagues (1995) found low knowledge scores (a mean asthma knowledge score of 14.5/31), knowledge deficits in asthma recognition and poor management of exercise-induced asthma in a study of high school students with asthma. Positive associations were found among higher knowledge scores, positive attitudes, and internal locus of control in the study (Gibson et al., 1995). People of all ages with more knowledge reported more appropriate management of their asthma than did people with less knowledge (Abdulwadud et al., 2001; Rubin et al., 1989; Boulet et al., 1995).

2.3. Self-management of illness in adolescents

Compliance with medications, getting help for asthma symptoms when needed, modifying activity levels, and avoiding allergens are important factors in self-management of asthma (American Lung Association, 2002). Inadequate asthma self-management is a significant problem in adolescents. For example, adherence rate with inhaled corticosteroids in children aged 12–17 years was only 30% (Kelloway et al., 1994). African American children aged 6–17 years with moderate to severe asthma showed a mean of 44% adherence rate with metered dose inhaler (Celano et al., 1998). The management of a chronic illness in adolescents should include issues such as development and family and social support (Neinstein, 2001). Social cognitive theory (Bandura, 1977) explains behavior in terms of reciprocal determinism in which socioenvironmental, personal, and behavioral factors all interact.

2.4. Social support

Consideration of the social environment of adolescents is paramount to the discussion of adolescents' health management behaviors, in that adolescence is a period of transition for independence and self-control. They learn to make independent decisions and take personal responsibilities when dealing with life events (Rechner, 1990). Support systems can mediate the smooth transition, and thus may play an important role in the adolescents' emotional readiness to take care of themselves (Coupey, 1998). A significant relationship ($p < 0.001$) between family social support and children's compliance with chronic illness management was reported in three studies (Schlenk and Hart, 1984; Schobinger et al., 1993; Butz et al., 1995). In other words, children with more family support showed better disease management behaviors.

Thus, social support and asthma knowledge might be important factors for asthma self-management behaviors in adolescents. While self-management of asthmatic children and adults have been studied, no such studies on African American asthmatic adolescents were found. The purpose of this study was to assess relationships among asthma knowledge, self-management, and social support in African American asthmatic adolescents in Alabama. The research questions for the study were: (a) What are the relationships among asthma knowledge, social support, and self-management behaviors? (b) Do social support and asthma knowledge predict self-management behaviors? Hypotheses for the research questions were: (a.1) There is a positive relationship between asthma knowledge and self-management behaviors; (a.2) there is a positive relationship between social support and asthma self-management behaviors; and (b.1) better asthma self-management is