Evaluation of a Home Health Promotional Program

by

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A thesis submitted in partial fulfillment
of the requirements for the degree of

Master of Science

University of Washington

1996

Approved by Jan. C Koenig
Chairperson of Supervisory Committee

Program Authorized
to Offer Degree School of Public Health and Community Medicine
Department of Environmental Health

Date Oct. 10 96

Formaldehyde is often considered a cause of irritation in indoor air due to its presence in building materials (Marburg, 1991).

Behavioral and structural modifications to reduce exposure to agents that can cause allergies and asthma have included encasement of mattresses and box springs, removal of carpeting, frequent cleaning or removal of carpet and upholstered furniture (Murray 1993, Sarsfield 1974, Walshaw 1986, Korsgaard 1982). To educate asthmatic adults to adopt and adhere to these behaviors, a computer based interactive instructional tool in addition to conventional counseling with written materials was found to be effective in reducing allergens in homes. This method, when compared with conventional counseling and written materials, provided greater clarity of the measures, opportunity for self-paced instruction, greater emphasis on certain aspects of allergen avoidance, and used an interactive format (Huss 1992). The Master Home Environmentalist program in Seattle was established to educate the public on environmental home pollutant issues with educators who interact with home residents and can deliver the same benefits as the computer based interactive tool.

BACKGROUND

Master Home Environmentalist Program

The Master Home Environmentalist (MHE) Program in Seattle was developed with the support and cooperation of many of the public and private organizations concerned about the indoor air pollutants issue. It originated with the Home Toxics Task Force, which was formed by the League of Women Voters, and is being currently implemented by the American Lung Association. Funding for the program is from US Environmental Protection Agency, Region X (Lead Program), the City of Seattle, the Washington Department of Ecology, the Seattle-King County Department of Public Health, Department of Environmental Health in the University of Washington, Seattle American

- One in three homes have high relative humidity and moisture which promote the growth of molds, dust mites, and respiratory problems as well as building damage (Brunekeef, 1989; Tsongas, 1992);

Individuals with allergic respiratory disease are especially at risk for aggravation or irritation by a variety of indoor air pollutants (Dekker, 1991). A combination of synthetic chemicals in construction products and tightening of buildings for energy conservation has created residences and work places where occupants complain of a myriad of symptoms. These symptoms include headache, eye, nose, and throat irritation, fatigue, dizziness, and nausea (Stolwijk, 1991). Many of these symptoms are present in individuals with allergic disease.

Several of these indoor air constituents are known to aggravate asthma. It is known that indoor environmental tobacco smoke (Murray, 1986) and dust mites aggravate asthma (Platts-Mills, 1987), especially in infants and children (Sporik, 1990). Dust mite antigen may be the primary cause of asthma provocation in young children (Sporik 1992). House dust mite avoidance is a recommended strategy for controlling asthma (Colloff, 1994). Cat dander and cockroach feces also are known to provoke asthma attacks in some individuals (Platts-Mills, 1990). Dampness in the home is conducive to the growth of molds and subsequent respiratory symptoms in children (Brunekreef 1989; Jaakkola, 1993).

Several years ago the EPA conducted a survey of agents found indoors that had toxic potential. That study was called the Total Exposure Assessment Methodology (TEAM). The conclusion was that breathing zone concentrations and personal air exposures to 26 volatile compounds categorized as "Air Toxics" by EPA were significantly higher in indoor air compared to outdoor air (Wallace, 1986). These compounds include chemicals such as toluene, benzene, chloroform, tetrachloroethylene and p-dichlorobenzene.

Chapter One : INTRODUCTION

SIGNIFICANCE OF PROBLEM

Indoor pollution has been ranked by both the Environmental Protection Agency Science Advisory Board (EPA, 1987, 1990) and the Centers for Disease Control (CDC, 1991) as a high environmental risk. Evidence indicates that concentrations of many pollutants in air, dust and soil are substantially higher indoors than outdoors (Immerman and Schaum,1990; Fortmann, 1991; Lewis, 1994). Exposure to pollutants arises from many sources in the home including heating (Leaderer, 1982) and cooking systems (Goldstein, 1979), dust (Sayre, 1974), household hazards (Knoppel, 1987), chipping paint (Charney, 1983) and insecticides (Spengler, 1991). Lead (Charney, 1982), insecticides and other hazardous household chemicals (Wallace,1991A), indoor air contaminants, such as house dust (Sayre, 1974), molds (Burr, 1985) and tobacco smoke (Holt, 1984) pose a significant risk to people. Home pollutant exposure may result in asthma and allergies (Strachan, 1988), cancer (Garfinkel, 1981), respiratory infections (McCarthy, 1985), symptoms of sick building syndrome (Marbury, 1991), and other illnesses.

The research documenting the problems caused by pollutants in the home is substantial:

- One in thirteen children under six years of age comes in contact with a hazardous home chemical that generates a call to a poison control center (Litoviz, 1991);
- One person in nine is affected by allergies that are related to dust and indoor air quality (Platts-Mills, 1987);
- One in seven preschool children has serum lead concentrations that exceed the definition of lead poisoning with African American children twice as likely to be poisoned (ATSDR, 1988; CDC, 1991);