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Title: The Relationship between Socioeconomic Status and Severity of Asthma

Synopsis

Asthma is the leading cause of hospital admission in children and a significant cause for morbidity in adults. Self-management, which includes Written Asthma Action Plans (WAAP), monitoring asthma symptoms and seeking the regular review is a major factor in improving management and reducing hospital admission (2). Socio-economic status (SES) plays an important role in asthma management, adherence and morbidity. Adherence to medication and smoking exposure are associated with the increased risk of asthma exacerbation. The aim of the study is to investigate the relationship between SES and severity of asthma. The project will utilize data collected as part of the current “Asthma Best Practice Model”, which is non-randomized before and after trial of asthma self-management education and support.

Background and Rationale

Asthma is a disease with physical symptoms that can impair a person’s functioning to the point of interfering with school, work, and social activities (1). About 40% of all Australians will have respiratory symptoms consistent with asthma at some time and there is evidence of increasing asthma and prevalence and severity in children, that is why asthma became the most common medical cause for hospital admission for children and ranks among the ten most common reasons for seeing general practitioner (2).

Respiratory diseases generally are more prevalent in patients of lower socio-economic status, possibly because of greater exposure to etiologic and aggravating factors, or because of inadequate, poor quality or inaccessible health care (3). Initial studies suggested that asthma was more common in children in higher social classes, while recent studies of children have shown no relation between social class and asthma, severe asthma is more common in lower socio-economic classes in both children and adults (3). In New Zealand, there was a marked increase in asthma mortality (and morbidity) in the late 1970s and early 1980s (3). A number of observations led to the hypothesis that socio-economic factors may have been important. Firstly, those in the lower socio-economic groups in New Zealand had baseline asthma mortality two to three times that of higher socio-economic groups and further the increase in mortality was primarily in lower socioeconomic group (3). Rea et al. (1993) shown that psychosocial problems, of which recent unemployment was an important component, were independently associated with an increased risk of death from asthma (4).

The marked increased in asthma mortality and morbidity in the United States during the last 15 years has mainly affected the African American population, in particular those individuals of low socioeconomic status (SES) (5). Characteristics of urban African Americans that may include frequent use of the Emergency Department (ED) for asthma care, lack of regular source of care outside the ED (5), fewer anti-inflammatory medications, less pulmonary testing, and less asthma specialist care (6). However, it has been hypothesized that, they have an increased chance of sensitization and exposure to unique allergens such as those from cockroaches because significant numbers of African Americans live in areas of social disadvantage (5).

The aim of the project is to investigate the relationship between socioeconomic status measurements in relation to the severity of asthma attack.

Research question

Do the patient of low socio-economic status have poor adherence to asthma medication regiment and more severe asthma compared to patients of high socio-economic status?

Hypothesis

Patients with low socioeconomic status have poor adherence to the asthma medication regiment, and increased severity of the attack.

Research Design

The proposed study design is cross sectional data analysis, using data being collected as part of Asthma Best Practice study, which is a non-randomized, before and after trial of asthma self-management education and support.

Population

The research will involve about 250 patients aged 4 to 65 years with asthma who presented to ED of The Northern Hospital (TNH) for asthma exacerbations. Currently, patients are identified every few days from the computer files of ED and posters about the project are displayed in the ED waiting room. The project officer invites each asthma patient/ guardian after discharge from the ED.

Intervention

The proposed project is a secondary data analysis and no intervention is contemplated. The original intervention is conducted by the asthma educator (AE) who organizes a face-to-face consultation with each patient, at a convenient time and venue (general practice, hospital ED or Broadmeadows Health Service). The AE assesses each patient

using validated questionnaire, spirometry and deliver the self-management education and support.

Comparison

Comparison will be made between patients with low and high socioeconomic status depending on level of education, family income and employment, in relation to adherence to asthma medication regimen; drug delivery devices use and health outcome

Outcome

The main outcomes are:

- Admission to Emergency Department (ED)
- Type of medication (preventer)
- Lung function test (spirometry)
- Frequency of symptoms
- Frequency of reliever medication
- Length of stay in hospital
- Patient's self reported severity
- Unscheduled visit to General Practitioner (GP)
- Asthma specific quality of life

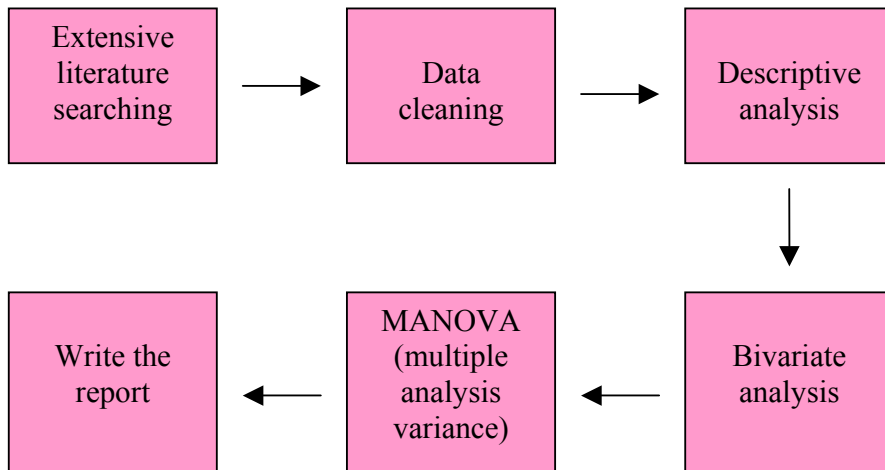
The role of confounding factors such as age and smoking (number of cigarette per day) will be determined.

Data Analysis

The first step is the extensive literature review from Medline, Cochrane and other database; secondly, data cleaning and processing will be done, to identify errors and missing values and coding or scoring data before putting to the data entry (SPSS). The data will be analyzed using SPSS for windows program and will be used for answering the research questions.

The next step will describe the relationship between variables (bivariate analysis), which are dependent and independent variable, using correlation analysis, such as qualitative using person correlation t-test and chi-square test, for example categorical data. Finally multivariate analysis will be conducted to adjust for the effects of the confounding factor using SPSS. Finally, data will be presented using tables and figures. Results will be interpreted statistically and clinically in terms of answering the research questions. The data will be presented using histogram, bar charts and scatter plots. A p-value less than 0.05 will be considered statistically significant.

Flow chart for the AMS course:



Scope and limitation

- ◆ The sample is expected to be about 250 patients by February 2004. The patients presented with asthma at the ED, therefore it is difficult to generalize to the total population.
- ◆ Secondary analysis of data collected to test another hypothesis.

TIME FRAME

Month	Aug	Sept	Oct	Nov	Jan	Feb	Mar	Apr	May
Literature Review	X	X	X	X	X	X	X	X	X
Participation in collection/interview		X	X	X	X	X	X		
Asthma Skill Training*		X	X	X	X	X	X	X	
Data Collection		X	X	X	X				
Data Processing						X	X		
Data Analyzes						X	X	X	
Write The Draft						X	X	X	
Submit draft to supervisor								X	
Final Draft								X	X

*Asthma skill training includes:

- ◆ Lung function test
- ◆ Adherence (Video)
- ◆ Communication Skill
- ◆ Medication devices (Spacer, MDI, etc), through CD
- ◆ Management guidelines (National Asthma Council Booklet, 2002)

