

Chapter 1

Orientation to the study

1.1 INTRODUCTION

Coronary heart disease (CHD) reached epidemic proportions in the twentieth century. Increased knowledge about the risk factors contributing to this disease could be expected to reduce the incidence. Instead, the evidence indicates that the prevalence continues to rise despite public awareness of the risk factors. In common with other expatriates, the Indian community of South Africa has a high incidence of CHD. In 1985, the relative risk of CHD deaths among South African Indians compared to Whites was 1:3 in males and 1:7 in females (Seedat 1993:45).

The researcher, a trained intensive care nurse who has worked in the coronary care unit for eleven (11) years at the RK Khan Hospital, which serves a predominantly Indian population, observed that there was a marked increase in the number of patients admitted with CHD-related problems. Thirty to forty patients are admitted to the coronary care unit with CHD per month. The admission rate indicates an increasing incidence of CHD among the Indian community in KwaZulu-Natal. This observation prompted the researcher to explore the factors contributing to the increased prevalence to CHD in the Indian community, with the anticipation that the research would contribute to culture-congruent preventative, promotive and rehabilitative programmes.

1.2 BACKGROUND TO THE PROBLEM

Statistics indicate an increase in the number of patients admitted with CHD in the Indian community of KwaZulu-Natal. In a study of 31 101 adult patients over a ten-year period (1980-1990), Sewdarsen, and Vythilingum (1990:124) found that 11% of all admissions involved CHD and 24% of all deaths were CHD related.

With regard to coronary artery disease and insulin resistance in South African Indians, Seedat (1993:83) found that 20% of admissions were CHD related and 22% of the patients admitted to the coronary care unit were under 45 years old.

Walker (1998:87), is of the opinion that although the South African Indian population enjoy better economic conditions than their rural counterparts in India, their life expectancy did not improve. Instead, the cause of death simply changed from infectious diseases in India to degenerative diseases in South Africa. In South Africa there is a high prevalence of hypertension in the adult Black population. Morar, Seedat, Naidoo and Desai (1998:313-318) compared the blood pressure profile of 154 medical students, of whom 83 were Indians and 71 were Africans, 87 were males and 67 were females. A cuff method and 24-hour ambulatory blood pressure monitoring was used. Biochemical studies for CHD risk factors were done. Electrocardiography was performed on all participants and echocardiography on 90 students. Results showed that the African Black students had higher systolic and diastolic pressure compared to the Indian students. Metabolic risk factors for CHD in the Indian students were at an early stage (Morar et al 1998:313-318).

Meta-analyses conducted in England, South Africa, Malaysia, the West Indies and the United States of America (USA) indicated a universal high incidence of heart diseases among Indians (Saini 2003:14). Yeolekar (1998:14) found the mortality rate for CHD highest in men and women born in India. Naidoo (2004:2) reported CHD a silent killer among young Indian men.

Epidemiological studies have isolated various risk factors, which could be implicated in risk factors of CHD. The major risk factors are hypertension, certain pathogenic plasma lipid profiles, cigarette smoking, diabetes, decreased HDL-C, lack of physical activity and personality traits (Jackson 1997:78). More controversial risk factors are chronic stress, personality type, life events and social support (Byrne 1996:68; Tenebaum and Singer 1996:179). It is very difficult to deter a causal relationship between risk

factors and CHD, and this also applies to physical activity and the effects on cardiovascular disease. From this background, then, this study seeks to explore and describe the risk of coronary heart disease among the Indian population in Kwa Zulu-Natal.

Physical activity reduces the risk of coronary heart disease (CHD). The American Heart Association (AHA) (1992:340-344) emphasises the relationship between aerobic exercise and cardiovascular health and lists cigarette smoking, hypertension, serum cholesterol levels and inactivity as modifiable risk factors. Seedat (1993:447) points out that changes in lifestyle promote optimal health and longevity. For example, cessation of cigarette smoking, the control of hypertension and reduction of dietary fats are important components in the control of CHD. In addition, the control of obesity and regular exercise throughout life might be equally important in preventing CHD in the Indian population (Seedat 1993:447). Coopoo (1995:5) endorses the value of physical activity and diet modification because moderate exercise reduces the risk of heart disease.

Mattos and Ribero (2003:629) found that regular aerobic exercise improves lipid profiles, reduces stress and lowers blood pressure. Saturated fat diets, a more affluent lifestyle, smoking and lack of exercise are also implicated in this stage. Today, physical exercise is strongly recommended in both primary and secondary prevention of CHD.

Saini (2003:6), Mann (2000:1992), Wood and Stefanick (2000:461) as well as Mensink and Katan (1994:439) found that the risk for CHD increased dramatically following a hyper caloric saturated fat diet, large increases in plasma lipid, lipoprotein levels and body weight mass. A diet in saturated fats with good weight control via exercise may still not improve the lipid profile, because of the increased intake of fat through the diet. Along with dietary changes, stress and a lack of exercise also contribute to the problem. Westernisation is another factor that has an impact on the diet and life style of communities in Africa.

According to Todaro, Biing-Jiun, Niaura, Spiro and Ward (2003:480), persistent stress can lead to a variety of discomforts. Major stress like high blood pressure, heart disease or cancer can be life threatening. Stress is a major risk factor that can become responsible for CHD even in the absence of other risk factors. Stepanovic, Ostolic and Belsine and Todaro (2003:257) found that type A people, who are aggressive, always short of time, short tempered and stressful, are prone to develop CHD.

1.3 STATEMENT OF THE PROBLEM

Statistics indicate that there is an increase in the admission rates of Indian patients admitted with CHD and the prevalence continues to increase despite public awareness campaigns. Mayet (1982:968) and Seedat (1982:965) found a high incidence of CHD in the metropolitan hospitals of Durban. The researcher observed that in 2002 thirty to forty patients were admitted with CHD per month with a history of CHD.

1.4 PURPOSE OF THE STUDY

The purpose of this study is to describe the risk factors contributing to the increase of CHD among the Indian population of Kwa Zulu-Natal in order to contribute to culture-congruent preventive and health modification strategies.

1.5 OBJECTIVES OF THE STUDY

The objectives of this study are to:

- identify the risk factors contributing to the increased incidence of CHD among the Indian population in KwaZulu-Natal
- describe health problems related to these risk factors
- develop health modification strategies to be implemented.

1.6 RESEARCH QUESTIONS

- What factors contribute to the increase of CHD among the Indian population of KwaZulu-Natal?
- What health problems are related to the risk factors?
- What measures could be implemented to reduce the prevalence?

1.7 ASSUMPTIONS UNDERLYING THE STUDY

Assumptions are “basic principles or premises, which are presumed to be true, without proof of verification” (Burns & Grove 2001:46). These are mere guidelines, as strictly constructed theoretical formulation would be incompatible with the epistemology and ontological premises of the research methodology.

The research was based on the following assumptions:

- All the respondents will report information on family history and dietary habits reliably.
- There is an increasing incidence of CHD among the Indians in Kwa Zulu-Natal.
- The occurrence of CHD can be changed by a person’s lifestyle.
- A healthy lifestyle and motivation of patients might reduce the incidence of CHD.

1.8 THEORETICAL FRAMEWORK

According to Henning, Van Rensburg and Smith (2004:46), a theoretical framework positions research in a discipline or subject, helps researchers to make explicit assumptions, reflects the approach adopted, and thus frames the work. The researcher chose an epidemiological theoretical framework based on literature to guide the study.

Smeltzer and Bare (2000:598) identify non-modifiable and modifiable risk factors in CHD. Non-modifiable risk factors are beyond the individual’s

(host) control, namely age, gender and genetics. Modifiable factors are the ones over which an individual has (some) control, such as external and internal environmental factors and life style (e g, cigarette smoking, bad eating habits and sedentary life). Both modifiable and non-modifiable factors appear in biological or clinical manifestations, such as hypertension, glucose intolerance and lipid profile.

1.9 SIGNIFICANCE OF THE STUDY

It is envisaged that the results of this study will increase the knowledge on the risk factors contributing to the rising incidence of CHD in the Indian community; reinforce preventive and promotive programmes and measures for early detection of patients at risk; help patients at risk and those already affected to gain more insight into their disease and enable implementation of precautionary measures to prevent progression of the disease. In addition, recommendations to the Provincial Department of Health will give direction to their preventive, promotive and rehabilitative health programmes.

1.10 DEFINITIONS OF KEY CONCEPTS

For the purposes of this study, the following terms are used as defined below.

- **Coronary heart disease – CHD**

The heart muscle must have adequate blood supply to contract properly. The coronary arteries carry oxygen and blood to the myocardium. When a coronary artery is narrowed or blocked, the area of the heart muscle supplied by that artery becomes ischaemic and injured and infarction may result. The major disorders that result from insufficient blood supply to the myocardium are angina pectoris, congestive heart failure and myocardial infarction. These disorders are collectively known as coronary heart disease (CHD), also ischaemic heart disease (Luckman & Sorrenson 1999:674).

- **Indian**

Collins English Dictionary (1991:787) defines Indian as “a native, citizen, or inhabitant of the Republic of India”. In the context of this study, Indians will mean expatriates from India to South Africa, the majority of whom settled in Kwa Zulu-Natal.

- **Community**

Collins English Dictionary (1991:327) defines community as “a group of people having cultural, religious, ethnic, or other characteristics in common”. In this study, the term will refer to the Indian community living in Chatsworth in Durban.

- **Modifiable risk factor**

A modifiable risk factor is “one over which individuals may exercise control, such as by changing a lifestyle or personal habit or by using medication” (Smeltzer & Bare 2000: 598).

- **Non-modifiable risk factor**

A non-modifiable risk factor is “a circumstance over which individuals have no control, such as age or heredity. A risk factor may operate independently or in tandem with other risk factors. The more risk factors individuals’ have, the greater the likelihood of CHD” (Smeltzer & Bare 2000:598).

- **Contributory factor**

Contributory means “sharing in or being partly responsible (for the cause of something)” (*Collins English Dictionary* 1991:348). In this study contributory factors will mean those factors that predispose individuals to the development of CHD, such as obesity, lack of exercise and response to stress.

- **Prevalence**

The prevalence of the disease is the number of cases in a defined population at a specific point in time (Beagiehoie, Bonita & Kjellstrom 1993:15).

- **KwaZulu-Natal**

KwaZulu-Natal is one of the nine provinces in South Africa. The majority of the Indian population emigrated from India to Natal to work in the sugar cane fields in the 18th century. This province has eleven health districts of which one is Durban.

- **Risk factor**

The term “ risk factor” is commonly used to describe factors that are positively associated with the risk of development of a disease but are not sufficient to cause the disease (Beagiehoie et al 1993:74).

1.11 RESEARCH DESIGN AND METHODOLOGY

1.11.1 Research design

A design is “a plan, structure and strategy of the investigation, so conceived as to obtain answers to a research question. The purpose of the research design is to achieve greater control of variables, thus improving the validity of the study in examination of the research problem. In the research design, the researcher develops a theoretical framework before plugging into the project” (Burns & Grove 2001:292). This study employed a quantitative design, using a descriptive, exploratory survey.

1.11.1.1 Quantitative

According to Kennedy (2000:127), a quantitative design is used if the data is measured in numbers. Burns and Grove (1993:26) define a quantitative design as “a systemic process in which numerical data are utilized to obtain information about the phenomenon under study”. For this study an explorative descriptive survey was conducted.

1.11.1.2 Exploratory

Exploratory research is conducted to explore the factors that relate to the phenomenon under study and to obtain a richer understanding of the phenomenon (Polit & Hungler 1995:19).

1.11.1.3 Descriptive

According to Burns and Grove (1993:766), descriptive studies attempt to describe the phenomenon in detail. Uys and Basson (1994:38) define a descriptive study as “the collection of accurate data on the phenomenon to be studied”. Polit and Hungler (1995:175) describe a descriptive study as concerned with observation, description and documentation of aspects of a situation rather than relationships among variables. According to Wood and Webster (1998:167) (cited in Polit & Hungler 1995:182), descriptive research provides an accurate portrayal or account of characteristics of a particular individual, event or group in real-life situations, for the purpose of discovering meaning, describing what exists and obtaining information about the current status of the phenomenon.

Based on the premise that a great deal of information could be obtained from a large sector of the population in a fairly economical and accurate manner, a descriptive survey was used to explore the factors leading to the increasing incidence of coronary heart disease.

In the researcher’s opinion, a quantitative and exploratory survey could be used successfully in this study. According to Abrahamson (1992:130),

surveys are used to obtain information about people's beliefs, attitudes, opinions and interests.

1.11.2 Sampling

1.11.2.1 Population

A population is "the total possible membership of the group being studied" (Wilson 2000:1051), while a sample is "a subset of a population selected to participate in a research study" (Polit & Hungler 1995:95).

In this study, the population consisted of patients with any of the risk factors causing CHD, admitted to the medical wards only. Patients from the coronary care unit (CCU) were not included during their stay in the CCU but were included in the sample on transfer to the medical wards.

The accessible population was all patients with any of the risk factors admitted to the four medical wards of the RK Khan Hospital.

1.11.2.2 Sample

A non-probability purposive sample was used. According to De Vos (2000:198), purposive sampling is selected when there is good evidence that the sample is representative of the total population under study. In this study patients were selected, based on their CHD diagnosis.

Patients admitted to the medical wards with one or more of the risk factors leading to CHD participated in the study. The study was conducted over a period of two weeks (14 consecutive days). All patients admitted within this period were asked to participate in the study. The registered nurses in charge of the wards assisted the researcher to identify patients at risk.

1.112.3 Research setting

The RK Khan Hospital in Durban is a major referral centre for patients with myocardial infarction in the province (see annexure 1).

1.11.3 Data collection

A questionnaire consisting of open-ended and closed questions was used. Questionnaires offer anonymity and increase the likelihood of obtaining accurate information when sensitive information is required (Ary, Jacobs & Razaviah 1999:423). Babbie (1992:8) states that the central element in survey research is the standardized questionnaire. Open-ended questions allow respondents to express themselves freely. Closed questions present respondents with limited options (Ary, Jacobs & Razaviah 1999:419).

The researcher personally distributed the questionnaires to the wards after ward rounds to ensure that the respondents would not be discharged on that day. Therefore, participants were requested to complete the questionnaire on the same day. The questionnaires were distributed and collected daily for a period of fourteen (14) days. The researcher assisted respondents who were unable to read and write to complete their questionnaires.

1.11.4 Validity and reliability

Validity and reliability refers to the measurement of the data that will be used in the answering of the research question (Brink & Wood 2001: 173).

Talbot (1995:69) defines validity as “ the degree of consistency or dependability with which an instrument measures the attributes it is designed to measure ” (Uys & Basson 1994:75).

The data – collection instrument in this study was a questionnaire, developed by the researcher, with the assistance of a senior medical officer to ensure validity and reliability. The researcher explained the

purpose and objectives of the study to seven patients and three intensive care trained registered nurses and gave them copies of the questionnaire to evaluate for clarity and to indicate any weaknesses. The questionnaire was amended, where necessary, according to their evaluation and recommendations.

1.12 ETHICAL CONSIDERATIONS

Permission to conduct the study was sought and obtained from the general manager of the RK Khan Hospital. See Annexure 2 for the questionnaire. Permission was also obtained from the registered nurses of the medical wards. The researcher set a date and time with the registered nurses to inform the respondents (patients) and distribute the questionnaire.

Informed consent was obtained from the respondents after briefing. The respondents were informed that participation was voluntary and they could withdraw at any time with no consequences.

Privacy, confidentiality and anonymity were ensured. No names or identity were attached to the questionnaires.

1.13 DATA ANALYSIS

The researcher analysed the questionnaires personally by reading and re-reading the scripts to seek meaning in the data. Open-ended data were grouped into themes/ categories. An independent coder was used to ensure trustworthiness. Analysis of the data was done manually and presented in frequency tables, percentages and diagrams.

1.12 OUTLINE OF THE STUDY

Chapter 1 introduces the study, discussing the problem, the purpose, objectives and significance of the study, defining key terms and briefly describing the research design and methodology.

Chapter 2 discusses the literature review undertaken for the study.

Chapter 3 covers the research methodology.

Chapter 4 presents the data analysis and interpretation.

Chapter 5 concludes the study, discusses its limitations, and makes recommendations for practice and further research.

1.15 CONCLUSION

This chapter discussed the background to the problem, purpose, objectives and significance of the study, defined key terms and described the research design and methodology. Chapter 2 covers the literature review used for this study.