Self-management Education of Children with Asthma: AIR WISE

WYLIE L. MCNABB, EDD, SANDRA R. WILSON-PESSANO, PHD,
GARY W. HUGHES, MD, AND PETER SCAMAGAS, MD

Abstract: This study was conducted to test the efficacy of AIR WISE, an individually administered asthma self-management program. Subjects were paired and randomly assigned to either an experimental group (N=7) or a control group (N=7). The frequency of experimental group emergency visits, analyzed over a 12-month posttreatment period, was substantially less than those of the control group, supporting the hypothesis that AIR WISE is effective in high-utilizer children through improved self-management. (*Am J Public Health* 1985;75:1219–1220.)

Introduction

The purpose of this study was to evaluate an individualized self-management program for children with asthma to determine whether those who had not been compliant with the standard medical management of their asthma would benefit from self-management education that could be "tailored" to their identified educational and behavioral needs.

This program, since named AIR WISE,[1] was designed for use in a clinical setting and consisted of four 45-minute sessions, administered on a weekly basis. The content of the program was based on a study of the self-management practices of children with asthma.* This made it possible to develop a program to teach a set of specific skills that, if practiced, could be expected to lead to an improvement in one or more aspects of a child's asthma. By making use of a diagnostic/prescriptive teaching technique, the educator using AIR WISE could identify the self-management problems of each child and then use the AIR WISE materials to prepare a tailored educational program. A written educational protocol guided the development and implementation of the educational plans, enabling educators to conduct the intervention in a standardized manner, while at the same time adapting it to the individual needs of children. The education provided to children via AIR WISE utilized goal setting, self-evaluation, and self-monitoring, which are considered to be the most effective behavior change strategies.[2–4] AIR WISE was specifically designed to be integrated with the medical regimen. While most of the interaction in the program took place between the patient and a nurse educator, the child's parents and the physician were included in the educational process.

Prior to its use in this study, the program was pilot tested, where it resulted in a significant decrease in emergency treatments in an experimental group as compared to a matched control group over a four-month follow-up period.[5]

Address reprint requests to Wylie L. McNabb, EdD, Health Research Group, American Institutes for Research, 1791 Arastradero Road, P.O. Box 1113, Palo Alto, CA 94302. Dr. Wilson-Pessano is also with the Institutes; Drs. Hughes and Scamagas are with the Kaiser-Permanente Medical Groups, Santa Clara and San Jose, California. This paper, submitted to the Journal December 21, 1984, was revised and accepted for publication April 5, 1985.

*McNabb WL, Wilson-Pessano SR, Jacobs AE: Critical self-management competencies for children with asthma. (Unpublished manuscript submitted for publication.)

Methods

Subjects

Children with asthma between the ages of 9 and 13 who were on a regimen of bronchodilators, who had had at least one emergency treatment for asthma in the previous year, and who had no known developmental or behavioral problems were recruited from two allergy clinics in the Kaiser-Permanente Medical Groups in northern California. A total of 16 patients were identified and matched on four variables: clinic where enrolled, number of emergency treatments for asthma during the previous 12-month period, asthma medication regimen, and age. Members of each pair were randomly assigned to either an experimental or a control group.

Data Collection

Prior to group assignment, medical records were reviewed and retrospective data for the year prior to the research were collected. Records were reviewed again after the interventions to provide 12-months of post-program data on the number of emergency treatments for asthma per month, number of non-emergency physician contacts for asthma per month, and current asthma drug regimen.

Educational Intervention

Subjects in the experimental group completed a half-hour diagnostic interview, followed by four individually tailored 45-minute educational sessions on the self-management of asthma. Subjects in the control group did not receive the diagnostic interview of the educational intervention, but continued to receive their usual medical treatment. A different nurse in each of two allergy clinics administered the AIR WISE program to subjects in the experimental group.

Results

Of the 16 subjects eligible for participation in the study, all agreed to take part. One subject in the control group subsequently moved from the area and was not available for follow-up. Data for this subject and the matched experimental group subject were excluded from all analyses.

The six boys and one girl in the experimental group averaged 10.5 years of age; the five boys and two girls in the control group averaged 10.4 years. There were no differences between the groups on the major dependent variables over the 12-month baseline.

In the 12-month post-education period, the experimental group averaged 1.9 emergency treatments; the control group averaged 7.4 emergency treatments; treatments pre-education were 6.1 and 5.7, respectively. There was no difference in post-treatment non-emergency visits or drug scores between the two groups. Improvement in knowledge of asthma and changes in self-management behavior of experimental group subjects were also documented (data available on request to author).

Discussion

The results suggest that AIR WISE can serve as an important adjunct to the medical management of asthma.

The small sample size of the present study limits its generalizability. However, quite similar results were also observed in the earlier pilot study, increasing confidence that the observed effects are real and replicable. This study did not attempt to control for the possible effects of attention alone on behavior, but it seems doubtful to us that attention alone would lead to the 12-month reduction in health care utilization achieved. Other studies have shown that simply paying more attention to patients (or giving attention plus a certain amount of education) has not produced the type of persistent behavior change and medical improvement observed here (e.g., Kaplan, *et al*;[6] Lewis, *et al*[7]).

Using $125 as the estimated cost of an emergency treatment for asthma, the average of 7.4 visits by the control group amounted to a cost of about $925 per child for the 12-month posttreatment period. The 1.9 emergency visits per child in the experimental group (plus an estimated $180 per child for program administration) amounted to a total cost of about $418 per child, an immediate cost savings of about $507 per child, per year with the potential for further savings in subsequent years.

ACKNOWLEDGMENTS

The research described in this report was carried out with support from the National Heart, Lung, and Blood Institute, Division of Lung Diseases, the Kaiser Foundation Research Institute, and the American Institutes for Research. The authors would like to acknowledge the support of the following individuals who contributed to this research: Shirley Anderson, LVN, Sue Brown, RN, Margaret Delano, MD, Jack Levin, MD, Sulochina Lulla, MD, and Jeram Shapiro.

REFERENCES

1. AIR WISE: An Individualized Self-Management Education Program for Children with Asthma. Bethesda, MD: National Heart, Lung, and Blood Institute, NIH Pub. No. 85-2363, 1984.
2. Thorensen CE, Kermit-Gray K: Self-management psychology and the treatment of childhood asthma. J Allergy Clin Immunol 1983; 72:5.
3. Bandura A: Self-efficacy mechanism in human agency. Am Psychol 1982; 37:122.
4. Bandura A: The self system in reciprocal determinism. Am Psychol 1978; 33:344.
5. Wilson SR, Bagshaw MH, Scamagas P, Hughes GW, Rodabaugh BJ, McNabb WL, Stancavage FB: Development and Evaluation of Self-Management Systems for Children with Asthma: Self-MANAGE and Co-MANAGE (Final report to the National Heart, Lung, and Blood Institute). Palo Alto, CA: American Institutes for Research, 1981.
6. Kaplan RM, Atkins CJ, Reinsch S: Compliance in patients with COPD. Health Psychology 1984; 3:223–242.
7. Lewis CE, Rachelefsky G, Lewis MA, de la Sota A, Kaplan M: A randomized trial of ACT (Asthma Care Training) for kids. Pediatrics 1984; 74:478–486.

Correlates of Depressive Symptoms among a Select Population of Black Men

LAWRENCE E. GARY, PHD

Abstract: This study was undertaken to provide information on the impact of demographic factors, stressful life events, and sociocultural patterns on depressive symptomatology among 142 noninstitutionalized Black men. The findings indicate that age, family income, household size, employment status, and conflict between the sexes were related to the presence of depressive symptoms. When controls were introduced, only family income and conflict between the sexes were correlates of depressive symptoms among Black men in this study. (*Am J Public Health* 1985; 75:1220–1222.)

Introduction

Since depression is a major health problem for a large number of adults,[1,2] considerable research attention has been focused on identifying predictors of depressive symptoms.[3–10] However, the literature regarding the existence and rate of depressive illness among Black people is sparse. Several studies have found that race had no effect upon the rate of depressive symptoms when socioeconomic status, age, marital status, and sex were controlled.[6,10] Contrary to the general finding that women have higher rates of depression, three studies have found that Black men had higher depression scores than Black women when adjustments were made for socioeconomic status-related variables.[11–13]

Because Black men have more negative life experiences than other groups (e.g., higher rates of unemployment and underemployment, higher death rates, higher incidence of drug addiction, more police harassment, and a poor quality of education), one would expect Black men to report a high level of depressive symptoms.[13] Most research has focused on understanding how sociodemographic factors predict depressive symptoms, however. Investigators have tended to ignore the problem of depression *within* the context of the Black community. There is a need to move away from the practice of only comparing Blacks and Whites on one or two dimensions.[14,15]

Many of the epidemiological studies of the incidence and prevalence of depressive illness have not included very diverse samples of Black men. Thus, we were unable to determine what variables best explain depressive symptomatology within the Black male population. This pilot study explores how demographic factors, stressful life events, and sociocultural variables are correlated with depressive symptoms among a group of Black male adults.

Methods

Data were collected from noninstitutionalized Black male subjects who lived in a large northeastern city in the United States. The following sample procedures were used: a list of computer-generated random telephone numbers (24 per cent of the respondents); posted announcements in barbershops that had a largely adult Black male clientele (13 per cent of the respondents); referral by community groups and other respondents (63 per cent of the respondents). The major concern was to obtain a heterogeneous sample of Black males that would potentially reflect a variety of life-styles. Out of a pool of 150 potential respondents contacted, 142 agreed to participate.

Personal interviews of approximately two (2) hours were conducted by trained interviewers at Howard University. The interview schedule consisted of open-ended and forced-choice type questions on a wide range of topics. The dependent variable, depressive symptoms, was measured by

Address reprint requests to Lawrence E. Gary, PhD, Director, Institute for Urban Affairs and Research, Howard University, 2900 Van Ness Street, NW, Washington, DC 20008. This paper, submitted to the Journal August 21, 1984, was revised and accepted for publication April 11, 1985.