Chapter 3

Research design and methodology

3.1 INTRODUCTION

This chapter discusses the research design and methodology, including approach, sample, and data-collection instrument. Every effort was made to prevent bias and scientific misconduct.

3.2 DELIMITATION

The RK Khan Hospital in Durban was chosen for the study. It is the major referral centre for patients with acute myocardial infarction (AMI) in the province of KwaZulu-Natal. Predominantly Indian patients are admitted to the hospital. There are four medical wards and researcher focused on these wards. Only patients with one or more risk factors to CHD were used.

3.3 GEOGRAPHICAL AREA

KwaZulu – Natal is one of the provinces in South Africa. Majority of the Indian population immigrated to Natal to work in the cane fields in the 18th century. Durban city is one of its thriving residential and industrial centres, supporting a major seaport and a year-round holiday destination. Industries include shipbuilding, sugar refining, petroleum refining, fishing, automobile assembly and the manufacture of food products, paints, chemicals, soap, footwear, textiles and chemicals. Chatsworth is situated in the South of Durban.R.K.Khan Hospital is situated in Chatsworth and has grown from a community hospital to one of the four major hospitals in Durban (see Annexure 3) for the map of Durban.

3.4 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.

3.4.1 Quantitative

A quantitative design is used "if the data is measured in numbers" (Kennedy 2000:127). Burns and Grove (1993:203) define a quantitative design as "a systematic process in which numerical data are utilized to obtain information about the phenomenon under study". A quantitative approach **"**facilitates deductive reasoning whereby the researcher starts with something that little is known about so as to further explore the topic**"** (Clifford, Cornwell & Harken 1997:342). The researcher used a quantitative research design because the data was presented in frequency counts and percentages, and the responses were analysed numerically.

3.4.2 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 (1994:167) (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.

The respondents' answers to the research questions provided detailed descriptions of the prevalence of the increasing risk of CHD in the Indian population in Chatsworth, KwaZulu-Natal.

3.4.3 Survey

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. Surveys are used to obtain information about people's beliefs, attitudes, opinions and interests (Abrahamson 1992:130).

With the help of a senior medical officer, in charge of the cardiology unit, the researcher developed a semi-structured questionnaire with both open-ended and closed questions as the data-collection instrument.

3.5 POPULATION

A population is "the total possible membership of the group being studied" (Wilson 2000:1051). Burns and Grove (2001: 236) describe the population as "all elements/subjects that meet the criteria for inclusion in a study". In this study, the population comprised of patients admitted to the medical wards, including patients transferred from the coronary care unit (CCU) with medical risk of CHD. Each ward has a bed occupancy of 40 patients thus the population was about 160 when all the beds were occupied.

3.5.1 Sampling

Sampling is the process of making a selection of the study sample (Burns & Grove 2001:319). For the purpose of this study, non-probability purposive sampling 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. Denzil and Lincoln (1994:89) state that purposive sampling researchers "seek out groups, settings and individuals where the phenomenon being studied is likely to occur". The

patients in this research were purposely selected, based on their diagnosis related to one or more of the risk factors of the CHD.

3.5.2 Inclusion criteria

The researcher enlisted the assistance of the sisters-in-charge to obtain a sample of 60 patients. Patients admitted to the medical wards with one or more of the risk factors leading to CHD participated in the study. Participants who were unable to read and write were also selected and the researcher personally assisted them with completion of their questionnaires.

The researcher explained the nature and purpose of the study to the sisters-in-charge of the medical wards and to the participants, as well as that participation was voluntary. The researcher personally distributed and collected the questionnaires daily for the fourteen days. The questionnaires were distributed after the doctors' ward rounds to ensure that patients were not discharged before completing the questionnaire.

3.6 DATA COLLECTION

3.6.1 Research instrument

The researcher selected a questionnaire as the data-collection instrument because it offered anonymity and increased the likelihood of obtaining accurate information when sensitive information is required (Ary, Jacobs & Razaviah 1999:423). It was seen as time effective and would enable the researcher to obtain data on the respondents' knowledge of and attitudes towards the risk factors leading to CHD.

A semi-structured questionnaire with both open and closed-ended questions was developed (see Annexure 2). The questionnaire was divided into three sections:

- Section A Non-modifiable factors
- Section B Modifiable risk factors
- Section C Health education received

The epidemiological Framingham heart study (1984) framework as cited in Hudak (1998) of modifiable and non-modifiable risks of CHD was used in compiling the questionnaire.

3.6.2 Validity and reliability

Validity refers to the measurement of data as it will be used in answering the research question (Brink & Wood 2001:173). Talbot (1996:69) defines validity as " the degree to which an instrument measures what it is intended to measure". To ensure validity, the tool was given to three experts, working with patients with CHD, to check for face and content clarity and relevancy. Content validity is the self evident measurement because it relies on the assurance that the researcher can demonstrate the adequate coverage of the known field. Content and face validity are concerned with representativeness or sampling adequacy of the content or items.

Reliability is "the degree of consistency or dependability with which an instrument measures the attributes it is designed to measure" (Uys & Basson 1994:75). Seven patients with risk factors and three registered nurses from the coronary care unit were given the questionnaire and asked to evaluate the instrument for clarity of content and to indicate any weaknesses. Their feedback was considered and corrections were made according to their evaluation and recommendations.

3.6.3 Data collection

A semi-structured questionnaire with both open and closed-ended questionnaire was used to collect data. Briefing of participants was done daily as the data was collected over two weeks. The registered nurses were also briefed on the nature and purpose of the study as they were expected to assist in identifying the patients with CHD-related diagnosis. Briefing for respondents was done daily as the sample was collected for fourteen consecutive days and patients were admitted and discharged on different days. The researcher distributed and collected the questionnaires. The participants' physical condition was taken into consideration. There were no patients who were too ill to complete the questionnaire.

3.7 DATA ANALYSIS

The researcher analysed the questionnaires personally. The data was grouped into themes/categories. An independent coder was used to ensure trustworthiness. An analysis of the data was done manually and presented in frequency tables, graphs and diagrams.

3.8 ETHICAL CONSIDERATIONS

Ethics is concerned with what is wrong or right in the conduct of research (Mouton 2001:238). Since scientific research is a form of human conduct, it has to conform to generally accepted norms and values (Mouton 2001: 235). The researcher needed to search for truth, but not at the expense of participants or scientific integrity.

Permission to conduct the study was sought and obtained from the general manager of the RK Khan Hospital (see annexure 1). A copy of the questionnaire was attached. Permission was also obtained from the registered nurses in charge of the medical wards. A date and time for the distribution of the questionnaire was arranged with them.

Written informed consent was obtained from the participants after briefing (see annexure 1). The participants' rights were protected. They were informed that participation was voluntary and that they could withdraw at any time should they so wish with no consequences.

The respondents' privacy and anonymity were ensured. They were asked not to write their names on the questionnaire. No individual's identity could be traced to a questionnaire or any information. The respondents were assured that the information would be treated as strictly confidential.

3.9 CONCLUSION

This chapter discussed the research design and methodology in detail, including population, sample, data-collection instrument, validity, reliability and ethical considerations.

Chapter 4 presents the data analysis and interpretation.