AN EFFECTIVE NURSING STAFFING MODEL FOR A PRIVATE HOSPITAL

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ABSTRACT

Healthcare organisations in South-Africa are constantly looking for cost containment strategies, while providing and delivering effective healthcare and managing risk. Private hospitals must develop a cost effective staffing strategy to plan and meet present and future nursing needs. The need for safe and adequate nursing staffing levels is becoming more critical every day. Nursing shortages, combined with the increased workload it causes have to be addressed by nursing managers. The right number of nursing staff members with the right level of training and experience must be employed and retained to provide consistent high quality nursing care and guarantee patient safety.

Nursing workforce management is a major responsibility of nursing management. This research study identified, investigated and evaluated significant factors and trends that contribute to, or influence the determining of the staff component in nursing units in the South-African private hospital environment. Criteria for an effective nursing staffing model to assist nursing managers in workforce management were developed.

The study was conducted in two phases. A literature review and an empirical study were conducted. Information and the identification of factors influencing nurse staffing was obtained through the literature study. An empirical investigation was done to understand nursing staffing practices. Information was gathered through a questionnaire that was compiled as part of the qualitative research design. The various factors influencing the determining of nursing teams were empirically investigated and analysed. The including of factors in nursing staffing models was empirically tested.

KEY TERMS, DEFINITIONS

The following are definitions of key terms and concepts used in this dissertation:

Acuity

Average workload per patient, used as a nursing benchmark (Hurst, 2002: 3).

Non-Nursing Staff

Categories of staff with no nursing training: care workers and administrative staff.

Nurse-to-Patient Ratio

Expressed as a numerical relation, e.g. one nurse for every six patients is a nurse-to-patient ratio of 1:6 (Page, 2004:164).

Registered Professional Nurse

"A person who is qualified and competent to independently practise comprehensive nursing in the manner and to the level prescribed and who is capable of assuming responsibility and accountability for such practice" (Nursing Act: Act No. 33 of 2005).

Registered Staff Nurse

"A person educated to practise basic nursing in the manner and to the level prescribed." (Nursing Act: Act No. 33 of 2005).

Registered Auxilliary Nurse

"A person educated to provide elementary nursing care in the manner and to the level prescribed." (Nursing Act: Act No. 33 of 2005).

Scope of Practice

"Scope of practice means the scope of practice of a nursing practitioner that corresponds to the level reflected in section 30 of the Nursing Act, in respect of that practitioner" (Nursing Act: Act No. 33 of 2005).

Skill mix

The different categories of health care professionals (nursing and non-nursing staff), making up the unit's staff component. Nursing managers strive to achieve the ideal mix: one that sustains or improves the quality of care at the least cost (Hurst, 2002: 3).

Staffing Levels

The actual or ideal number of nurses working in a nursing unit (Hurst, 2002: 3).

Workload index

A numerical figure indicating the nursing work required to meet patients' needs in a certain situation. The workload index divided by the number of occupied beds is known as the acuity. Both the workload index and acuity are necessary for benchmarking purposes (Hurst, 2002: 3).

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CHAPTER 1

1.1 INTRODUCTION

The rapid changes and uncertain environment of the healthcare industry in South-Africa today presents many challenges in providing and delivering effective health care. High on the agenda of healthcare concerns is the increasing cost of healthcare that impacts negatively on the accessibility of affordable healthcare for all South-Africans. Healthcare services in South-Africa are financed and funders are also pressurising for cost containment. Salary expenses of healthcare workers are a large component of healthcare costs that bring about strict management measures and alternative ways to contain costs.

A key part of any business is the strategically managed human resource function. In the private healthcare business, nursing managers are faced with serious workforce management dilemmas. Staffing strategies must include staffing adequacy, safe skills mixes and meeting future nursing needs. Cost-effective considerations must be taken into account and at the same time, dramatic changes in the healthcare environment must be managed.

Nurses, as the largest group of healthcare professionals, have experienced numerous major changes in their work environment. Adapting to these changes places a major challenge on them. The number of nurses available to care for patients has reduced, while workloads have increased dramatically due to patient volume and acuity levels, as well as treatment complexity and high patient expectations (Olstrom & Albanese, 2006: 447). These challenges must be adequately addressed to prevent patients and healthcare workers being put at risk.

The single most valuable asset in any health care organisation is its people. It requires individuals that have the knowledge, skills and ability to deliver health care services. Therefore, the right number of nursing staff members with the right level of training and experience must be employed and retained to provide consistent high quality nursing care and guarantee patient safety.

Several states in America, including New York, Minnesota, and California, as well as countries like the United Kingdom and Australia, have state legislation to delineate patient-to-nurse ratios for hospitals (Evans & Rochester, 2001:94). This legislation was initiated to prevent unsafe conditions due to inadequate nurse-to-patient ratios and the use of unlicensed assistive personnel and to provide patients with a forum to lodge complaints regarding unsafe staffing situations (Habgood, 2000:1265).

This research study focuses on significant factors and trends influencing the determining of the staff component in nursing units in the South African private hospital environment.

1.2 PROBLEM STATEMENT

1.2.1 Overview of the problem

Significant evidence can be found in the literature, research studies and nursing practice, that nurse staffing affects the quality of patient care in hospitals and ultimately, patient outcomes. Inadequate staffing levels directly influence patient morbidity and even patient mortality, and the incidence of sentinel and adverse events. "By increasing nursing staffing, a definite positive influence is evident in hospital-related mortality, hospital acquired infection and other adverse events" (Kane, Shamliyan, Mueller, Duval & Wilt, 2007: 2).

Nursing shortages, combined with the increased workload it brings along, plays a vital role in determining the quality of care in the private hospital environment. Increasing nurse-to-patient ratios are recommended to ensure patient safety. However, a cost-effective balance must be achieved because of the cost involved in increasing ratios (Kane et al, 2007: 1).

Research literature on nurse staffing levels and patient outcomes, reveal two factors influencing one another. Hospitals with lower levels of nurse staffing, tend to have higher rates of poor patient outcomes (Clarke, 2007: 36). Nursing managers and nursing researchers are in agreement that the level of nurse staffing directly influences the quality of care in nursing units. This evidence raises concern for the need for safe and adequate nurse staffing levels critical to the delivery of quality patient care and the securing of patient safety. The American Nurses Association supports and promotes the establishment of nurse-to-patient ratio legislation and has developed principles for nurse staffing. These provide guidance and recommendations on appropriate nurse staffing (ANA, 2007).

Nursing workforce management is therefore an immense challenge and a lot of time and creativity goes into investigating, planning, implementing, evaluating and restructuring existing and new staffing strategies to ensure the delivery of high quality nursing care. The following factors have been identified to contribute to, or influence the determining of the staff component in nursing units:

- Cost concern of nursing care;
- Demand for and supply of nursing care;
- Nursing shortages and nursing position vacancies;
- Non-nursing tasks done by nurses and the use of non-nursing staff;
- Rethinking and redesigning of roles in healthcare;
- Changes in the workload of nurses;
- Use of agency staff;
- Legislation and regulation of minimum ratios;
- Patient outcomes and patient safety;
- Patient expectation and satisfaction;
- Quality outcome;
- Patient acuity level;
- Treatment complexity;
- Level of education of nursing staff;
- Nursing experience;
- Competence and skills;

- Adequate nursing staffing levels and skills mix;
- Types of nursing units and activities in units;
- Patient volume;
- Total number of nursing hours per patient per day;
- Percentage of hours supplied by Registered Nurses.

1.2.2 Cost of nursing care

The increasing cost of nursing staff is an immense concern. In nursing services where quality concerns are important, cutbacks in staffing cause an increase in staff workload. This has a snowball effect that leads to increased staff dissatisfaction and increases the risk for professional errors (Gonzälez-Torre, Adenso-Diaz & Sanchez-Molero, 2002: 28). The management of nursing costs is one of the key challenges within the private hospital sector today. Nursing staffing costs are the single most expensive component of rendering nursing services. The current unmet demand for nursing skills can even add to nursing costs. Due to the shortage of permanent staff, hospitals make use of agency workers. This also adds costs to staff expenses. It is therefore important to develop the golden mean: the most cost-effective way to an effective staffing solution.

1.2.3 Adequate nursing staffing levels

In the nursing services business, the importance of appropriate staffing of nursing units has lately received significant attention. The optimal provision of nursing care has increased in order to improve the quality of care. Therefore, nursing ratios have to increase in order to supply the quality care that patients expect. Nursing management must plan in advance: "As clinical and human resource managers try to ensure sufficient numbers of appropriate staff are available for the patients in their care, they must determine the most effective mix of staff with the necessary skills to deliver high quality, cost effective patient care" (Fradd, 2006: 23).

Managing nursing staff in hospitals is a multifaceted task (González-Torre et al, 2002: 28). To provide effective nursing care, an adequate number and distribution of qualified, experienced and competent nurses must be available to provide in patients needs. But what does the ideal nursing team look like? How do we as nursing managers determine the ideal nurse-to-patient ratios? Different categories of nursing and non-nursing staff are part of the nursing team. The nursing team consists of staff members from different categories, with different training and experience. Nursing activities, scope of practice, skills mix and the right number of nursing staff members with the right level of training and experience must be determined in order to provide consistent high quality nursing care.

1.2.4 Demand and supply

There is an imbalance between the demand and supply of nurses available to care for patients in South-African hospitals. Recent South-African statistics of the population versus nursing manpower, show a population per qualified nurse of 235:1 (SANC: 2007). According to Bleich & Hewlett (2004:1) the nursing shortage is a combination of (1) an increased demand for nursing care, (2) a decrease in the supply of nurses and (3) the unfavourable work conditions that nurses have to face. Therefore, new efforts have to be made by leaders in the healthcare industry to increase supply, respond to the current demand and improve the work environment to benefit recruitment of new nurses and retention of existing staff (Bleich & Hewlett, 2004:1).

1.2.5 Patient expectations

These days, patients are much more involved in their own health status and health care. They have to be informed about their disease and want to be actively involved in choosing between possible available treatments. Patient education is an essential part of patient care these days. Patients are faced with treatment decisions and need to have the necessary information to do so. This also places extra strain on nursing activities.

1.2.6 Rethinking and redesigning of roles in healthcare

Nursing staff spend a substantial amount of time on tasks that do not need qualified nursing staff to perform them. In the light of the deepening nursing shortages, and the substantial amount of time spent on non-nursing tasks by all categories of nurses, new positions have to be created to relieve the nurses of those tasks. There is currently a need for transformation of the nursing profession. According to Fradd (2006: 25), the redesign or modernisation of current roles in nursing is beginning to emerge. New roles, using new groups of individuals, are being created, and the best use of non-medical staff should be investigated (Fradd, 2006: 25).

Trends in the nursing environment also stimulate the redesign of current roles in the health care profession and future challenges need to be anticipated. Continuing role design and the development of new nurse staffing models need to take place in order to keep abreast in a very competitive business environment.

1.2.7 Legislation and regulation of minimum ratios

The Registered Nurse Safe Staffing Act (S.73/H.R.4138) of 2007 was developed and introduced in response to the current nursing crisis in the United States (ANA, 2007). This act holds hospitals accountable for assuring safe staffing in nursing units and also provides a forum for the public to report concerns about nursing staffing. There is currently no legislation that stipulates minimum staffing ratios in nursing in South-Africa for comparison to legislation in other countries. Does the nursing crisis in South-Africa call for drastic measures such as legislation to enforce minimum staffing levels?

1.3 NURSING SHORTAGES

"How can a health care system effectively function without an adequate supply of front-line caregivers?" (Kimball, 2004: 1). There is a critical shortage of nurses in South-Africa. Global nursing shortages and migration of nurses are an obstacle to adequate staffing. The South-African media often reports on nursing shortages and the consequences thereof, particularly the sacrifice of quality of care. Nursing shortages place more strain on the workload of nurses.

Since 2000, a significant number of investigations and research were done in addressing the issue of nursing shortages. A convergence of factors that have contributed to and possible solutions for shortages – short term and long term – need to be addressed by nursing managers.

1.4 THE CHALLENGE AHEAD

All these factors and trends in the healthcare environment have raised concerns about the adequacy of patient care and safety. The debate about how to determine nurse staffing levels has not reached definite conclusion. Controversial solutions like operating room practitioners that do not have any nursing qualifications are necessary to face the reality of nursing shortages. Heavy emphasis on the retention of existing nursing skills in South-Africa is a concept that is implemented at this stage and can be explored further.
The future will bring many challenges to providing and delivering high quality nursing services. Nursing shortages and the financial turbulence in the health care industry will most certainly become increasingly extensive and severe (Clarke, 2007: 38).

Nursing managers need a new and innovative approach to nurse staffing management. The role of all healthcare workers needs to be investigated, rethought and redesigned to adapt to the fact that nurses alone can not any longer keep up to the demands of health care. Nursing managers need to turn obstacles into opportunities and must be prepared for future healthcare demands.

1.5 RESEARCH METHOD

Substantial research has been conducted examining the effect of nurse staffing models on cost, patient outcomes and quality of nursing care, but limited research has been conducted regarding factors influencing nurse staffing models.

1.5.1 Research objectives

The research objectives are divided between primary objectives and ancillary objectives:

1.5.1.1 Primary objectives

The main objective of this study is to investigate and evaluate factors that influence nursing staffing models and to discuss criteria for an effective nursing staffing model that can be used in nursing practice - in the context of the private hospital sector - to develop a scientific model to assist nursing managers in workforce management.

1.5.1.2 Ancillary objectives

The ancillary objectives of the research are the following:

- To provide research based principles to determine, implement and evaluate staffing patterns, nursing skills mix and models for delivery of healthcare;
- To identify patient outcomes potentially sensitive to nurse staffing;
- To develop indicators of nursing quality to evaluate nurse staffing ratios;
- To review existing methods of analysis for the determining of nursing care and identify strengths and weaknesses of demand and supply approaches;

- To investigate the relationship of nurse staffing with patient outcomes: how is specific nurse-to-patient ratio's influencing patient outcomes? Patient outcomes include: morbidity, mortality, adverse events, length of stay, quality outcomes and patient satisfaction;
- To determine the minimum staffing ratio's for the South-African hospital environment;
- To determine whether there is a need for nurse staffing in South-African hospitals to be regulated by minimum staffing ratio legislation;
- To investigate the relationship between patient characteristics and nurse staffing: how are specific patient characteristics influencing the determining of nurse staffing levels? Patient characteristics include: acuity and the level of treatment;
- To investigate the relationship between nursing workforce characteristics and nurse staffing levels: how are specific nursing workforce characteristics influencing nurse staffing levels? Nursing workforce characteristics include: education level, experience in nursing practice and the use of non-nursing staff and agency nurses;
- To investigate the relationship between unit characteristics and nurse staffing levels: how are specific unit characteristics influencing nurse staffing levels? Unit characteristics include: type of unit, total nursing hours per patient day, percentage of hours supplied by Registered Nurses;
- To determine how the present nursing shortages or nursing positions vacancy rate is influencing nurse staffing.

1.6 RESEARCH METHODOLOGY

The study was conducted in two phases. Information from primary and secondary sources was acquired. A literature review and an empirical study were conducted.

1.6.1 Literature review

A comprehensive, critical review of current literature related to the study objectives was conducted to evaluate and determine approaches to nurse staffing. Factors influencing nurse staffing were identified and investigated to determine to what extent these factors influence and determine adequate nurse staffing levels. The literature study was also used to evaluate best practices of nursing staffing and nursing staffing models. Optimal staffing models and levels were investigated to construct a cost-effective nurse staffing model.

1.6.2 Empirical study

Valuable information and the identification of factors influencing nurse staffing was obtained through the literature study. Primary data collection – an empirical investigation – was done to understand nursing staffing practices. Information was gathered through a questionnaire that was compiled as part of the qualitative research design. Questionnaires were completed by the nursing managers of a leading private hospital group in South-Africa. The various factors influencing the determining of nursing teams were empirically investigated and analysed. A comparative design between nursing staffing models and quality of nursing care was followed to obtain information, strategies and management applications. The analysis and interpretation of the data/information are presented on the basis of the theoretical and research arguments.

1.7 LIMITATIONS OF THE STUDY

A critical shortage of nurses is developing in South Africa. Although nursing shortages is an obstacle to adequate nurse staffing, this research study does not include:

- the causes of nursing shortages;
- the solutions to nursing shortages.

Nursing shortages and the impact thereof on nurse staffing and quality nursing care are discussed only superficially for the purpose of this study.

1.8 CHAPTER OVERVIEWS / DEPLOYMENT OF THE STUDY

CHAPTER 1

Chapter 1 supplies an introduction and background to and poses the research problem.

CHAPTER 2

Chapter two – Literature study on the subject of nursing staffing models. Overview of the literature.

CHAPTER 3

Chapter three describes the empirical study. Questionnaire design. Data was collected by means of questionnaires.

CHAPTER 4

Chapter four discusses the data analysis. Evaluation of the results; conclusions and recommendation to nursing managers.

1.9 CONCLUSION

The aim of this introductory chapter was to discuss the problem statement and set the primary and secondary research objectives. The research method was explained followed by a concise overview of the following chapters. In the next chapter an analysis is done of all the literature regarding factors influencing nursing staffing. The aim of this systematic review is to identify and analyse associations between hospital nursing staffing and patient outcomes with consideration of variables that could influence the primary association.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Many research studies provide significant evidence of a correlation between nursing shortages and reduced staffing levels in hospitals, and a decrease in the quality of nursing care and adverse patient outcomes. Patient outcomes sensitive to nurse staffing include variable levels of harm to patients, including risk of death (Buerhaus, Needleman, Mattke & Stewart, 2002: 123).

Researchers have proved what nursing managers experience in the nursing management practice environment: the planning, implementing and evaluation of adequate staffing levels are a very complex process. “Planning for the efficient and effective delivery of health care services, to meet the health needs of the population, is a significant challenge” (O’Brien-Pallas, Duffield, Murphy, Birch & Meyer, 2005: 3). According to Clarke (2007: 34) given the challenge, nursing managers have to lead the team of health care stakeholders to reshape the future of nursing services. Alternative strategies must be investigated and new proposals and models implemented to ensure adequate nursing staffing levels in nursing units, to make provision for the demand for nursing care of patients and to ensure optimal nursing care.

According to Clarke (2007: 34) variable factors directly and indirectly influence the process. For nursing managers to be able to make informed and responsible decisions regarding resource management, all key inputs, outputs, and the necessary data of nursing services must be analysed.

Consequently, planning in advance is probably the most essential aspect of the entire process. To be pro-active is imperative, because nurses have a very critical role in delivering quality health care and securing patient safety (Dunton, Gajewski, Klaus & Pierson, 2007: 1). The future will present more challenges for the management of the nursing workforce and the delivery of high quality nursing services.

2.2 NURSING WORKFORCE PLANNING

Health care human resource planning, in particular nursing resources, needs to be positioned within the broader environment of health care services. Social, political, geographical, technological and economic aspects influence the efficient and effective delivering of health care. These aspects therefore have to be considered in planning for and managing the nursing workforce (O'Brien-Pallas et al, 2005: 3).

Appropriate health care human resources planning and management involves the developing of a health care workforce that includes the right number, mix and allocation of health care professionals that is necessary to provide in the health care needs of patients.

Traditionally, human resource planning in the health care industry has been supply-driven. Demand aspects and health needs were not taken into account. Demand aspects include possible treatment options, nursing population demographics, technology improvement and innovations, patient attributes, access to service and service utilisation. It is necessary for a comprehensive health care human resources model to address these aspects, because of the influence it has on future resource requirements as well as the utilisation and work patterns of health care professionals (O'Brien-Pallas et al, 2005: 10).

2.3 BENEFITS OF A NURSING STAFFING MODEL

2.3.1 Overview

Staffing models can be developed and implemented to the individual requirements of a specific healthcare organisation. A staffing model can be a system to assist nursing managers to pro-actively forecast staffing requirements based on increasingly complex patient care requirements in a cost effective way. The staffing model can be utilised to monitor the nursing budget.

According to Joan Forte (2004: 12), a financial analyst for patient care administration in the USA, nursing managers can enhance daily staffing accuracy by using staffing tools that allow for modification to reflect changes in patient acuity and bed occupancy.

2.3.2 Staffing accuracy and identification of staffing trends

By using a staffing model, a system can be put in place to monitor nursing staffing needs in real time on a regular basis during day and nightshifts. Adjustments can be made according to an increase or decrease in patient care needs. Nursing staffing models ensure a very accurate reflection of the nursing staff needed and staff numbers and staff mix can be adjusted accordingly (Forte, 2004:12).

Staffing models can help identify staffing trends, such as an increased demand for nursing care, for example on shifts where more patient admissions take place, or alternatively, a decrease in the demand for nursing care, for instance on shifts over weekends. Seasonal trends, for example increased bed occupancy in pediatric wards during winter, can also be identified. Nursing managers can use these trends in the scheduling process, by adjusting staffing needs according to the demand for nursing care. The use of temporary staff during peak times can also be motivated using information gathered from the staffing model (Forte, 2004:12).

2.3.3 Effective nursing resource management

Nursing staffing models assist nursing management in effective nursing resource management. Staffing models collect data and allow for monitoring of individual nursing units and the total nursing workforce application of the organisation. Monitoring is simple and quick and generates reports of targets and variances. This ensures good financial control for nursing managers and good financial outcomes for the organisation (Forte, 2004:12).

Nursing managers use information from reports generated by the staffing model to clarify and explain deviations from the nursing budget. Over expenditures can then be linked to an increase in the demand for nursing care due to patient factors (Forte, 2004:12). Nursing staffing models allow for good data management. Nurse staffing information is stored and information can be provided in real time. Information is available for various revelations (Forte, 2004: 13).

The nursing budget is one of the main operational expenditures of any health care organisation. Nursing managers have to increase the supply of nursing care in circumstances where an increase in the demand arises. Information from the staffing model can be used to justify the increased nursing staffing costs and plan the nursing budget accordingly. Financial managers and nursing managers can plan together for the future cost of nursing care of patients (Forte, 2004: 13).

2.4 NURSING STAFFING MODELS

Weaknesses identified in traditional staffing models are (1) decisions are regularly made at the last minute and (2) the models do not always promote optimal quality or cost effectiveness (Pickard & Warner, 2007: 30).Traditional staffing models use average patient demand based on patient numbers and then add nursing staff as needed when numbers rise above expected levels. Acuity-based staffing is more complex, but more reliable in adding the level of nurse staffing, by grouping patients by level of demand. Efforts are then focused on having competent nurses available to work, as nursing intensity and activities increase or decrease within a given shift (Pickard & Warner, 2007: 30).

Nursing staffing models have to assist nursing and unit managers with real-time patient information to be able to make staffing decisions that ensure high-quality safe care to individual patients. Models must provide highly flexible nursing supply strategies.

2.5 PLANNING AND UTILISATION OF THE NURSING WORKFORCE

2.5.1 Overview

Evidence describing the essential role of nursing staff in the health care environment is apparent throughout the literature. Confirmation that nurse staffing levels – an adequate number of nursing staff with the clinical knowledge and skills – influences the quality of nursing care, patient outcomes and patient safety can be found in the literature. "Inadequate nurse staffing is considered to be one of the work conditions that precipitate errors and violations" (Page, 2004: 162). High workloads and time pressure are the results of understaffing. Insufficient time for patient care prevents nurses from adhering to nursing standards and may predispose errors. In addition, insufficient time for patient care, forces new nursing personnel to perform unfamiliar tasks without adequate knowledge or experience (Cho, 2001: 80).

Many changes in the healthcare business influence the delivery of health care to patients. According to various literature sources, factors individually or collectively influence each other in the planning and utilisation of the nursing workforce. These factors can be categorised and presented schematically as follows:

Table 2.1 A schematic representation of various factors influencing the planning and utilisation of the nursing workforce

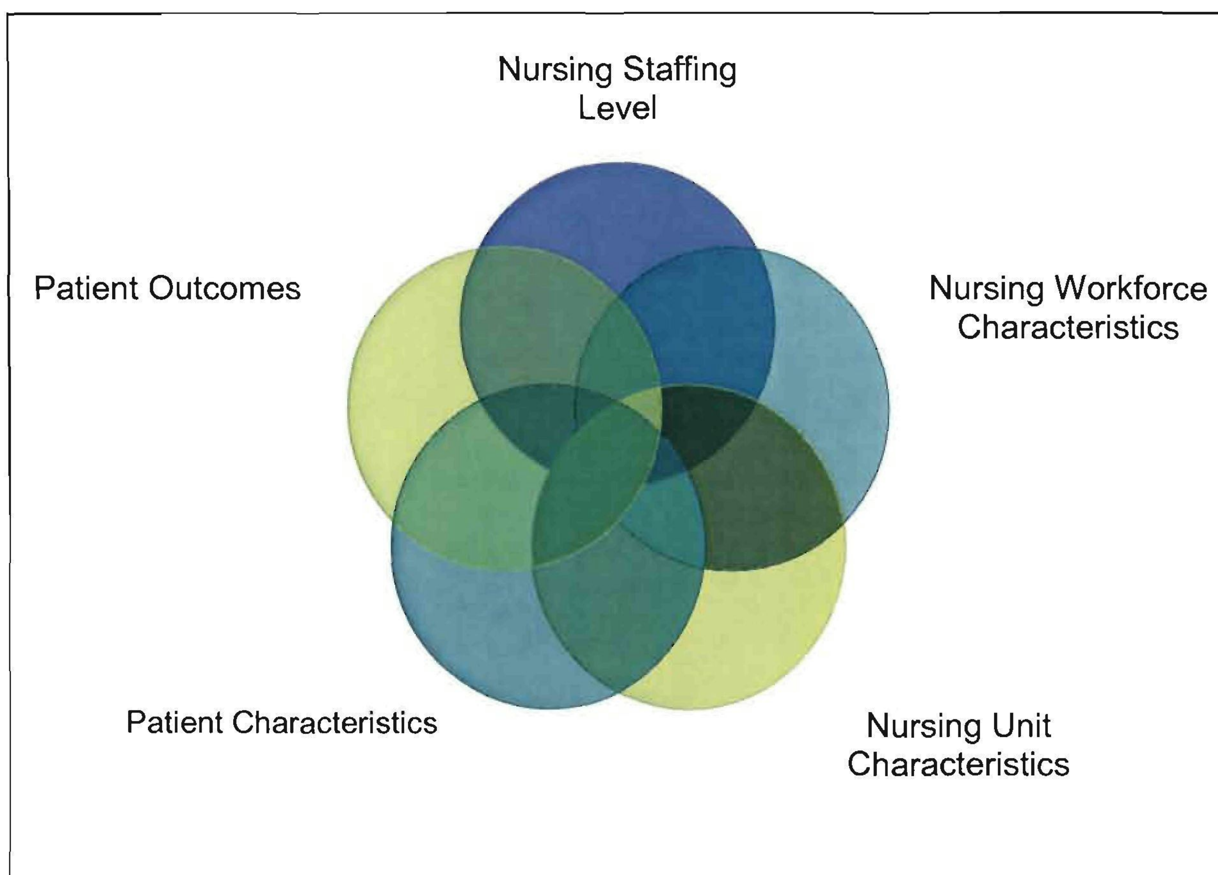


Table developed by researcher: August 8, 2008.

2.5.2 Nurse staffing level

The nursing staffing level (number of nursing staff / nurse-to-patient ratio) data in a specific nursing unit is calculated as nursing hours per patient day, or as the nurse-to-patient ratio (Page, 2004: 164). Staffing level data can be collected for individual nursing units and throughout the entire hospital. Nurse staffing level data can be used for benchmarking purposes (Clarke, 2007: 35), between nursing units in the same hospital, between hospitals from the same health care group or between private hospital groups and government hospitals in South-Africa. Substantial changes in the health care environment, including nursing budget restraints, nursing shortages and nurse migration have caused understaffing. This is a serious problem for nursing managers in South-Africa when it comes to quality of care and the burnout of nursing staff. Evidence of higher than average nurse-to-patient ratios are also evident in private hospitals in South-Africa.

2.5.3 Safe staffing levels

Every healthcare organisation has different and unique circumstances and safe staffing levels can be interpreted differently. What are safe staffing levels for the South-African health care environment? The American Nurses Association supports the Registered Nurse Safe Staffing Act, H.R. 4138 (ANA, 2007). Hospitals are held responsible for consistent and reliable nurse staffing ratios and plans. The act also provides a forum for the public to report on staffing information and complaints regarding nursing staffing (ANA, 2007). In South-Africa no legislation regulates safe staffing levels, but nursing staff and nursing management are responsible and accountable to ensure efficient and safe nursing care.

2.5.4 Minimum nurse staffing ratios

As early as 1999, California State Government investigated and considered the passing of legislation. The AB 394 bill proposed minimum staffing ratios in all Californian hospitals. This initiative was motivated by concerns about the adequacy of patient care and safety and the outcome of unsafe levels of nurse staffing in hospitals. This bill was promoted by the United Nurses Association of California and the Union of Healthcare Professionals to promote improved patient care. The proposed ratios are minimum levels and hospitals are expected to increase the levels of staffing when nursing unit circumstances require additional nursing care. Disputes followed between the California Nurses Association that promoted minimum staffing ratio legislation and the California Healthcare Association that represented the hospitals and opposed the approach (Steinbrook, 2002: 1762).

Table 2.2 Proposed minimum nurse-staffing ratios for hospital units in California

	HOSPITAL UNIT	PROPOSED RATIO OF NURSES TO PATIENTS
1	Intensive / Critical Care	1 : 2
2	Neonatal Intensive Care	1 : 2
3	Intermediate Care Nursery	1 : 4
4	Labor and Delivery	1 : 2
5	Post Anesthesia Care / Recovery Room	1 : 2
6	Emergency Care:	
	Trauma	1 : 1
	Critical Care	1 : 2
	General	1 : 4
7	Pediatrics	1 : 4
8	Step down facility	1 : 4
9	Specialty Care / Oncology	1 : 5
10	General medical / Surgical	1 : 6
11	Behavioral health or Psychiatric	1 : 6

Staffing ratios proposed by the California Department of Health Services in January 2002 under Assembly Bill 394 (Steinbrook, 2002: 1764).

The debate concerning the use of nursing ratios is still ongoing in the USA. The question is not so much the use of nurse-to-patient ratios to determine staffing levels, as the fact that mandatory legislation is used to enforce minimum staffing levels. The concept of minimum nursing ratios in private hospitals in South-Africa is still new and more research is necessary to investigate, determine and promote the use of nursing staffing ratios.

2.5.5 Patient outcomes

"Nurse staffing has been shown to affect inpatient hospital mortality and adverse patient outcomes" (Cho, 2001: 78). Numerous research studies have examined the association between nurse staffing and patient outcomes. An evidence report by Kane et al (2007: 5) states that an increase in nurse staffing in hospitals can be related to better patient outcomes, but the correlation is not necessarily causal. Several other research studies have demonstrated the relationship between increased staffing levels and better patient outcomes. These studies show that as the number of nursing staff increase, the staff is proportionately able to provide increasing amounts of necessary care. Once necessary care is provided, no additional improvement in patient outcomes from greater numbers of staff can be seen (Page, 2004: 170).

Adverse events, including patient falls, nosocomial infections, pressure ulcers and cardiac and respiratory failure, can be directly related to lower nurse-to-patient ratios and the availability of nursing staff in the nursing unit (Page, 2004: 165). The consequences of adverse events on patient outcomes range from insignificant to death. Several studies show that adverse events lead to increased morbidity (Cho, 2001:81). Non-fatal adverse events can increase the average length of stay and can therefore also be linked to lower nurse-to-patient ratios.

2.5.6 Patient characteristics

Some patient characteristics are strongly associated with patient outcomes and therefore have an influence on determining nurse staffing levels. Patient characteristics that increase the demand for nursing care have to be included in workforce planning as a variable to adjust staffing levels to optimise the quality of care. Patient characteristics that can influence the demand of nursing care include:

- Acuity level of care: the degree to which a patient is dependent on the nursing staff for part or all of their care;
- Level of treatment: treatment can very from simple to very complex and can also include the use of medical technology;

- The severity of illness: patients that are severely ill need more nursing care, due to the increased complexity and intensity of the treatment involved;
- Co-morbidities: patients admitted to hospital with co-morbidities, need higher levels of nursing care because the illness can not be treated in isolation;
- Age of the patient: children and elderly patients need assistance for basic care.

Patients with more severe illnesses or co-morbidities are more at risk to lower quality of care. Therefore the effect of certain patient characteristics on nurse staffing needs to be identified and addressed in nursing staff planning (Cho, 2001: 80).

2.5.7 Nursing unit characteristics

Results of a study done by Weinberg, Lesesne, Richards & Pals (2002: 3) showed that nursing levels in units were lower on weekends than on weekdays. This lower staffing level may have a negative impact on health care quality indicators. In South-Africa the demand for nursing care over weekends are the same in acute medical care units if the bed occupancy stays the same, but a decrease in bed-occupancy in surgical units is evident. This allows for lower staffing levels in surgical units over weekends. "The study examined the potentially highest staffing levels, which typically occur on the day shift" (Weinberg et al, 2002: 3). This is also a trend in the South-African healthcare environment and can be ascribed to the fact that nursing activities during the night shift are less acute than during the day shift and providing basic hygiene and basic needs of patients is allocated to day shift. Patient volume is another factor that influences the planning of staffing levels. The number of admissions, discharges and day patients must be incorporated in estimates of daily patient volume (Page, 2004: 189).

2.5.8 Nursing workforce characteristics

Increasing patient acuity and decreased length of stay in acute care hospitals have implications for how nursing staff organise and provide care to patients. This places more strain on nurses' work (Chaboyer, Wallis, Duffield, Courtney, Seaton, Holzhauser, Schluter & Bost, 2007: 1). Nursing workforce characteristics influencing staffing planning include: education level, experience in nursing practice, skills mix and the use of non-nursing staff and agency nurses. Professional competence is essential for delivering high quality care.

- Education Level: The healthcare workforce delivering services in nursing units, consists of a diverse team with different levels of professional education. Registered nurses have a nursing college or professional university level qualification. Levels of education of other nursing categories vary between one and two years of nursing college training (Kvist, 2004).

- Nursing Experience: Years of nursing experience is an important factor for nursing teams to identify gaps in quality care. According to the researchers own nursing management experience, more experienced nursing staff can support nursing students and accompany them in reaching set goals in nursing practise whilst delivering necessary nursing care to patients. Experienced nursing staff is also necessary to assist with orientation of newly appointed personnel and agency staff.

- Skills mix: is a term used to refer to the mix of nursing staff in the workforce and also refers to the combination of skills available in a nursing team (Buchan & Dal Poz, 2002:1). An association between workload, skills mix and patient outcomes has been demonstrated by studies investigating the care delivered by registered nurses and enrolled nurses in acute medical care units (Aiken, Clarke, Sloane, Sochalski & Silber, 2002; Needleman, Buerhaus, Stewart, Zelevinsky & Mattke, 2006). Information and insight into the similarities and differences in the work carried out by various levels of nursing staff can be useful to plan for nursing staffing (Chaboyer et al, 2007: 2).

2.5.9 Additional factors

- *Cost of health care*

Each factor influencing nursing staffing can not be evaluated in isolation. Problems with staffing can also be complemented by additional principles:

In any healthcare service organisation, the main operational cost is that related to labour. In the competitive private healthcare sector in South-Africa, an institutional survival turning point is effectively managing the workforce and maximising efficiency. At the end a small variation in the application of nursing hours allocated per patient day can lead to a major nursing workforce budget variance (Forte, 2004: 12). It is therefore important for nursing managers to monitor nursing workforce application and staffing accuracy, to be able to reduce financial risks for the healthcare institution. It is also important to monitor the process daily and continuously.

A fine financial balance has to be maintained. Cost containment initiatives of health care organisations may impose budget constraints on nurse staffing. This may result in inadequate nurse staffing levels. Cost containment initiatives can be in the form of lower nursing care per patient day, reductions in registered nurse staffing or the replacement of registered nurses with lower categories of nursing staff or care workers (Cho, 2001: 79).

Poorly designed or implemented nursing workload measurement methods may possibly result in inappropriate nurse staffing decisions. It is important for nursing managers to keep accurate nursing workforce data and use this data accordingly to plan for future nursing cost. The planning of nursing budgets is as important to ensure that enough financial resources are available to supply the demand for nursing care (Cho, 2001: 79).

- *Rethinking and redesigning of roles in healthcare*

The private hospital industry in South-Africa is undergoing extensive reorganisation that includes restructuring of the workforce. A lot of valuable time is spent by nursing staff performing tasks that are not nursing related. Abundant evidence is also available showing unwarranted time spent by nursing staff on functions other than providing patient care. These are barriers to providing professional and appropriate nursing care. The need for urgent rethinking and redesign of roles in the health care environment is evident. Nursing managers need to include nursing staff in the development of work redesign strategies (Bauerhaus et al, 2002: 126).

- *Principles for nurse staffing*

The American Nurses Association (ANA) identified three categories and nine principles for nurse staffing in November 1998 (Appendix A), and although being in practice for ten years already, the principles are still very relevant to guide nursing managers in planning for the adequate and safe level of staff in nursing units today. According to this report the staffing principles can help to compensate for problems with nursing staffing.

2.6 CONCLUSION

Throughout the literature, abundant evidence can be found, indicating threats to patient safety arising from various levels and components of healthcare delivery. This includes the work processes, workload, work hours, and work environment of nursing staff (Page, 2004: xi). This literature study mentions the nursing shortages and the barrier it causes for adequate nursing staffing, but does not address the current nursing shortages in South-Africa. Each factor influencing the planning and utilisation of the nursing workforce cannot be seen as an individual factor and must be incorporated as part of the process. Direct and indirect nursing care functions must be involved in evaluating staffing methods. Staffing systems must allow for unpredicted variations in patient care resulting in an increase in workload. Minimise staff turnover and use nursing staff from external agencies. Staffing strategies and the overall process used to determine staffing levels, have to be assessed and updated continuously to ensure patient safety and high quality nursing care (Page, 2004: 209).

The aim of this chapter is to give an introduction to nursing workforce planning and identify factors influencing the planning and utilisation of the nursing workforce. The benefits of a nursing staffing model are discussed briefly. Principles of nurse staffing identified in the literature can assist nursing managers with nurse staffing. The next chapter is dedicated to the empirical study. The factors influencing nurse staffing identified in the literature are tested in the practice of the nursing environment, using a questionnaire. Data collected through the questionnaire is discussed and operational problems regarding the management of the nursing workforce are identified and possible solutions discussed.

CHAPTER 3

EMPIRICAL RESEARCH

3.1 INTRODUCTION

The level of nurse staffing directly influences the quality of nursing care. "The importance of appropriate staffing of nurses has been emphasised and optimal provision of nursing care has increased in order to improve the quality of nursing service" (Uto & Kumamoto, 2005: 165). One of the major operational costs in the private hospital business is nursing personnel costs and therefore, a great concern for nursing management. As with any operational company cost, the nursing cost budget has to be managed. Nursing managers are responsible for the management of the nursing workforce and to report deviations from the budget. Nursing managers are faced with many factors and changes in the health care environment, influencing the staff component and staff cost in nursing units. Nursing shortages further add to the challenge of the supply of adequate nurse staffing. Staffing strategies must therefore involve the developing of a health care workforce that includes the right number, skills mix and allocation of healthcare professionals needed to provide in the health care needs of patients in a cost effective way.

This research study originated because of the need for reliable determination of adequate nursing staffing levels and nurse-to-patient ratios. By means of the empirical research study, the researcher wants to identify significant factors and staffing trends that contribute to or influence the determining of the staff component in nursing units in the South-African private hospital business. Various factors identified in the research literature are investigated and analysed in the nursing practice environment to determine to what extent these factors influence and determine adequate nursing staffing levels. Existing staffing strategies are also evaluated to investigate whether the identified factors are used in nursing practice to determine the need for nursing care.

The ultimate purpose of this study is to assist nursing managers by providing research based principles for inclusion in staffing models to determine the level of nursing staff needed to deliver consistent high quality, cost effective patient care. An effective nursing staffing model can be used by nursing managers to effectively and pro-actively identify nursing staffing requirements to meet the demand for nursing care in specific nursing units, and adjustments can be made according to the increase or decrease in patient care needs in a timely manner.

This qualitative research study consists of a literature review and an empirical study. The literature review has already been described in the previous chapter. The purpose of this chapter is to describe the empirical research design implemented for this study. The research design includes the research strategy and context and the research method will indicate the way data was collected, classified and analysed. Reliability and validity of conclusions is described and the research results will be evaluated and interpreted.

3.2 RESEARCH DESIGN

For this research study, a survey-based research design was planned and implemented to achieve the research objectives. Survey-based research is a well established and commonly employed category of research study design (Panacek, 2008: 14), and for the purpose of this study, the research questions could be addressed by using a survey design. "The term *survey* includes any studies that consist of asking individuals to respond to questions. This includes written questionnaires and personal interviews" (Panacek, 2008: 14). The basic principles of survey-based research were identified and applied. For this study, a combination of written questionnaires and personal interviews were used. A questionnaire was utilised and the researcher completed the questionnaire during an informal interview with the respondents. This approach was taken to optimise the gathering of information through further explanation of the questions posed to the respondents. Any misunderstandings could be cleared by the researcher and the information obtained was of a high quality.

As a research tool, survey-based design has a number of advantages: it is relatively inexpensive to perform, it allows for quick data acquisition and an appropriately drawn sample can provide representative data (Panacek, 2008: 14).

3.3 QUALITATIVE RESEARCH METHODOLOGY

The following methodology was employed to obtain the required information: Primary data collection: an empirical investigation was done to understand nursing staffing practices. Information was gathered through a questionnaire that was compiled as part of the qualitative research design.
Secondary data collection: information and the identification of factors influencing nurse staffing was obtained through the literature study as described in chapter 2.

3.3.1 Research instrument

For the purpose of this study the researcher used an interviewer-administered questionnaire. The questionnaire is included as Appendix B.

3.3.1.1 Design of questionnaire and data management

A survey questionnaire was developed, bearing the primary and secondary research objectives in mind throughout the process. The questionnaire was developed and designed according to identified factors from the research literature that contribute to, or influence the staff component in nursing units. Factors were categorised as follows:

- Quality nursing care;
- Cost concern and management of nursing resources;
- Nursing shortages / Vacant positions / Use of agency staff;
- Non-nursing tasks;
- Adequate nursing staffing levels;
- Nurse-to-patient ratios;
- Patient characteristics;
- Nursing workforce characteristics;
- Unit characteristics;

- Nursing care and patient safety.

General guidelines to questionnaire design (Struwig & Stead, 2004: 89), were considered. A combination of open ended and closed questions were used. A Likert-type scale was linked to the statements to measure the approach of the respondents. The measurement on the questionnaire range from strongly disagrees to strongly agree. A four point scale was used to prevent respondents from taking the central option. During the planning of the layout and design of the questionnaire, attention was given to the length and complexity. Questionnaires should not be too long or too complex.

The data obtained from the questionnaire was compared with patient and staffing data obtained from a staffing monitoring tool used in the hospital that was involved in the research study. Nursing ratios and nursing vacancies per unit were compared with the nursing budget and available staffing data. All nursing and unit managers are responsible for managing the nursing workforce and faced with the challenges thereof. They have a responsibility for the delivery of quality nursing care and patient safety, and need to make appropriate and proactive arrangements to ensure adequate nursing staffing levels in nursing units. Therefore the population (N) for this research study includes all nursing managers working in the private hospital industry in South-Africa.

3.3.1.2 Sampling

Sampling involves selecting a group of people to conduct a study. Sampling ensures the most effective way to acquire a sample that would accurately reflect the population under study. The critical case sampling method was used for sampling of the population (Struwig and Stead, 2004: 123). Nursing unit managers in charge of various hospital units in a private hospital environment were included in the sample. This sample will be a representation of the population (nursing management in a private hospital).

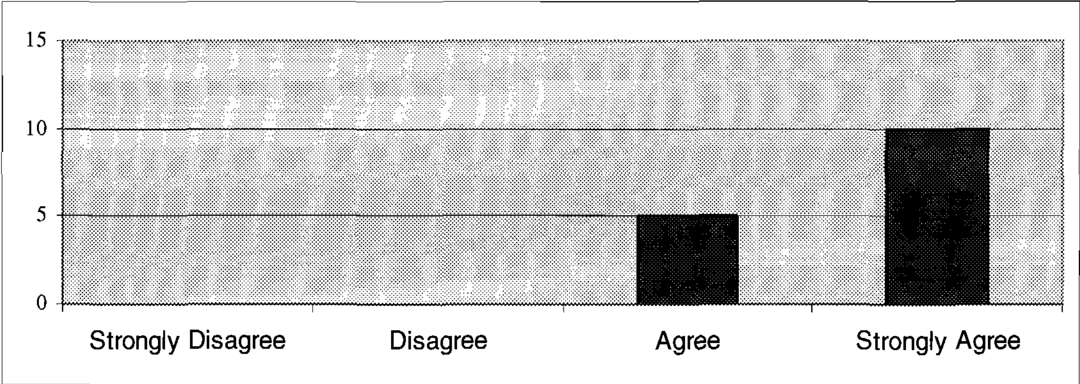
Sample size: the homogeneous nature of the population (nursing managers) allowed for a small sample size. The questionnaire was discussed and completed for fifteen respondents. n = 15. The fieldwork was conducted by the researcher. The questionnaire was explained to and completed for the respondents. Data was obtained through questionnaires. Appointments with respondents were made and the questionnaires were filled in by the researcher.

3.4 DATA ANALYSIS AND PRESENTATION

The analysis and interpretation of the data/information are presented on the basis of the theoretical and research arguments. Data analysis is done in the same categories and each question will be discussed separately, as it was presented in the questionnaire:

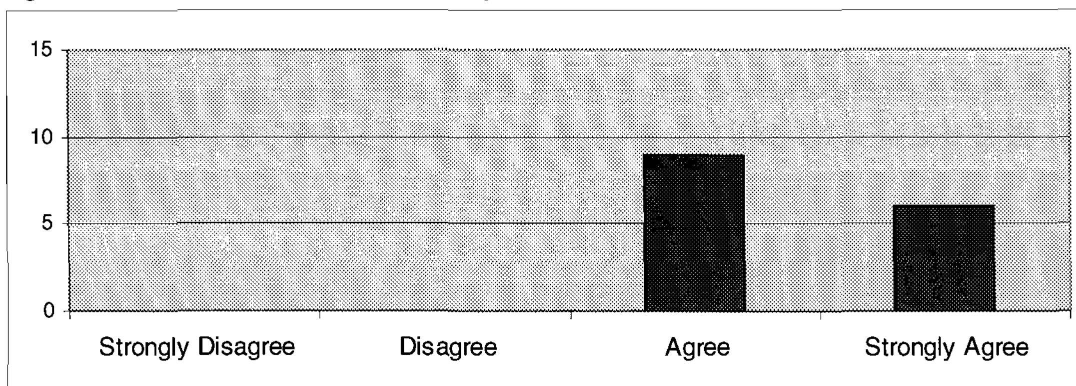
3.4.1 Quality nursing care

Figure 3-1 The level of nurse staffing influences the quality of nursing care.



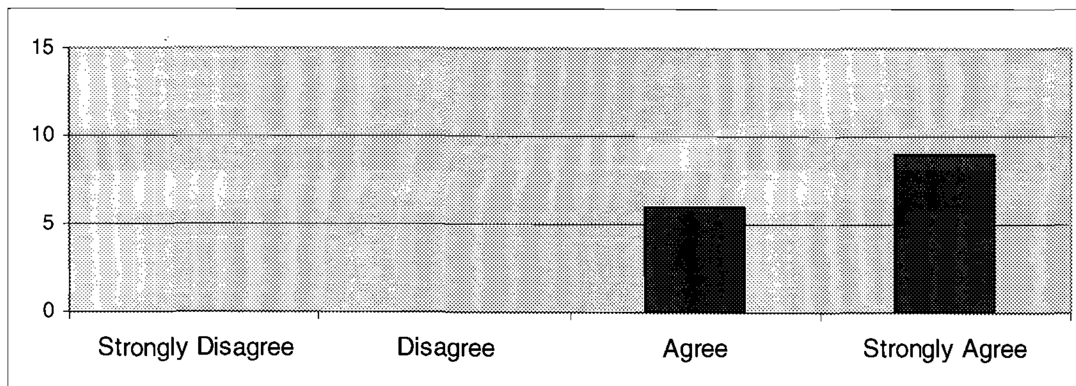
The majority of the respondents strongly agreed that the level of nurse staffing influenced the quality of nursing care. Respondents were all part of nursing management or unit management, hence the high rating of this criterion.

Figure 3-2 The level of nurse staffing influences patient outcomes in the unit.



The majority of respondents agreed that the level of nurse staffing influenced patient outcomes in nursing units. This question correlates with 3.1 and respondents demonstrated the importance of adequate staffing levels to ensure quality nursing care and ultimately patient outcomes.

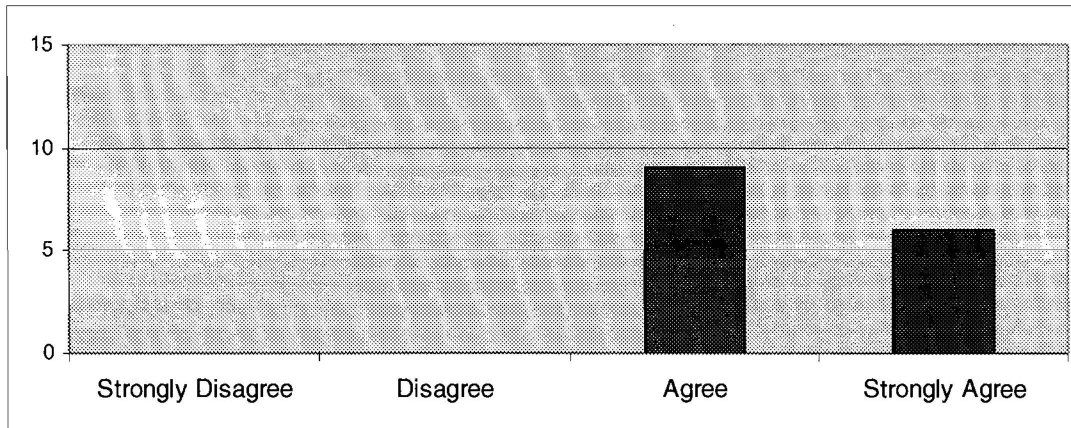
Figure 3-3 Inadequate staffing levels increase the incidence of sentinel and adverse events in nursing units.



The majority of respondents reacted strongly from their nursing management background and felt that inadequate staffing levels increased the incidence of sentinel and adverse events in nursing units. This criterion also demonstrates the commitment of the respondents to patient safety.

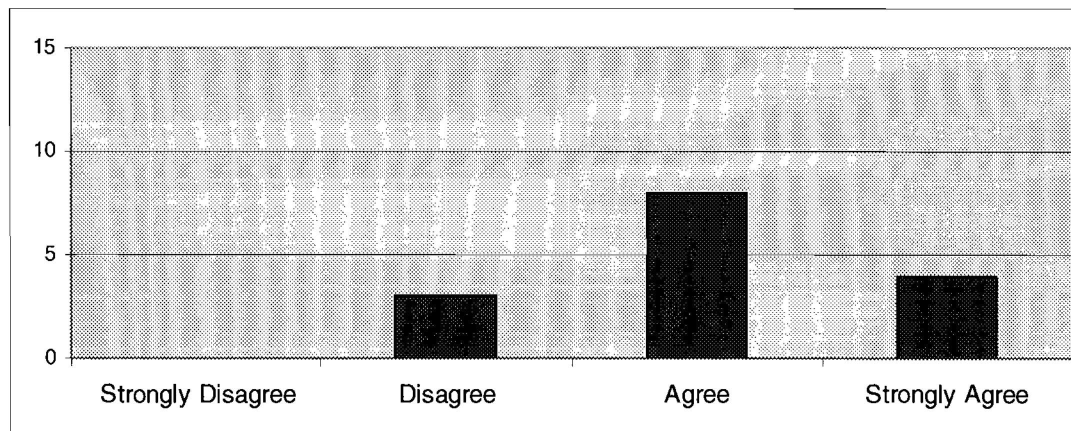
3.4.2 Cost concern and management of nursing resources

Figure 3-4 I have participation in the planning of the nursing staffing component in my unit.



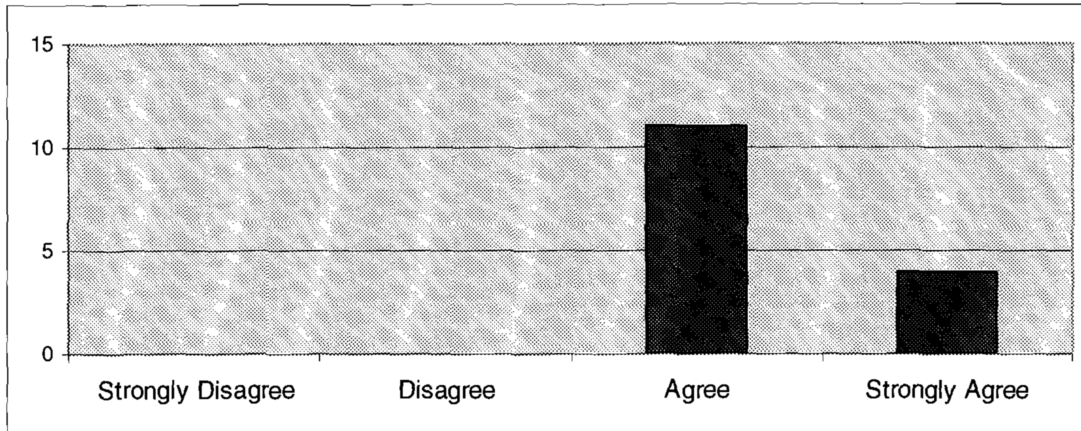
It is evident from the response that unit managers and nursing service managers are participating in the planning of the nursing workforce in the units. It is also clear that the suggestions that are being made are implemented and therefore the response.

Figure 3-5 I get information on the nursing staffing budget of my unit on a monthly basis.



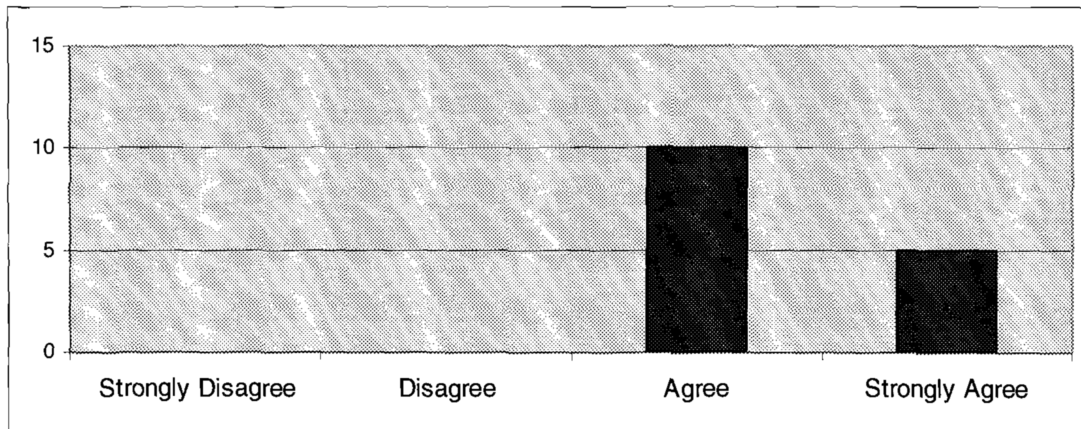
It was clear from the information gathered and interviews, that the unit managers took ownership of the specific unit that they were responsible for and were proud of the management of the unit costs, including nursing costs. Three respondents felt that the information needed to manage nursing costs was not available to them.

Figure 3-6 I plan the nursing staffing component in my unit according to the nursing budget.



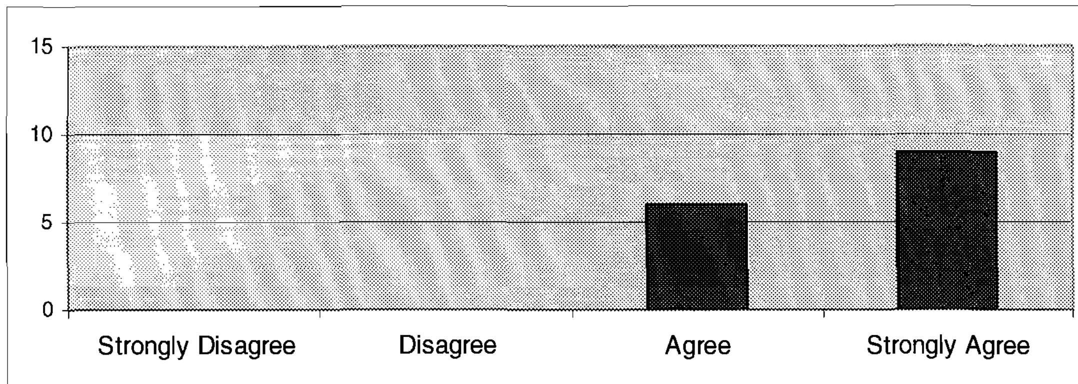
The respondents demonstrated their commitment towards containing the increasing cost of nursing care. Unit managers knew exactly what was expected of them and were well aware of the specific unit budget.

Figure 3-7 I have to explain deviations from the nursing budget on a monthly basis.



The strong response reflects the commitment of unit managers to manage costs. A variety of continuous monitoring data strategies, that the unit managers use to explain deviations from the budget, were discussed during the interviews.

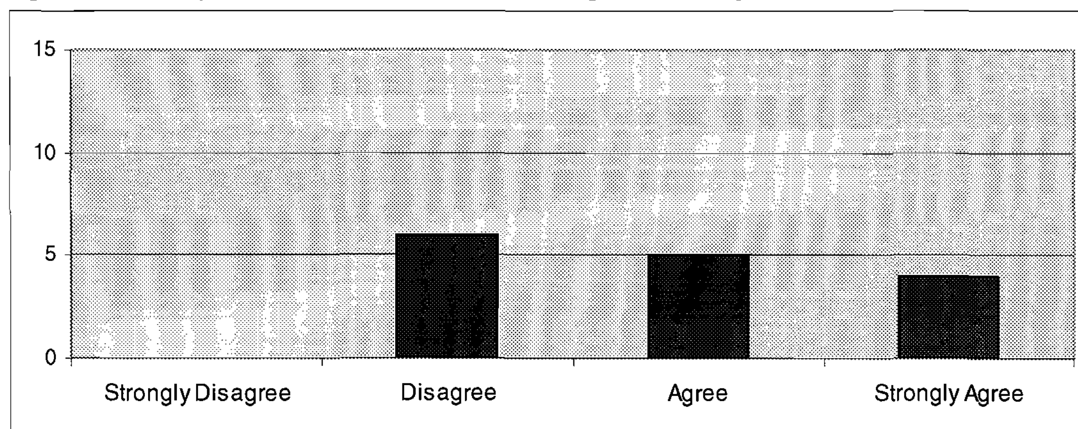
Figure 3-8 All of the above information is important to effectively manage nursing resources.



All respondents agreed that information was necessary to manage nursing staffing costs according to the budget. Information nursing managers need include the nursing budget and the actual costs. This will allow them to effectively manage the nursing workforce.

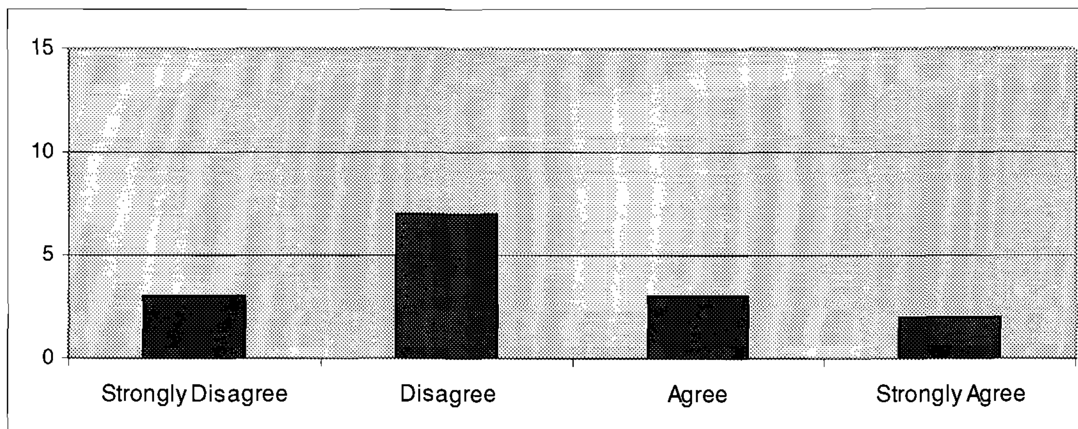
3.4.3 Nursing shortages / Vacant positions / Use of agency staff

Figure 3-9 I experience shortages of nursing staff in my unit.



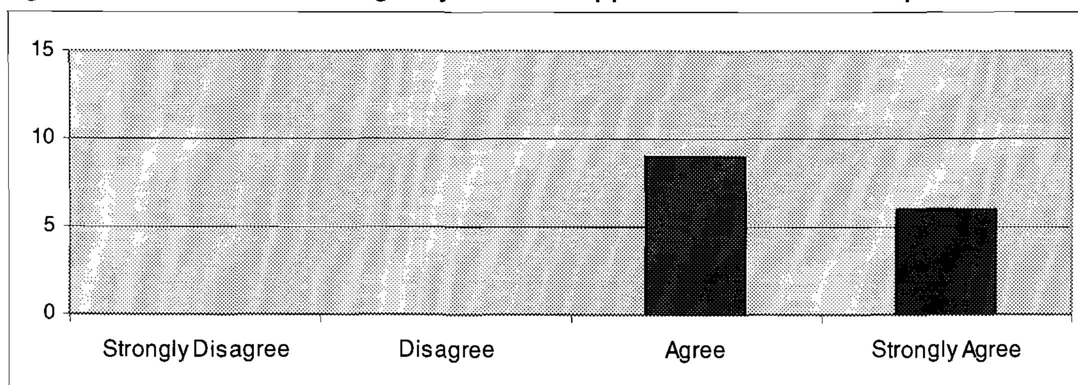
The majority of respondents felt that nursing shortages were evident, but not a serious problem for that hospital and specifically their unit at that stage.

Figure 3-10 The percentage of nursing vacancies to available positions in my unit is more than 30 percent.



The respondents of the units where the positions are vacant noted them as vacant positions, but the hospitals use nursing students in their first and second years of training to fill these positions. Rotation of students happens on a monthly basis and therefore the positions are not filled with permanent staff.

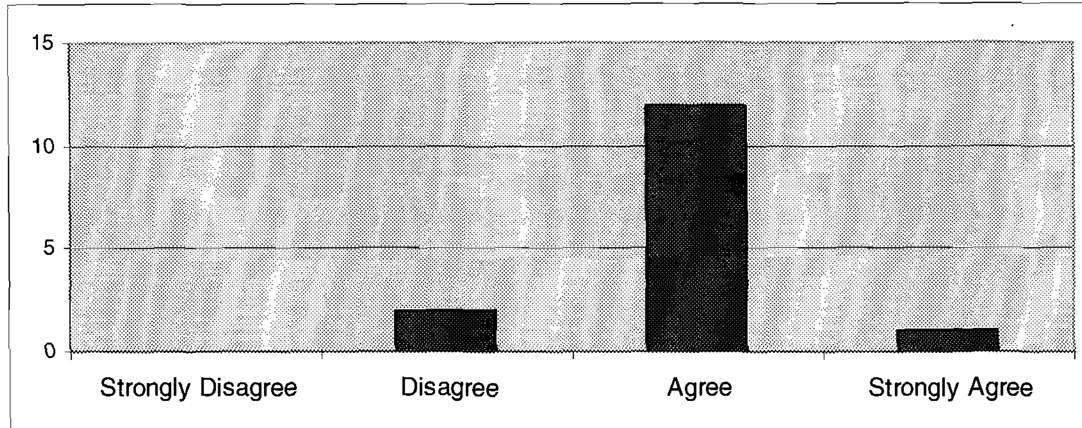
Figure 3-11 I make use of agency staff to supplement the staff component in the unit.



Most respondents agreed that they were allowed to use agency staff members to supplement the staff component in their unit within the nursing budget and according to patient bed occupancy. The respondents mentioned that the availability of agency staff sometimes was a problem.

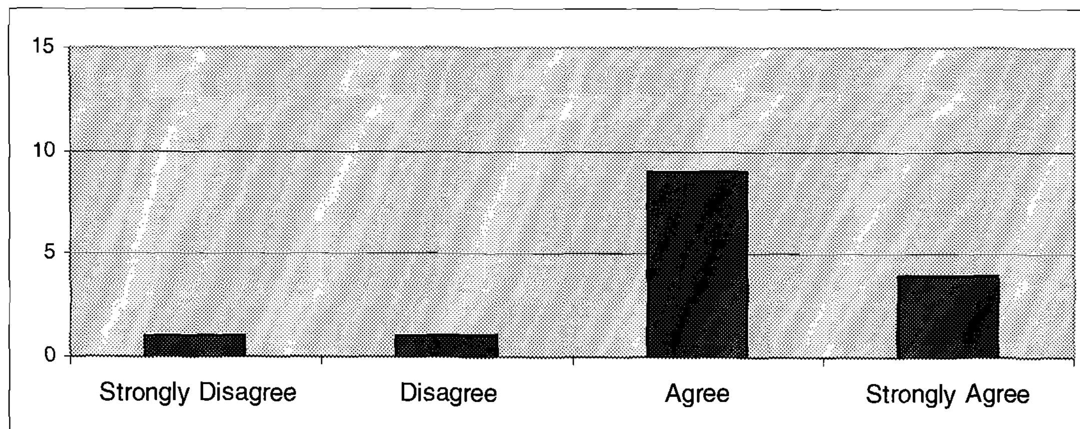
3.4.4 Non-nursing tasks

Figure 3-12 Administrative staff assists nursing staff in the unit.



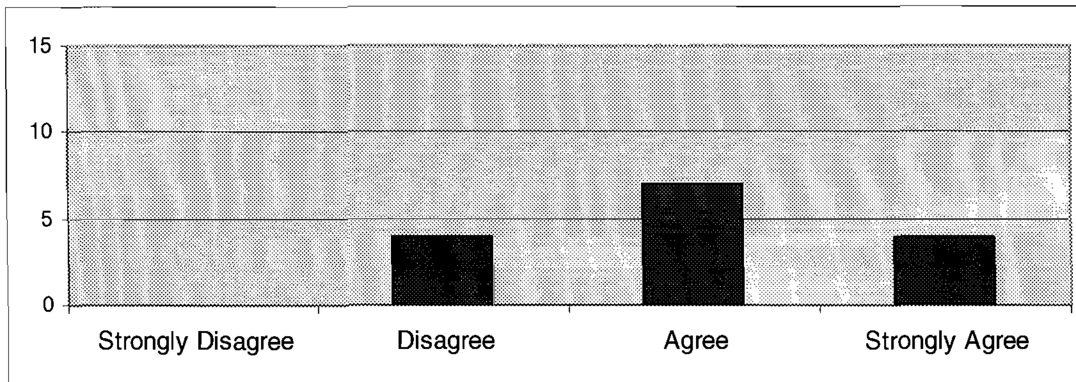
Respondents mainly agreed that administrative staff assisted in the units, but the respondents that disagreed felt that more administrative positions were needed to assist nursing staff in units. Because of the workload of administrative staff the assistance was not optimal.

Figure 3-13 Nursing staff in the unit regularly perform non-nursing tasks.



The majority of respondents agreed that nursing staff still performed non-nursing tasks. Nursing managers mentioned that the component of non-nursing staff would be increased when planning for the next staff budget. The respondents that disagreed already used non-nursing categories in the units to perform non-nursing tasks.

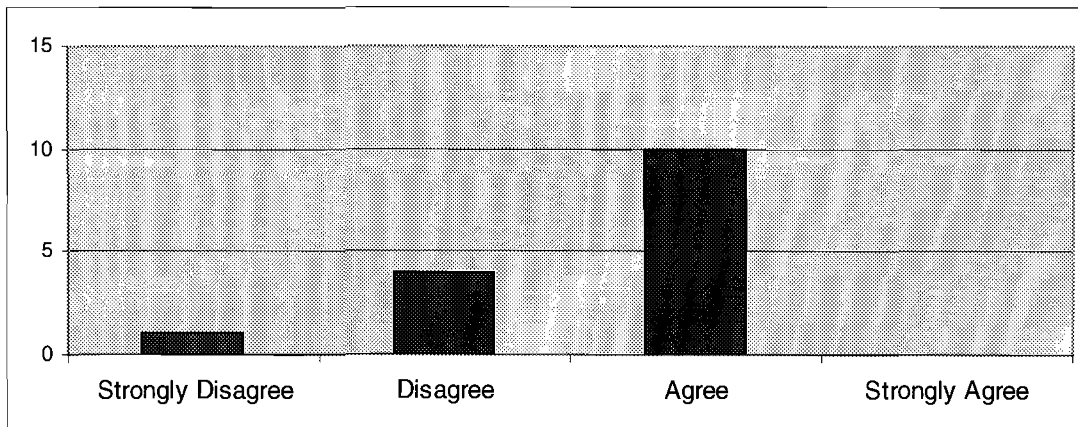
Figure 3-14 We make use of non-nursing categories of workers for example care workers / scrub technicians in the unit.



The respondents that did not make use of non-nursing categories in the unit were planning to implement non-nursing staff categories in the near future. The theatre unit manger is implementing scrub technicians in the next financial year.

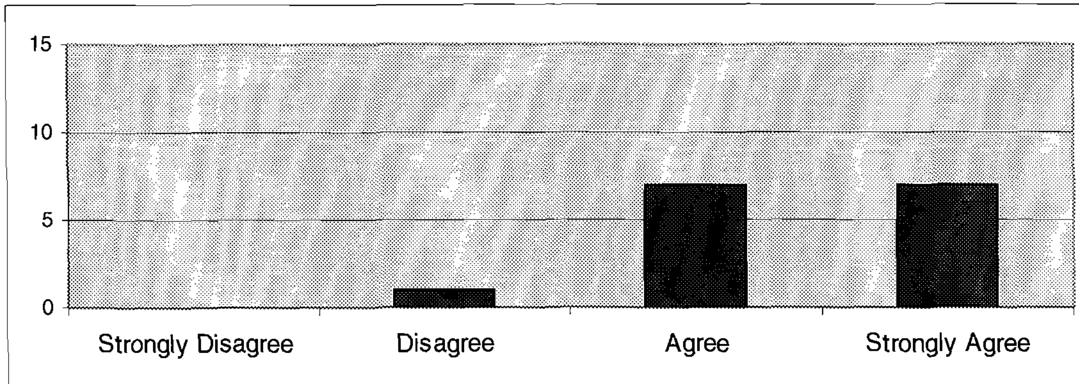
3.4.5 Adequate nursing staffing levels

Figure 3-15 The nursing staffing component in my unit is adequate to supply in the demand for patient care.



Most respondents were confident that the nursing staffing component was adequate to supply in the demand for patient care.

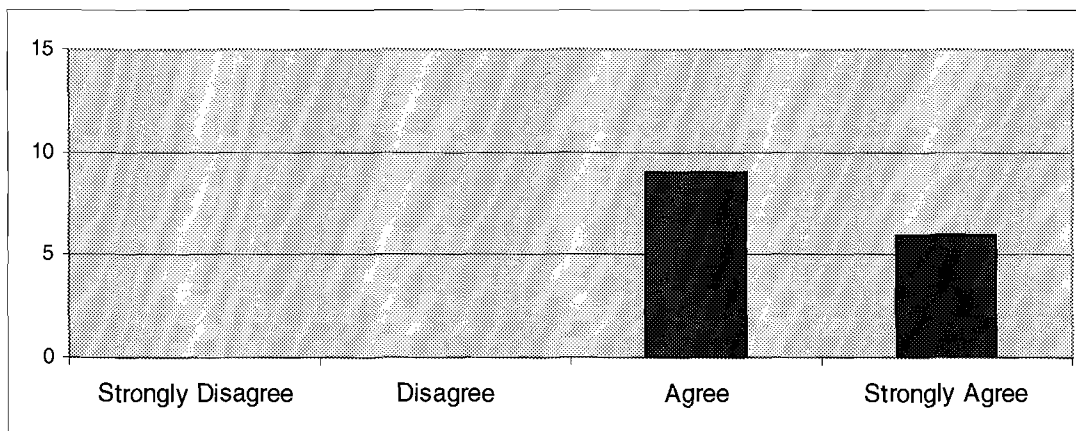
Figure 3-16 To my opinion nursing units need legislation and regulation to enforce minimum nursing ratios.



Respondents felt that their input to the nurse staffing component in units was valuable and respected. If they could motivate for increased ratios, hospital management would investigate and adjust the staffing level accordingly. But they felt that it was necessary to regulate and enforce minimum nursing ratios in the South-African health care business.

3.4.6 Nurse-to-patient ratios

Figure 3-17 I plan the nursing staffing component in my unit according to nurse-to-patient ratios.



The staffing model used in all the units and overall for the hospital is based on nurse-to-patient ratios, hence the total agreement of all respondents.

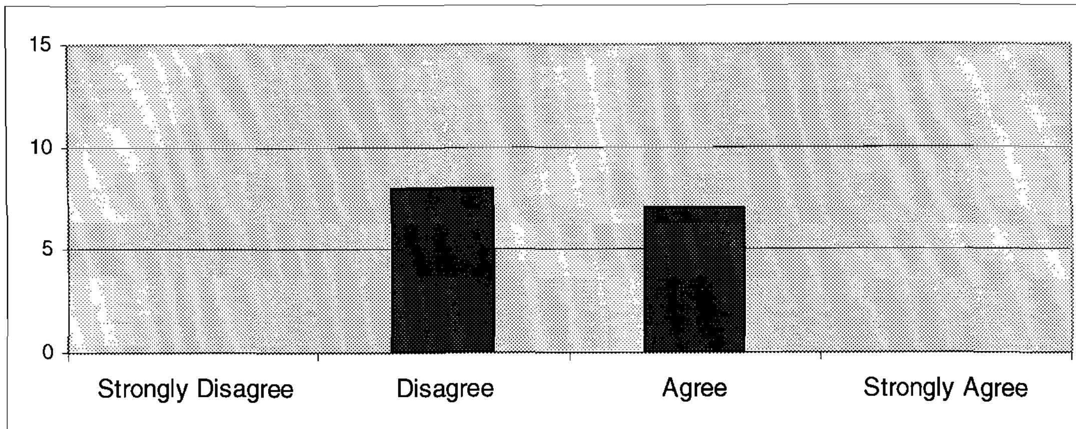
Figure 3-18 Nurse-to-patient ratios

		HOSPITAL RATIOS
1	Intensive / Critical Care Unit	1 : 2
2	Neonatal Intensive Care	1 : 2
3	Intermediate care Nursery	1 : 4
4	Labour and Delivery	1 : 2
5	Maternity Ward	1 : 3.5
6	Recovery Room	1 : 2
7	Emergency Care:	
	Trauma	1 : 1
	Critical Care	1 : 2
	General	1 : 6
8	Pediatric Care Unit	1 : 3.5
9	Medical Care Unit	1 : 4
10	Surgical Care Unit	1 : 4
11	Orthopedic Care Unit	1 : 3.5

Nurse-to-patient ratios were obtained from the staffing model used by nursing management. These ratios can be compared with international unit specific standards.

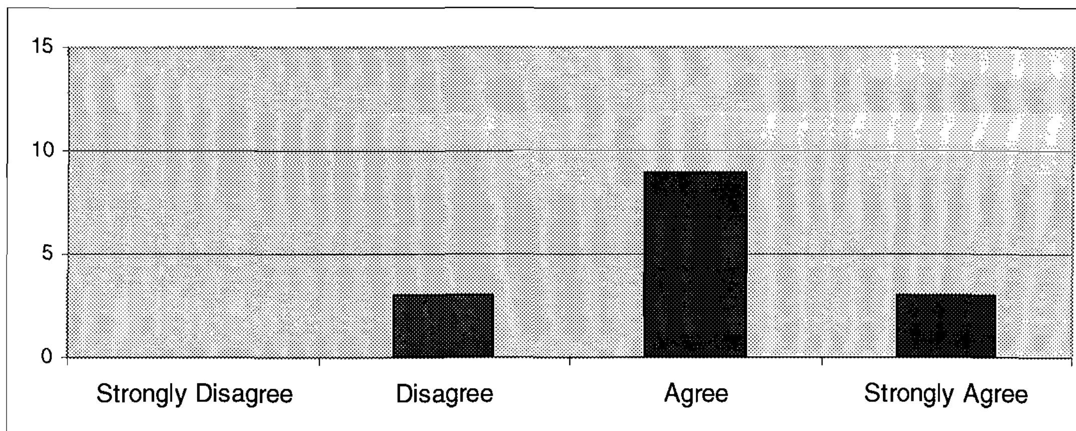
3.4.7 Patient characteristics

Figure 3-19 Patient characteristics, for example age, acuity or complexity of treatment are taken into account when planning for nurse staffing.



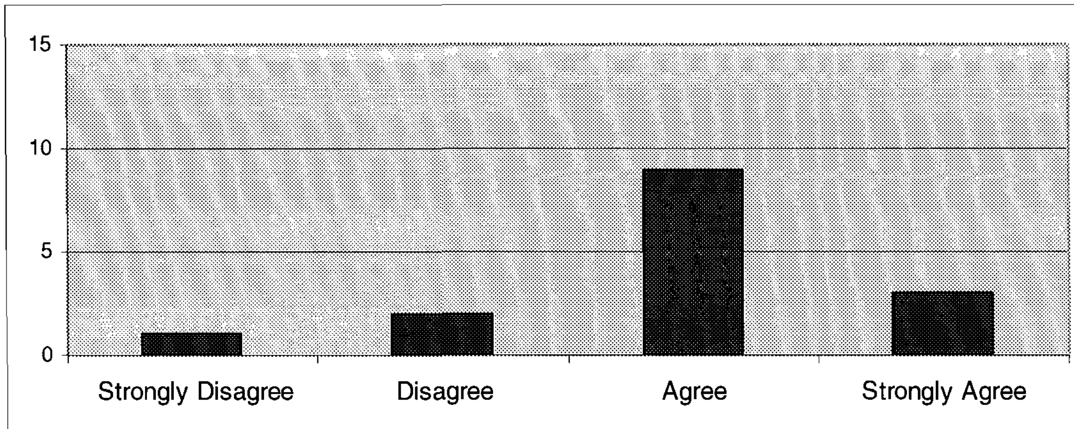
Patient characteristics were taken into account in the medical and pediatric units. The surgical units did not use patient characteristics as a factor for determining staffing numbers. The respondents felt that that was a problem which should be investigated.

Figure 3-20 The demand for nursing care is higher during day shift than during night shift.



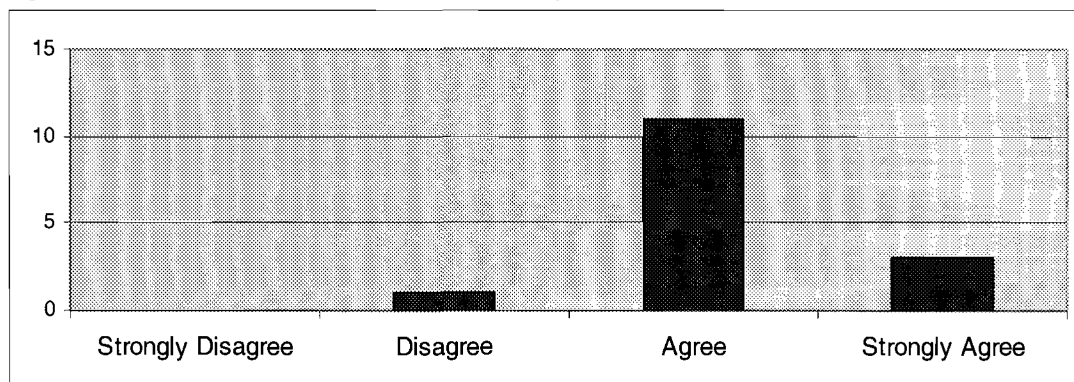
93% of the respondents from surgical units were in agreement that the demand for nursing care declined during night shift. The respondent that disagreed was from a medical unit.

Figure 3-21 The demand for nursing care decline during weekends.



The respondents from surgical units where scheduled theatre cases are done during the week agreed. In the medical and specialised units this is not a reality.

Figure 3-22 Patient characteristics are important to determine the workload of nursing staff.



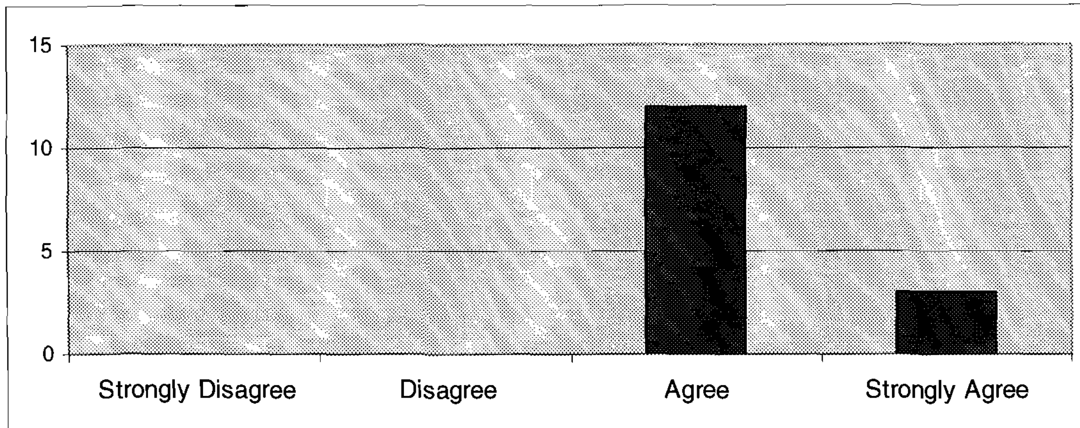
Most respondents felt that patient characteristics had to be included in a staffing model.

3.4.8 Nursing workforce characteristics

Figure 3-23 The nursing ratio per category in the unit is:

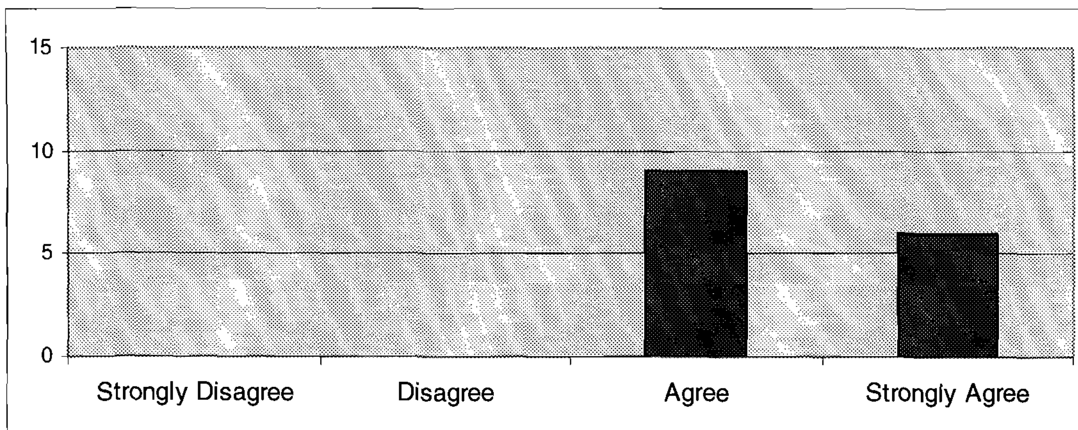
	Registered Professional Nurses	Registered Staff Nurses	Assistant Nurses and Care Workers
Labour Ward	100%	-	-
Maternity Ward	29.60%	41.63%	23.37%
Orthopedic Ward	29.13%	31.67%	35.27%
Medical Ward	25.50%	37.07%	36.40%
Surgical Ward	30.27%	33.13%	33.43%
Pediatric Ward	30.50%	22.03%	44.10%
Adult Intensive Care	62.27%	30.77%	4.9%
Neonatal Intensive Care	60.10%	31.70%	5.50%
Theatre	53.57%	26.23%	17.10%
Emergency Unit	33.07%	27.13%	37.20%

Figure 3-24 Nursing staff with different levels of experience are included in nursing teams in my unit.



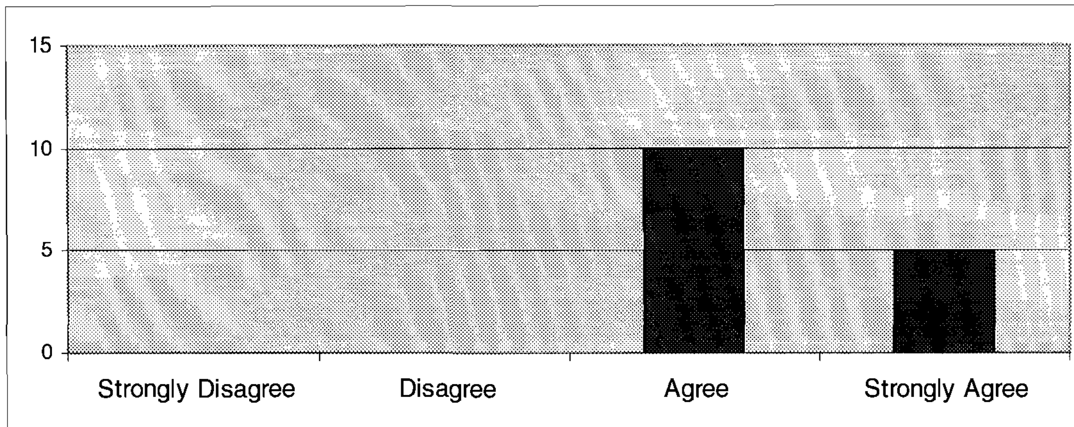
All respondents agreed or strongly agreed that it was necessary to include the different nursing categories in nursing teams in the units.

Figure 3-25 Newly qualified nursing staff is orientated in the unit.



All respondents felt that the orientation of new staff and agency staff was of utmost importance and had to be conducted, even when the workload was very high.

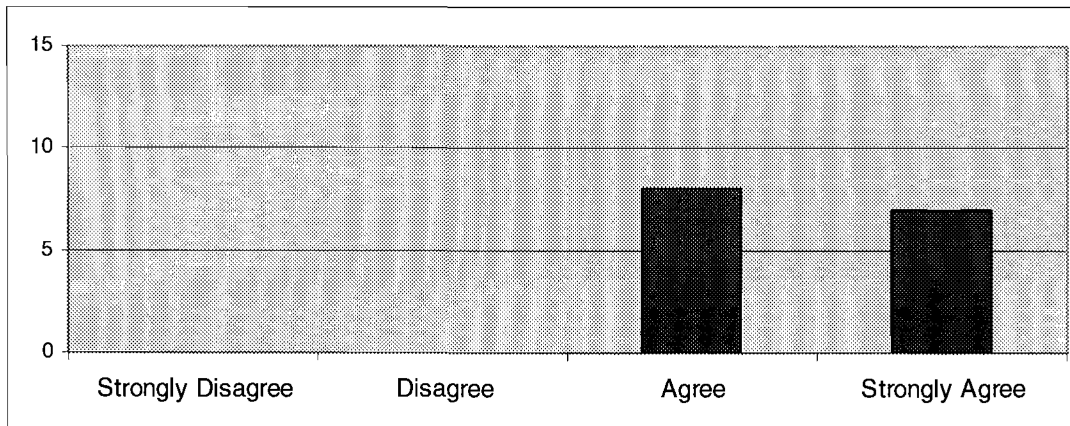
Figure 3-26 Nursing workforce characteristics is important for planning the staff component in the unit.



Most of the respondents were in agreement that nursing workforce characteristics needed to be included in staffing strategies.

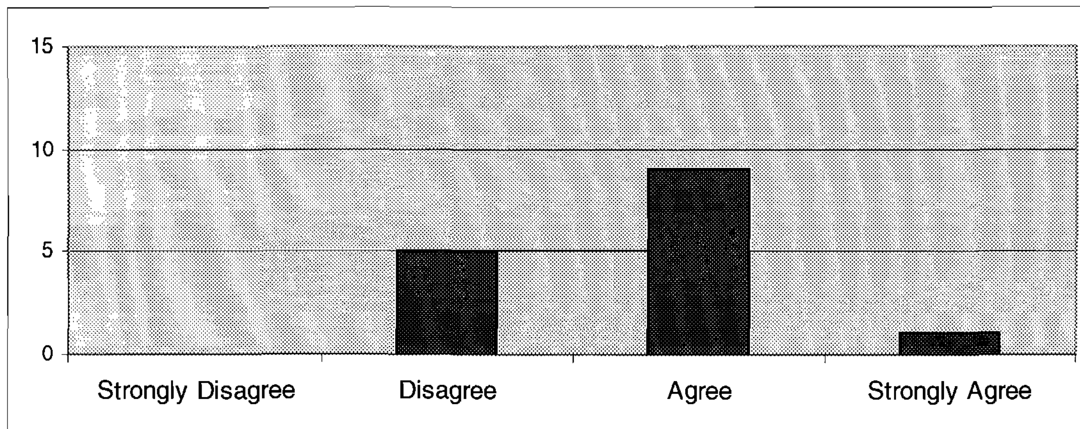
3.4.9 Unit characteristics

Figure 3-27 The percentage of bed occupancy is taken into account when planning for the staff component in the unit.



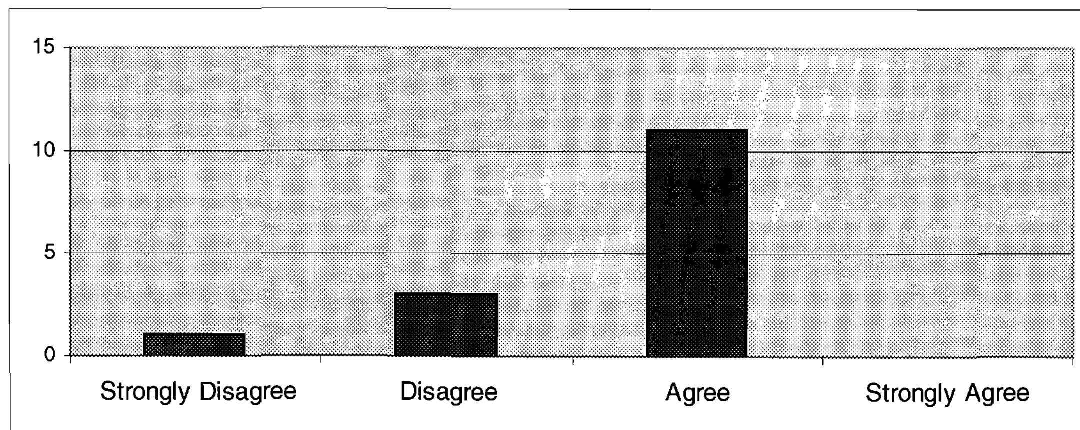
The staffing model used by the hospital is directly linked to bed occupancy. Unit managers are also allowed to increase staffing levels according to bed occupancy. Explanations of exceeding nursing budgets are acceptable for hospital management when linked to increased bed occupancy.

Figure 3-28 The number of admissions and discharges are taken into account when planning for the staff component in the unit.



Although the majority of respondents felt that the number of admissions and discharges were taken into account in the staffing model used by the hospital, some respondents felt that this was not the case.

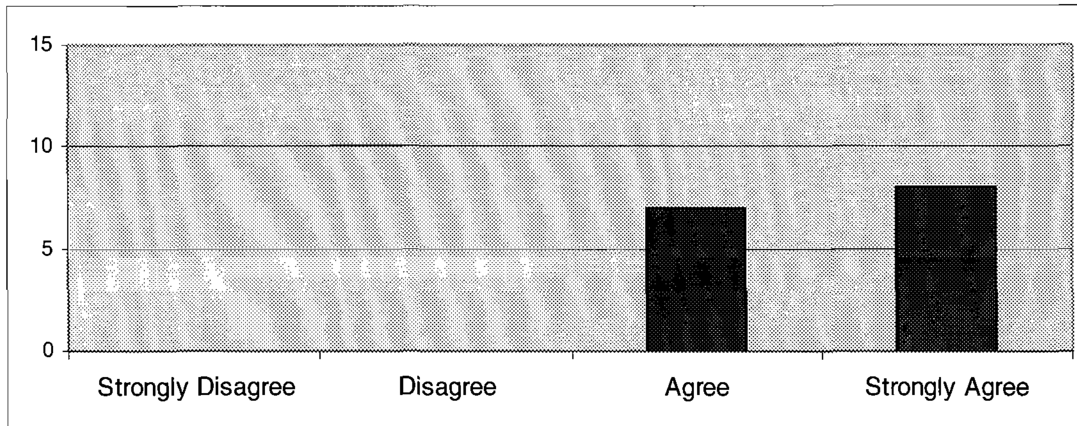
Figure 3-29 The number of theatre cases is taken into account when planning for the staff component in the unit.



The respondents felt that the number of theatre cases was taken into account in some units. This did not affect the medical care units.

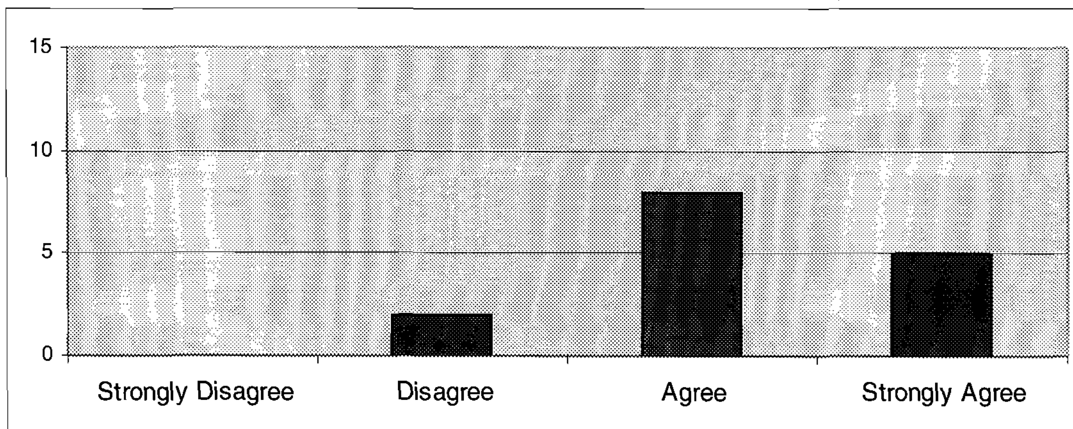
3.4.10 Nursing care and patient safety

Figure 3-30 I will advise future patients to make use of our facility.



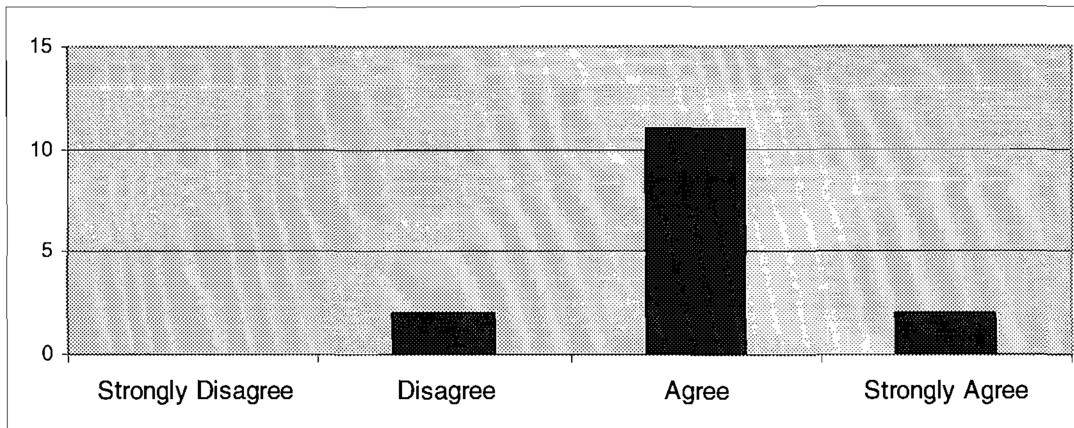
A response showing the commitment of unit managers to advise future patients to make use of the facility. This demonstrates confidence of a high standard of nursing care.

Figure 3-31 Patients in my unit are getting consistent high quality nursing care.



It is evident from this response that unit managers feel confident about the quality of nursing care given in their units.

Figure 3-32 Patients in my unit are safe and not exposed to risk.



Unit managers feel confident about the safety of patients cared for in their units. A confirmation that staffing levels are adequate and therefore, a high quality of patient care is delivered.

3.5 LIMITATIONS

Limitations experienced during the empirical research study are that the respondents are all working in the same hospital and for the same company. Remarks about previous work experience for other private hospital groups and the responsibility towards quality care and patient safety were made by respondents.

3.6 CONCLUSIONS

Confirmation of factors influencing and determining the nursing staff component in units was obtained through the empirical research study. These factors are collectively influencing the process. Staffing strategies and models used by nursing managers must include all factors that play a role.

The purpose of this chapter was to describe the planned research method and the conducting of the empirical research study. In the next chapter recommendations will be made regarding the information obtained from the literature and empirical research study.

CHAPTER 4

THE CONCLUSION

4.1 INTRODUCTION

The dynamic nature of the healthcare environment in South-Africa requires from all healthcare organisations the ability to adapt to change in the environment. Various factors influence the development of nursing staffing models in South-Africa. This research study identified and investigated factors playing a vital role. These factors need to be included in nursing staffing models used in practice.

4.2 SUMMARY OF RESEARCH RESULTS

4.2.1 Quality nursing care

Evidence found in the literature of various international research studies that nurse staffing affects the quality of patient care and patient outcomes in hospitals, was confirmed by this research study. Nursing managers that participated in the empirical research, revealed a strong relationship between adequate staffing levels and the quality of patient care, and good patient outcomes. Inadequate staffing levels increase the incidence of sentinel and adverse events in nursing units. Nursing management plays a vital role in the planning and utilisation of the nursing workforce.

4.2.2 Cost concern and management of nursing resources

Nursing managers in the private hospital environment acknowledge that the necessary information is needed to effectively manage the nursing workforce in a cost-effective manner. They participate in the planning of the staffing component in the nursing unit and the nursing staffing budget. Management encourages participation and values their input. Planning of the staff component in the unit is done according to the staffing budget and

nursing management is held responsible for the divergence of actual versus budgeted nursing costs. However, nursing managers experience that they do not always receive the necessary data needed to manage nursing costs properly.

4.2.3 Nursing shortages / Vacant positions / Use of agency staff

Nursing shortages are critical globally as well as in South-Africa. Nursing shortages are however, not experienced to a serious degree in certain geographical areas in South-Africa. Shortages also are more severe for the two higher categories of nursing staff, namely registered professional nurses and registered staff nurses. The implication for the South-African environment is that for certain nursing activities, lower categories of nursing staff require the supervision of higher categories of nursing staff. Categories of nursing staff also need to act in the prescribed scope of practice of the specific nursing category. Private hospitals in South-Africa have already investigated and implemented a number of initiatives to address nursing shortages. Training plays an important role in increasing the nursing workforce numbers. The number of students training to become registered professional nurses and registered staff nurses, were increased to fill vacant positions. The upgrading of existing categories is also vital to increase the skills of the nursing workforce. One of the first initiatives to supplement the nursing team in hospitals, was to make use of agency nursing staff. Nursing shortages also affect the availability of agency nurses, and therefore this is not a permanent solution.

4.2.4 Non-nursing tasks

Administrative staff assists nurses in nursing units, but it is clear from this research study that a significant number of non-nursing tasks are still performed by nursing staff. Much valuable time is spent on such tasks and this results in further increases in the workload of nursing staff. The research revealed that the problem lies in the number of administrative posts available in each unit. There is simply not enough non-nursing staff available to decrease the burden of the nurse's workload in the unit. The private hospital industry in South-Africa is undergoing reorganisation and restructuring of the workforce to relieve

nursing staff from non-nursing tasks. Nurses can then focus on providing professional nursing care. The development of new positions in the South-African healthcare environment occurred through addressing this dilemma. This is still in an early phase and private hospitals are still establishing strategies to explore this possibility.

4.2.5 Adequate nursing staffing levels

The direct influence of nursing staffing levels on the quality of nursing care requires the provision of an adequate number and distribution of qualified and experienced nursing staff, to be able to provide for patients' needs. Nursing managers in the private hospital business are confident that the nursing staffing component is adequate to deliver high quality nursing care to patients. This evidence can not be applied to private hospitals throughout South-Africa, because of the previous finding that nursing shortages are more critical in other geographical areas in the country. Nursing managers experience valuable participation in the planning and utilisation of adequate nursing staffing levels. This finding is reassuring because unit managers need to have nursing management support and representation at an operational and executive level to be able to participate in the strategy planning.

Although nursing managers in the private hospital sector participate and play a vital role in the determining of minimum nurse-to-patient ratios, and they are in a position to motivate to decrease the patient ratio, the respondents feel that regulations are needed in the South-African environment to enforce minimum ratios.

4.2.6 Nurse-to-patient ratios

Table 4.1 Proposed minimal nurse-staffing ratios for hospital units in California versus South-African private hospital ratios.

	HOSPITAL UNIT	PROPOSED RATIO OF NURSES TO PATIENTS (CALIFORNIA)	PRIVATE HOSPITAL IN SOUTH AFRICA
1	Intensive / Critical Care	1 : 2	1 : 2
2	Neonatal Intensive Care	1 : 2	1 : 2
3	Intermediate Care Nursery	1 : 4	1 : 4
4	Labor and Delivery	1 : 2	1 : 2
5	Post Anesthesia Care / Recovery Room	1 : 2	1 : 2
6	Emergency Care:		
	Trauma	1 : 1	1 : 1
	Critical Care	1 : 2	1 : 2
	General	1 : 4	1 : 4
7	Pediatrics	1 : 4	1 : 3
8	Surgical	1 : 6	1 : 4
9	Orthopedics	1 : 6	1 : 3.5
10	General medical	1 : 6	1 : 4

Staffing ratios proposed by the California Department of Health Services in January 2002 under Assembly Bill 394 (Steinbrook, 2002: 1764).

It is evident from the comparison between the Californian minimum ratios and the South-African private healthcare business, that in South-African hospitals the nurse-to-patient ratios are smaller. Nurses care for fewer patients and this can contribute to the increase in the quality of patient care.

4.2.7 Patient characteristics

Evidence was found in the literature overview of the strong relationship between patient characteristics and patient outcomes. Patient characteristics therefore, influence the determining of staffing levels. The empirical research study confirmed the importance of including patient characteristics in staffing models. The respondents that participated in the empirical research study confirmed that although some patient characteristics are included in the determining of the staff component in units, this is a weakness in existing staffing models. Patient characteristics are to some extent taken into account in the medical and pediatric units.

4.2.8 Nursing workforce characteristics

Nursing workforce characteristics influencing the planning of the staff component in nursing units that were identified in the literature, include level of education, experience in nursing practice and skills mix. The empirical research study confirmed that nursing managers emphasise the importance of including nursing workforce characteristics in staffing strategies. It is important to include all the different nursing categories in nursing teams in the units, in order to get a balanced nursing team that can supply in all of the basic and advanced nursing needs of patients.

4.2.9 Unit characteristics

Unit characteristics, for example bed occupancy, the number of theatre cases and the number of admissions and discharges, influence the determining of the workload of nursing staff and therefore, the staff component in the unit. Respondents experience that bed occupancy is taken into account, but other unit characteristics can be better utilised as a guide to determine the level of staffing.

4.2.10 Nursing care and patient safety

As determined in the literature study, patient outcomes and possible risk of harm to patients are sensitive to nurse staffing (Dunton, Gajewski, Taunton & Moore, 2004: 55). Respondents to the empirical study demonstrated confidence of a high standard of nursing care delivered in nursing units, by confirming that nursing staffing levels are adequate. Nursing managers are confident that staffing levels are adequate and that patients are not exposed to any risk of possible unsafe conditions. Respondents were willing to advise future patients to make use of the private hospital facility.

4.3 CONCLUSIONS

Various factors directly and indirectly influence the determining of staffing levels in nursing units. Factors can not be seen in isolation and a collective approach is necessary.

4.4 RECOMMENDATIONS

4.4.1 Quality nursing care

A strong relationship between nurse staffing and the quality of patient care, patient outcomes and patient safety in hospitals, emphasise the utmost importance of adequate nursing staffing levels in nursing units. The role of nursing managers in this process is very important and nursing managers have to be committed to ensure consistently high quality nursing care and a safe environment for the patient. Nursing managers and leaders need to understand and use the principles essential in managing the nursing workforce. Nursing staffing models can assist in planning and utilising the workforce. Staffing models must include all vital elements to measure the nursing needs of patients in order to efficiently plan for adequate nursing staffing levels. The various factors influencing the planning of the nursing workforce must be investigated and implemented in the staffing model. These factors must be individualised to fit in with the organisation's specific situation.

4.4.2 Cost concern and management of nursing resources

The management of all operating costs, including nursing staffing costs, is a big challenge for nursing management. Nursing management today needs a financial background or training to effectively utilise all the information available to them. Nursing staffing costs in the private hospital business are well under control, but information needed by nursing management must be made available to them to optimise the control process.

4.4.3 Nursing shortages / Vacant positions / Use of agency staff

Nursing shortages and the implementing of alternative strategies to address the dilemma in the South-African healthcare environment, are still in an early stage of development. Many options have been investigated and assessed in practice. One of the most successful initiatives is training more nursing staff to provide in the increasing demand. Training plays a vital role for the private hospital sector, and this sector must continue to train nursing staff for their own needs. Another successful initiative, is the upgrading of lower categories of nursing staff to higher categories. This enables the private sector to deliver a higher quality nursing care.

The initiative of using agency nursing staff, can also be developed further. Available agency staff can attend hospital programs to orientate the staff to hospital specific documentation, policies and procedures. This will ensure that agency staff is familiar with the method of operation of the hospital and they will easily buy into the culture of the organisation. By training them and using the same people as agency staff, they can be made part of the team and this can also contribute to improve the quality of care delivered. By monitoring agency staff performance and by including them in in-service training programs and performance appraisals, they will be able to improve their performance to the advantage of the company.

4.4.4 Non-nursing tasks

Evidence of nurses performing a large number of non-nursing tasks was also revealed by this research study. This problem needs to be investigated further, in order to identify tasks that can be allocated to non-nursing staff. This trend did receive attention in the private healthcare sector in the past, but the development of non-nursing positions to assist nursing staff in the units, is still in an experimental stage. Solutions must be further investigated and implemented. Nursing managers, in collaboration with human resource managers, must interact and create new initiatives unique to the specific circumstances of private hospitals, to address this problem. The focus must also be on the cost of highly skilled and paid nursing staff performing non-nursing tasks.

4.4.5 Adequate nursing staffing levels

Adequate nursing staffing levels for the South-African healthcare environment need to be expressed in relative terms. Every hospital and even every unit is unique in the factors influencing the determining of the staff component. Existing staffing models must be developed and adjusted until they fit the criteria affecting the staffing component of every individual unit and the hospital as a whole. Non-nursing staff can be included in the staffing models to evaluate the bigger picture and to include all activities. Adequate nursing staffing levels must be determined per unit and optimum nursing care must be maintained. Nursing management can develop and use monitoring strategies to obtain information about the quality of nursing care and patient outcomes. This can then be used to adjust staffing levels to optimise patient care.

4.4.6 Nurse-to-patient ratios

Nurse-to-patient ratios, similar to adequate nursing staffing levels, are relative. No definite regulations or guidelines are available for the private healthcare sector in South-Africa and hospitals use ratios that were developed for their own environment as a guideline. Nurse-to-patient ratios can not be used in isolation to guide the staffing component. All other

factors involved must be taken into account. Nurse-to-patient ratios for specific units can be monitored to develop a guideline for the specific unit and hospital. But when other factors influence the situation, the ratios must be flexible and adjustable to the advantage of patients.

4.4.7 Patient characteristics

A strong correlation between patient characteristics and the determining of staffing levels was demonstrated by this study. This factor must be included as a key component of staffing models used by hospitals. Staffing models that do not include patient characteristics, have to be re-evaluated and adjusted to include this major driver of the determining of staffing levels in units. Unique patient profiles of wards, especially specialised units and medical units, must be determined and individual patient characteristics must be included to ensure optimum quality of nursing care.

4.4.8 Nursing workforce characteristics

Another factor influencing nursing staffing levels, is nursing workforce characteristics, which also needs to be included as a key component of staffing models. This factor is a component of existing staffing models, but needs further development in order to provide a pro-active approach towards the staffing of units.

4.4.9 Unit characteristics

Unit characteristics is a factor influencing the determining of the nursing staffing level and is to an extent included in existing staffing models. Bed occupancy is a driver for determining the staff component, but other unit characteristics also need to be included. It sometimes seems a minor factor, but looking at it collectively, changes the situation dramatically. Thus, this important factor also needs further development to be able to adjust nursing staffing models accordingly.

4.4.10 Nursing care and patient safety

Quality care and patient safety is a direct indication of the success of any nursing staffing model. It is important for any healthcare organisation to monitor the standard of nursing care and patient safety, and to adjust nursing staffing levels accordingly. A pro-active approach is necessary to prevent any sentinel or adverse events from happening.

4.5 SUGGESTIONS FOR FURTHER RESEARCH

The unstable environment and ongoing change in the health care environment in South-Africa, necessitates additional research to develop the components of nursing staffing models. Additional research is necessary to develop nurse staffing models that support excellent patient outcomes and enhance customer service principles for the healthcare environment.

The concept of minimum nursing ratios in the private healthcare business in South-Africa is still new and further research is necessary to investigate and identify nurse-to-patient ratios for the broader South-African healthcare environment. This can be done by the South-African Nursing Council and possible guidelines or regulations can be developed.

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APPENDIX A - PRINCIPLES OF SAFE NURSE STAFFING

The nine principles identified by the expert panel for nurse staffing and adopted by the ANA Board of Directors on November 24, 1998 are listed below.

Patient Care Unit Related

- Appropriate staffing levels for a patient care unit reflect analysis of individual and aggregate patient needs.
- There is a critical need to either retire or seriously question the usefulness of the concept of nursing hours per patient day (HPPD).
- Unit functions necessary to support delivery of quality patient care must also be considered in determining staffing levels.

Staff Related

- The specific needs of various patient populations should determine the appropriate clinical competencies required of the nurse practicing in that area.
- Registered nurses must have nursing management support and representation at both the operational level and the executive level.
- Clinical support from experienced RNs should be readily available to those RNs with less proficiency.

Institution/Organisation Related

- Organisational policy should reflect an organisational climate that values registered nurses and other employees as strategic assets and exhibit a true commitment to filling budgeted positions in a timely manner.
- All institutions should have documented competencies for nursing staff, including agency or supplemental and traveling RNs, for those activities that they have been authorized to perform.
- Organisational policies should recognise the myriad needs of both patients and nursing staff.

.PPENDIX B

Questionnaire on the Factors Contributing or Influencing the Determining of the Staff Component in Nursing Units

A. Introduction

This questionnaire is compiled for the empirical research of a mini dissertation. Your participation will be highly appreciated. It should take no more than 30 minutes of your time. Please give a truthful response according to your knowledge and perception.

B. Instructions

Choose one of the available choices for each response and mark your response with an X in the space provided for closed ended questions. Answer open ended questions with the information required.

	Strongly Disagree	Disagree	Agree	Strongly Agree
1. Quality Nursing Care				
- The level of nurse staffing influence the quality of nursing care.				
- The level of nurse staffing influence patient outcomes in the unit.				
- Inadequate staffing levels increase the incidence of sentinel and adverse events in the nursing unit.				
2. Cost Concern and Management of Nursing Resources				
- I have participation in the planning of the nursing staffing component in my unit.				
- I get information on the nursing staffing budget of my unit on a monthly basis.				
- I plan the nursing staffing component in my unit according to the nursing budget.				
- I have to explain deviations from the nursing budget on monthly basis.				
- All of the above information is important to effectively manage nursing resources.				
3. Nursing Shortages / Vacant Positions / Use of Agency Staff				
- I experience shortages of nursing staff in my unit.				
- The percentage of nursing vacancies to available positions in my unit is more than thirty percent.				
- I make use of agency staff to supplement the staff component in the unit.				

	Strongly Disagree	Disagree	Agree	Strongly Agree
4. Non-Nursing Tasks				
- Administrative staff assists nursing staff in the unit.				
- Nursing staff in the unit regularly perform non-nursing tasks.				
- We make use of non-nursing categories of workers for example care workers / scrub technicians in the unit.				
5. Adequate Nursing Staffing Levels				
- The nursing staffing component in my unit is adequate to supply in the demand for patient care.				
- To my opinion nursing units need legislation and regulation to enforce minimum nursing ratios.				
6. Nurse-to-Patient Ratios				
- I plan the nursing staffing component in my unit according to nurse-to-patient ratios.				

- The minimum nurse-to-patient ratio when the bed occupancy is hundred percent in my unit is: ____________

	Strongly Disagree	Disagree	Agree	Strongly Agree
7. Patient Characteristics				
- Patient characteristics for example age, acuity of care or complexity of treatment are taken into account when planning for nurse staffing.				
- The demand for nursing care is higher during day shift than during night shift.				
- The demand for nursing care decline during weekends.				
- Patient characteristics are important to determine the workload of nursing staff.				

	Strongly Disagree	Disagree	Agree	Strongly Agree

8. Nursing Workforce Characteristics

- The nursing ratio per category in my unit is:
  Registered Professional Nurses:
  Registered Staff Nurses:
  Assistant Nurses:

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
- Nursing staff with different levels of experience are included in nursing teams in my unit.				
- Newly qualified nursing staff is orientated in the unit.				
- Nursing workforce characteristics is important for planning the staff component in the unit.				

9. Unit Characteristics

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
- The percentage of bed occupancy is taken into account when planning for the staff component in the unit.				
- The number of admissions and discharges are taken into account when planning for the staff component in the unit.				
- The number of theatre cases is taken into account when planning for the staff component in the unit.				

10. Nursing Care and Patient Safety

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
- I will advise future patients to make use of our facility.				
- Patients in my unit are getting consistent high quality nursing care.				
- Patients in my unit are safe and not exposed to risks.				