

Chapter 4

Research methodology

4.1 INTRODUCTION

This chapter deals with the methodology which was adopted for the study and the following aspects are discussed:

- the nature of the study
- underlying assumptions
- research questions
- the population
- the census
- the instrument used
- validity and reliability
- ethical considerations
- the distribution of questionnaires and collection of data
- * a description of the participating hospitals and the respondents

4.2 RESEARCH APPROACH

A descriptive survey was conducted to identify the attitudes and perceptions of the nurse managers concerning cost containment in selected hospitals in the Eastern Cape. The study was confined to four provincial hospitals with respective bed capacities exceeding 200, in the Port Elizabeth metropole of the Eastern Cape.

A descriptive research approach is based on the present state of affairs and designed to answer questions about the ongoing events of the present situation (Dempsey & Dempsey 1992:314). A survey is a nonexperimental study which focuses on obtaining information regarding the status quo of a situation through direct questioning of a sample of respondents (Polit & Hungler 1993:447). Stevens, Schade, Chalk and Slevin (1993:79) add that a survey is a form of exploratory research of a strongly quantitative nature, with the following characteristics:

- easily applied to large groups of respondents constituting a sample of a research population
- exploratory, and therefore suitable for a broad introductory approach
- based on relatively open questions, mostly directed at describing population characteristics, defining and establishing connections between variables, often grouped around central themes

The descriptive survey approach was chosen as being the most suitable for this study as it attempted to provide accurate descriptions about the respondents' opinions, perceptions and attitudes pertaining to the nurse manager's function in cost containment in hospitals in the Eastern Cape.

4.3 NATURE OF THE STUDY

The study was designed to identify attitudes and perceptions of nurse managers employed in large public hospitals in the Port Elizabeth metropole regarding cost containment issues. Polit and Hungler (1993:435) define the main objective of descriptive research as accurately portraying the characteristics of individuals, situations or groups, and the frequency with which certain phenomena occur.

A descriptive study was chosen as the researcher had to determine, through the responses, which perceptions and attitudes the respondents portrayed regarding some important cost containment issues. The study was based on the questions formulated in Chapter 1 and the conceptual framework presented in Chapter 3.

4.4 RESEARCH QUESTIONS

A series of questions pertaining to the cost containment in hospitals were formulated. The items on the questionnaire emanated from the literature reviewed about cost containment relevant to the specific research questions.

The research questions were:

- How do the nurse managers perceive their preparation/orientation towards cost containment?
- What are the nurse managers' perceptions and attitudes regarding measures to promote productivity in order to contain costs?
- What are the perceptions and attitudes of the nurse managers regarding staff absenteeism, turnover and resignations?
- How do such factors as leaving points of duty, absenteeism and resignations of nurses affect hospitals' cost containment efforts?
- What are the nurse managers' attitudes and perceptions to containing and controlling the acquisition and use of supplies and equipment?
- What are the nurse managers' attitudes and perceptions regarding measures to contain and control problems created by the misuse of wheelchairs and telephones?
- Which general cost containment measures are perceived by nurse managers as important in addition to those already stated?

4.5 POPULATION

The population for this study consisted of all nurse managers occupying managerial posts in the selected public hospitals in the Port Elizabeth metropole of the Eastern Cape during

the period of conducting this study.

For the purpose of this study, nurse managers included the following nurse categories in the four hospitals participating in the research:

- The term included all registered nurse managers in charge of nursing units. The term “nurse manager” was defined in Chapter 1 of the study as “the one who holds a 24-hour accountability for the units within a health care agency, who is closest to the point of care delivery, and manages the activities that facilitate delivery of health care” (see section 1.9.2: functioning as first-level managers).
- It included all registered nurses deputising for those in charge of nursing services in hospital administrative functions (regarded as first-level managers).
- All chief professional nurses engaged in nurse supervisory activities in hospital departments, or areas constituting wards and units (functioning as middle-level managers), were also included.
- The term included the chief professional nurses involved in decision-making and hospital policy formulations for cost containment measures (functioning as top-level managers).

This research focused on nurses who have a direct say in matters pertaining to decision-making about the selected hospitals’ cost containment issues.

From the population it was necessary to decide on the sample constituting the participants of the study.

4.6 CENSUS

The term “census” refers to the inclusion of all members of the population within a given area in the research participation. A census is preferable as a method of choosing participants in a study where members are few and sampling would not be feasible as a method of selecting participants.

The census for the study was selected by making use of the *Hospital and Nursing Yearbook for Southern Africa* (1995-1996), which supplies annually updated information

about all health services falling under the Department of National Health in South Africa. This information from the Hospital and Nursing Yearbook was used to obtain

- a list of the provincial hospitals falling under the Port Elizabeth metropole of the Eastern Cape, known as region A
- the addresses of the said hospitals and the total number of beds in each hospital
- contact telephone and fax numbers of nurse managers of the respective hospitals

From this list, four hospitals in the Port Elizabeth metropole of the Eastern Cape were demarcated for the study. These hospitals had more than 200 beds each, and as such were regarded as being the larger hospitals in the Port Elizabeth metropole. Cost containment efforts and demands could vary depending on the size (number of beds) of the respective hospitals, therefore this research focused only on hospitals with bed capacities exceeding 200. These large hospitals incur a large proportion of the Eastern Cape's total health care expenditure. Consequently more effective cost containment measures in these hospitals could result in considerably reduced expenses for the whole province.

4.7 REASONS FOR THE SELECTION OF THE FOUR HOSPITALS WHICH WERE USED FOR THE STUDY

- All these hospitals were situated in the Port Elizabeth metropole of the Eastern Cape. The researcher, being employed as a top-level nurse manager in this area, had easy access to the public hospitals in the Port Elizabeth metropole.
- Only hospitals with a bed capacity exceeding 200 were selected, because small hospitals might have different cost containment problems from the larger hospitals rendering highly specialised services and acting as referral centres for smaller hospitals.
- Although there were other large hospitals in the area, they served mainly as centres controlling a number of clinics, rendering comprehensive health care services, unlike providing specialised curative services as the four selected hospitals did.
- Psychiatric hospitals and hospitals for treating patients with diseases like tuberculosis were excluded because their range of services differed substantially from those of the selected referral hospitals.

- Private hospitals were excluded because their practices regarding generation of revenue, billing of patients and general financial management of the hospitals as business enterprises differ substantially from those of the government hospitals operating as service-providing institutions for the poor people of the Eastern Cape.

The total number of the beds in use for each of the selected hospitals was as follows:

- Hospital A — 247 beds
- Hospital B — 390 beds
- Hospital C — 654 beds
- Hospital D — 789 beds

The categories of nurses employed in each hospital were auxiliary nurses, enrolled nurses, professional nurses, chief professional nurses, and nursing service managers (referred to as nurse managers in this report).

The total number of nurses employed in each hospital as at June 1998 was as follows (Eastern Cape Department of Health 1998):

- Hospital A — 450 nurses
- Hospital B — 620 nurses
- Hospital C — 756 nurses
- Hospital D — 836 nurses

In accordance with the topic of the study (nurse managers' attitudes and perceptions regarding cost containment in public hospitals in the Port Elizabeth metropole), only nurses in supervisory posts (identified in section 4.6) were included in the census.

The information on the figures was obtained from Regional Office A of the Eastern Cape under which the Port Elizabeth metropole falls, and from the medical superintendents of the four hospitals. Not many nurses occupied managerial supervisory posts in these hospitals. For this reason it was decided to use a census, rather than selecting a sample from nurse managers or supervisors for the four hospitals combined. The census consisted of:

- 12 professional nurses in charge of the nursing services and their deputies in the four hospitals
- 288 chief professional nurses engaged in supervisory activities and administration in clinical areas in the four hospitals. The clinical areas consisted of wards, departments and units in the hospitals.

The selected categories included day-duty and night-duty staff as well as relief staff. The census was used to ensure that all possible nurse managers from the selected four hospitals would be able to participate in the study.

4.8 RESEARCH INSTRUMENT

The research instrument was a questionnaire. A study of the literature provided valuable background information for formulating the items included in the questionnaire. A questionnaire is a document used to gather self-report information from respondents through the answering of questions in a paper-and-pencil format (Polit & Hungler 1993:444). The respondents read the questions and supplied the answers, or ticked the correct alternative(s), according to their individual opinions concerning each item. Questionnaires could be used because all the respondents were educated professional nurses who could read and interpret the questionnaire items in English, obviating the need to translate the questionnaire.

Using a questionnaire had the following advantages:

- A large group of respondents could be reached for delivery of the questionnaires.
- It was a feasible method of data gathering from centres situated in different areas.
- Most of the questions were closed, thus making it easy to compare the responses to each item.
- For the purpose of anonymity, the respondents might be more relaxed if they supplied the answers in writing rather than having personal contact with the researcher.
- Questions were presented in a consistent manner, reducing opportunities for bias.

The following disadvantages pertaining to the use of questionnaires are listed by Polit and

Hungler (1993:203):

- The respondents might not reflect their true opinions on items but might answer what they thought would please the researcher.
- The respondents might choose not to participate or might omit some of the questions and no explanations might be given for these omissions.
- Valuable information might be lost as the answers are usually brief, especially in closed questions, where the scope for fuller explanation by respondents is limited.

To counteract some of these disadvantages:

- Some open-ended questions were included, which allowed respondents to respond in their own words.
- The questionnaire was discussed with different groups of respondents prior to distribution. Respondents were informed that there were no correct or wrong answers and were requested to reflect their true opinions on each item.
- On pretesting the questionnaire, expert opinions were obtained from the nurse managers who participated in the pretest, but who were excluded from the research as such (mostly because they were not employed by the four participating hospitals).

4.8.1 Preparing the questionnaire

The questionnaire was arranged in sections according to the most important problems nurse managers generally have to manage in containing costs in public hospitals, and also from the information derived from the in-depth literature study. The selected topics were verified by nurse managers **prior** to and **during** the pretesting of the instrument. Inputs were also obtained from nurse academics teaching courses in nursing management at the University of South Africa (Unisa).

◆ Background information

Information on which to base the research was asked for regarding the hospitals' background. Questions included:

- the total number of beds in each hospital
 - bed occupancy rates
 - total number of nurses according to categories of experience, from senior professional nurses to nurse managers (see section 4.7)
- ◆ **Preparation of the nurse manager in budgetary and financial matters in the hospital**

This section included questions on the following items:

- years of experience of the respondent as a manager or supervisor
- registration of the respondent with the South African Nursing Council (SANC) as a nurse administrator

The questions were asked to determine experience in years as compared with the estimated knowledge about budgetary and financial matters.

◆ **Orientation on hospital budgetary and financial management**

A list was compiled, comprising 13 topics that could be covered during orientation sessions on the management of hospital budgetary and financial matters. Each respondent had to indicate whether or not each topic had indeed been covered in the orientation programme offered at the specific hospital.

◆ **Cost containment**

Eight statements were listed regarding cost containment items. Each respondent had to state whether he or she agreed/disagreed with each statement.

◆ **Perception of productivity and costs in health services**

Statements regarding contributions to productivity were listed. Each respondent had to state whether he or she agreed/disagreed with each statement.

◆ **Personnel problems associated with costs**

The following commonly occurring personnel problems were considered to escalate hospitals costs:

- staff leaving their points of duty
- staff absenteeism
- staff resignations

Each respondent had to indicate the extent of acceptability of each problem and to rate the level of importance of each action taken to counteract the specific problem in order to contain hospital costs.

◆ **Control of supplies**

Methods of control of supplies used in hospitals were listed. Each respondent had to rate how important each method was considered to be in containing hospital costs, on a four-point Likert scale ranging from “unimportant” to “extremely important”.

◆ **Control of equipment**

Control of general equipment was included, and specifically the control of telephones and wheelchairs, as factors which could increase hospital costs and defeat cost containment efforts. Each respondent had to indicate the extent of his or her agreement as to the management of telephones and wheelchairs to contain hospital costs.

◆ **Control of stock loses**

Eleven methods of control of stocks were listed. Each respondent had to rate the order of importance of each method for containing hospital costs on a four-point Likert scale.

◆ **Contribution towards cost containment**

This was an open-ended item where respondents were required to state how they

contributed towards, or would like to contribute towards, cost containment measures in the hospital where they were employed.

4.8.2 Pretesting the questionnaire

After the questionnaire had been designed, it was presented to two senior nurse managers from hospital D, one nurse manager from hospital C and four chief professional nurses, one from each of the four hospitals participating in the research. These nurse managers were all experienced researchers and report writers. Some adjustments were recommended, mainly rephrasing the questions for enhanced clarity. These recommendations were implemented. The nurse managers who participated in the pretesting of the questionnaire were excluded from participation in the actual research. The nurse managers requested that no specific hospital should be recognisable in the research report. The assurance was given that the report would only provide statistics for the four hospitals combined.

The pretest was carried out to

- identify ambiguities in statements or items that were not clearly phrased
- determine if all items in the questionnaire were relevant to the topic
- determine the average time required to complete the questionnaire

No problems were experienced in answering the questions. Time spent on completing the questionnaire was estimated, based on the 30 minutes allowed for nurses' tea breaks and the one hour for lunch breaks, for completion of the questionnaires. The longest time taken by the pretest group to complete the questionnaire was 105 minutes.

4.9 VALIDITY AND RELIABILITY

Reliability and validity of an instrument are not quite independent of each other. "A measuring device that is unreliable cannot possibly be valid" (Polit & Hungler 1993 :418).

4.9.1 Reliability

Polit and Hungler (1993:411) agree that the reliability of an instrument is its ability to create

reproducible results: thereby being equated with the dependability, consistency or stability of a measuring instrument. Specifically, “reliability is the extent to which the respondents consistently provide the *same* results, regardless of who does the measurement and when or where it occurs” (Wagner 1986:421).

In this study an attempt was made to ensure that the measuring instrument was reliable by the following strategies:

- In the pretesting phase of the instrument, the respondents were also asked to identify typing errors, ambiguity of questions, whether all questions were clear, and to point out where comprehension problems could occur.
- The researcher distributed the questionnaires to the respondents in the different hospitals, specifically to explain the *reason* for the study. The respondents were also requested to be as *objective* as possible. They were assured of their anonymity so that they could make contributions by clearly identifying problems regarding cost containment.
- In order to assist the respondents to be as honest and objective as possible in their answers to the questionnaire items, it was arranged that completed questionnaires, sealed in envelopes supplied with the questionnaires, would be deposited in sealed boxes to which no person other than the researcher had access. In this way an attempt was made to encourage *free* expression by the respondents to the items.
- A substantial number of open-ended questions were included in the questionnaire in which respondents could freely add whatever they deemed necessary. This was done to further enhance respondents’ free/open expression of feelings. (The respondents made good use of these open-ended items and a substantial number of new ideas were obtained by analysing these open-ended responses.)
- As explained under “ethical considerations”, there was *no* threat to the respondents’ anonymity at any stage of the data-collection process and the research process in general.

In view of the abovementioned precautions taken, the researcher attempted to achieve reliability. The ability of the questionnaire to obtain consistent results was tested. Polit and Hungler (1993:445) define reliability as the degree of consistency and dependability with which an instrument measures the attribute it is designed to measure.

4.9.2 Validity

Validity refers to the degree to which an instrument measures what it is intended to measure (Dempsey & Dempsey 1992:73; Polit & Hungler 1993:448; Smith & Hunt 1997:303).

Dempsey and Dempsey (1992:73) discuss three main approaches for estimating the validity of a measuring instrument designed to collect quantitative data:

- construct validity
- criterion-related validity
- content validity

◆ **Construct validity**

Construct validity is the degree to which a measuring instrument measures a specific hypothetical construct, for example, intelligence (Dempsey & Dempsey 1992:73). The items included in the questionnaire were based on information obtained during the literature review. This implies that most items had been tested and accepted to be valid by other researchers/authors.

◆ **Criterion-related validity**

Criterion-related validity refers to the relationship between the measuring instrument and some already known external criterion (Dempsey & Dempsey 1992:73). The external criterion in this research was hospital cost containment. Independent evaluators from Unisa, the University of Port Elizabeth and Vista University agreed that the questionnaire items were relevant to hospital cost containment issues.

◆ **Content validity**

Content validity of a measuring instrument is the extent to which the instrument represents those factors under study. In this study content validity was assessed to establish whether the items on the instrument were representative of questions that should be asked about

cost containment (Dempsey & Dempsey 1992:73).

In the construction of the questionnaire the following aspects were considered:

- Questions were formulated in simple language for clarity and ease of understanding.
- Clear instructions were given to respondents.
- Respondents were given sufficient time to complete the questionnaires.

For validation, the instrument was submitted to two researchers at Unisa. A copy of the instrument was given to a senior lecturer at the University of Port Elizabeth's Department of Nursing Science. Another copy of the instrument was given to a senior lecturer at the Department of Economics at Vista University, Port Elizabeth. Copies were also given to three nurse managers of hospital D for their evaluations concerning the validity of the questionnaires.

As a result some items of the instrument were eliminated as being irrelevant to the study. Rephrasing of some items was done in order to clarify the questions. Some of the items were restructured to reduce potential ambiguities.

4.10 ETHICAL CONSIDERATIONS

According to Hulley and Cummings (1988:151), every study involving human respondents raises a unique set of ethical issues. According to Polit and Hungler (1993:435), the term "ethics" refers to the quality of research procedures with respect to their adherence to professional, legal and social obligations to the research subjects. Ethical standards and their acceptability were considered throughout the interaction of the researcher with participants involved in the research. The purpose of the study was explained to each group of respondents while they were being orientated to the study.

4.10.1 Voluntary participation by respondents

It was clearly stipulated to the respondents that participation in the study was important but voluntary. Nobody would be forced to answer any specific item. They were not subjected

to any form of pressure to complete the questionnaire. However, it was stated by the researcher that their participation would greatly assist the researcher in completing the research. It was further stated that participants in the study would not be remunerated by money nor gifts. Their cooperation would assist in identifying methods of cost containment which would benefit the hospitals, the health services of the Eastern Cape and also the patients/clients utilising these services. Nurse managers who did not participate in the study were not discriminated against in any manner whatsoever.

4.10.2 Risk to the respondents

Some measure of risk to research participants is inevitable during any study. An example is the psychological harm which may be caused by lack of privacy. Respondents voluntarily agreed to participate for the sake of others who would benefit from the knowledge gained from the results and recommendations of the study. Their well-being had to be considered. The respondents were assured of protection from physical and/or emotional risks. The nature of the study was described to the respondents.

It was explained that the numbers appearing on top of questionnaires were for the researcher's purposes of analysis. No names, numbers or any other form of identification would appear on the questionnaire and no respondent's answers could be traced to any specific person. The results from the completed questionnaires' information would be combined and presented in the research report as numbers, percentages or statistics. No person, and no institution, would be mentioned in the research report based on the information supplied by the respondents.

4.10.3 Informed consent

This is an ethical principle that requires researchers to obtain the voluntary participation of respondents after informing them of possible risks and benefits (Polit & Hungler 1993:438). The researcher arranged talks with groups of nurse managers in the different hospitals to give detailed descriptions of the nature of the study and to discuss the questionnaire, the aim of the study and the anticipated benefits the study would have for the nursing profession generally and for enhancing cost containment capabilities of nurse managers specifically.

The nurses were visited mainly during tea breaks to orientate them to the study, and during lunch breaks for discussions and completion of the questionnaires. These times were used to avoid disruptions in the functioning of the hospitals. Nurses on night duty were also visited during their lunch time at midnight, and those on leave or sick leave were visited when they returned from leave. Any questions from the respondents were answered during these sessions.

4.10.4 Confidentiality

It was necessary to assure the respondents of confidentiality when dealing with the data. It is worth noting that many of the questions asked by the research subjects during the information sessions were about confidentiality. It became clear that the respondents required assurance that the responses would be treated confidentially and anonymously.

The researcher assured respondents that confidentiality would be maintained throughout the study. The envisaged research report would only portray data obtained from the completed questionnaires. No person would be identified during the presentation and discussion of findings. Statistics would refer to the four hospitals combined, not separately for the four respective hospitals. This measure was requested to ensure confidentiality and anonymity of the participating hospitals, in addition to that of the nurses.

4.10.5 Anonymity

Coupled with confidentiality, some respondents requested that they should remain anonymous. Anonymity meant nobody, including the researcher, would be able to identify who supplied which information. De Vos (1998:28) states that all information that could lead to identification of respondents should be terminated after use. The researcher could not identify the responses on any questionnaire as belonging to any specific person.

Respondents were assured that numbers in place of names would be used throughout the study. The hospitals where the research was carried out would also not be named but letters of the alphabet (A, B, C, D) would be used to identify the four hospitals participating in this research. The researcher kept all completed questionnaires locked up. The only persons who had access to these completed questionnaires were the researcher and the

statistician who transferred the data to the SPSS (Statistical Package for Social Science) software computer program. All completed questionnaires would be destroyed by the researcher after the research report had been accepted.

4.10.6 Scientific honesty

Scientific honesty is regarded as being one of the ethical responsibilities associated with conducting a research study (Brink 1996:47). Brink lists examples of activities that are considered to be dishonest in conducting and reporting research:

- fabrication, falsification or forging
- manipulation of design and methods
- selection, retention or manipulation of data
- irresponsible collaboration

The researcher tried to avoid any form of dishonesty by answering respondents' questions and giving information truthfully. No manipulations of data could be done as an independent statistician transferred the data from the questionnaires to the SPSS computer software program. The statistician produced the results independently of the researcher in order to avoid irresponsible collaboration.

4.10.7 Violation of privacy

The respondents were assured that no information obtained would be used against them. Only information pertaining to the study would be used.

4.10.8 Competency

The researcher assured the respondents that the study would be done according to accepted research standards under the guidance of recognised mentors and study leaders.

4.10.9 Permission to conduct the research

Permission to conduct the study was sought and obtained from the

- regional director of region A in the Eastern Cape
- medical superintendents of the different hospitals participating in the study

Individual letters were written to prospective respondents who were addressed as “colleagues” in the letters and no names were indicated as the letters were delivered by hand. This measure was carried out to ensure anonymity of respondents as well as confidentiality.

Letters requesting permission to conduct the study, together with letters granting permission for distribution of the questionnaires, are attached as annexures in this report.

4.11 DISTRIBUTION OF QUESTIONNAIRES

Appointments were made with the respective managers in charge of the hospitals for dates and times of distribution of the questionnaires to the nurse respondents. To limit confusion, questions were again discussed during the period of distribution and questions were invited from the respondents and any doubts were addressed. A period of four weeks was given in which to complete the questionnaires. Dates for collection were arranged with each hospital. Personal delivery of the questionnaires by the researcher ensured a high return of completed responses.

4.12 COLLECTION OF COMPLETED QUESTIONNAIRES

At the end of four weeks, the questionnaires were collected from pre-arranged areas in the hospitals. The researcher had arranged with the respondents that on specified dates the completed questionnaires would be collected personally from the different wards, departments and units.

The respondents were requested to deposit the completed questionnaires sealed in individual envelopes into sealed carton boxes with just a slit in each box to allow the questionnaires to fall in, as a further measure attempting to safeguard the confidentiality and anonymity of the respondents.

A few respondents had left the questionnaires at home or had forgotten to complete them.

It was, therefore, necessary to re-arrange for follow-up collection dates for the completed questionnaires. Of the 300 questionnaires distributed, 211 were returned, constituting a return of 70,0%.

In table 4.1 the returned questionnaires according to the different hospitals are set out.

Table 4.1: Returned questionnaires according to different hospitals

HOSPITAL	QUESTIONNAIRES RETURNED	%
Hospital A	21	10,0%
Hospital B	30	14,2%
Hospital C	31	14,7%
Hospital D	129	61,1%
TOTAL	211	100,0%

4.13 PLAN FOR ANALYSIS OF DATA

The data was edited, categorised and coded. Each item of the questionnaire was assigned a numerical code to computerise each response. According to Polit and Hungler (1993:432), coding is the process of transforming raw data into a standardised form for data processing and analysis. A statistician from the Vista University's Port Elizabeth campus coded the data. The data was further analysed by a statistician from Unisa using the SPSS program.

In order to contextualise the analysis of the data, some background information about the four hospitals, participating in the research project will be supplied.

4.14 BACKGROUND INFORMATION ABOUT THE FOUR HOSPITALS

Information about the number of beds and bed occupancy rates of the four hospitals as well as some information about the professional nurses employed by these hospitals will be supplied.

4.14.1 Number of beds and bed occupancy rates of the four hospitals

The total number of beds in the four hospitals ranged from 247 to 789. Table 4.2 shows the total number of beds in each of the four hospitals.

Table 4.2: Total number of beds and average percentage bed occupancy rates of

the four hospitals

HOSPITAL	NUMBER OF BEDS	% BED OCCUPANCY RATES
A	247	60,0
B	390	85,0
C	654	66,0
D	789	80,0
Mean (x)		72,8

The number of beds in each hospital indicates the size of the hospital. That is, hospitals C and D were bigger and required more staff and equipment than the other two hospitals. Financial involvement in these hospitals would also encompass more diverse management tasks. The bigger hospitals had more clinical specialities demanding greater personnel expertise and more sophisticated equipment than the smaller hospitals.

Bed occupancy rate is calculated as the total number of patients admitted at a given time divided by the total number of beds, then multiplied by a hundred to get the percentage bed occupancy. The percentage bed occupancy rate in each of the four hospitals varied between 60,0% and 85,0% with an average bed occupancy rate of 72,8% (see table 4.2).

4.14.2 Professional nurses employed by each of the four participating hospitals

The study was limited to professional nurses who held managerial and/or supervisory positions. The number of nurses required in each hospital was divided into three categories:

- (i) Nurses allocated to the nursing administrative (matrons') office of each hospital.
- (ii) Chief professional nurses (area managers in each hospital unit comprising a number of wards/departments).
- (iii) Senior professional nurses (area supervisors in each ward or department).

The numbers of these different supervisory categories are shown in table 4.3.

Table 4.3: Categorized total number of nurse managers in the four hospitals

NURSE CATEGORY	HOSPITAL A (247 beds)	HOSPITAL B (390 beds)	HOSPITAL C (654 beds)	HOSPITAL D (729 beds)	TOTAL
(i) Administrative office (hospital nurse managers)	3	4	2	3	12
(ii) Chief professional nurses (area managers)	11	14	12	20	57
(iii) Senior professional nurses (area supervisors in wards and departments)	30	37	34	130	231
TOTAL	44	56	48	153	300

◆ **Years of experience as a nurse manager/supervisor**

Table 4.4 shows the nurse managers' years of experience arranged in groups.

Table 4.4: Years of experience as a nurse manager/supervisor (n = 156)

EXPERIENCE IN YEARS	FREQUENCY	CUMULATIVE FREQUENCY	PERCENTAGE	CUMULATIVE PERCENTAGE
0-5	49	49	31,4	31,4
6-10	51	100	32,7	64,1
11-15	21	121	13,5	77,6
16-20	18	139	11,5	89,1
21-25	7	146	4,5	93,6
26-30	8	154	5,1	98,7
31 or more	2	156	1,3	100,0
TOTAL	156		100,0	

Of the 156 respondents 68,6% had more than five years of experience with an average of 17,5 years. It can thus be assumed that credit could generally be given to the respondents' answers based on this experience in the health care situation. It could also be assumed that these respondents were knowledgeable about taking charge of wards and departments in the hospitals and that they should thus also be knowledgeable about cost containment issues.

◆ **Qualifications registered with the South African Nursing Council**

All participants were registered general nurses. Therefore they were requested to list all their qualifications registered with the SANC, excluding general nursing. Table 4.5 shows a list of qualifications that the respondents had registered with the SANC.

Table 4.5: Respondents' registrations with the South African Nursing Council (n = 211)

Note: Each respondent could have any number of qualifications registered with the SANC – therefore the totals do not add up to 211.

QUALIFICATIONS REGISTERED WITH THE SANC	FREQUENCY	PERCENTAGE
Midwifery	196	92,9
Orthopaedic nursing	20	9,5
Clinical nursing	53	25,1
Theatre nursing	28	13,2
Nursing administration and community health nursing	39	18,5
Paediatric nursing	62	29,4
Community health nursing	46	21,8
Psychiatric nursing	36	17,1
Nursing administration	42	19,9
Occupational health nursing	3	1,4
Clinical care, administration and instruction	9	4,2
Nursing education	26	12,3
Intensive care nursing science	64	30,3
Spinal nursing	2	0,9
Ophthalmic nursing	5	2,4
Stomatherapy	2	0,9
Advanced midwifery and neonatal care	4	1,9

According to the list of registrations of the respondents with the SANC, there was a variety of nursing registrations, in addition to general nursing – a qualification held by all respondents. Most respondents (92,8%) were registered as midwives. In this study any SANC registration, in addition to that of general nursing, means that the respondents have advanced their studies further than the basic general nursing science courses and have obtained diplomas or degrees as specialists in various nursing fields.

4.15 CONCLUSION

This chapter focused on the research methodology adopted in addressing the problem of cost containment in government hospitals. Discussions were presented on the research design chosen for the study, the population and census, the instrument used, data collection procedures, and ethical considerations.

In the following chapter the data will be analysed and discussed.