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CLINICAL REGISTRARS' PERCEPTIONS OF THEIR SPECIALIST TRAINING ON THE UNIVERSITY OF WITWATERSRAND TRAINING CIRCUIT.

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Johannesburg, 2009

A research report submitted to the

Faculty of Health Sciences, University of Witwatersrand, South Africa in partial fulfilment of the requirements for the Masters in Medicine in the branch of

Community Health

DECLARATION

I, Elvira Singh, declare that this research report is my own work. It is being submitted for the Masters in Medicine, Community Health. It has not been submitted before for any degree or examination.

_____

Elvira Singh

_____ day of _____ 2009

DEDICATION

This report is dedicated to my husband Shailen, and my family.

ABSTRACT

Introduction: This study sought to determine perceptions of registrars of their training on the Wits circuit as regards hospital, specialist and university support and their opinions on improving registrar MMed research output. Future career plans of registrars were also investigated.

Methods: This was a cross-sectional study using self-administered questionnaires consisting of Likert scales and open-ended questions. The study population comprised registrars in four clinical specialties on the Wits training circuit.

Results: Chris Hani Baragwanath Hospital received the lowest proportion of satisfactory responses for nursing support. Hospital management was considered unsatisfactory at three of the four hospitals. Specialist supervision was considered satisfactory although 70% (115/164) of registrars reported coping with situations beyond their expertise, which they attributed to specialists being off-site. Registrars reported insufficient time and a lack of qualified supervisors as barriers to undertaking research. Only 32% of respondents felt adequately prepared for independent practice. Most registrars intended to continue working in the public sector.

Conclusions: Problems and recommendations identified by registrars could be used by the university to improve the registrar training experience.

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LIST OF ACRONYMS AND ABBREVIATIONS

95% CI	95% confidence interval
CHB	Chris Hani Baragwanath Hospital
Colleges of Medicine	The Colleges of Medicine of South Africa comprise 27 constituent colleges that represent all disciplines in medicine and dentistry. They award specialist qualifications (fellowships) on suitably trained clinicians through the College examinations. These qualifications are regarded by the Health Professions Council of South Africa as acceptable for specialist registration.
Coro	Coronation Hospital
Fellowship	The qualification obtained when a specialist in training (registrar) successfully completes the examination of the Colleges of Medicine of South Africa and becomes a specialist in a particular field of medicine
OR	Odds ratio
HJH	Helen Joseph Hospital
HRH	Human resources for health
JHB	Johannesburg Hospital
MBChB	Bachelor of Medicine and Surgery. The undergraduate medical degree
Obstetrics	Refers to obstetrics and gynaecology

OSD	Occupational specific dispensations
Perception	The taking cognisance of a sensible or quasi-sensible object. The intuitive recognition of a moral or aesthetic quality.
Registrar	Specialist in training, registered with the Health Professions Council of South Africa as a registrar in a particular field of medicine
Specialist	Registered with the Health Professions Council of South Africa as a specialist in a particular field of medicine.
Satisfactory	Ratings given by registrars of "average", "good" or "excellent" were combined as satisfactory
Unsatisfactory	Ratings of "very poor" or "poor" were combined as unsatisfactory
Wits	University of the Witwatersrand
Wits circuit	Refers to the training hospitals affiliated to the University of Witwatersrand that offer medical training to postgraduate doctors. For the purpose of this study these hospitals are Johannesburg Hospital, Helen Joseph Hospital, Chris Hani Baragwanath Hospital and Coronation Hospital.

CHAPTER 1

INTRODUCTION AND BACKGROUND

This introductory chapter will cover a description of medical education and specialist training in South Africa, the background of this study, the motivation for this project, and its aims and objectives and organisation of subsequent chapters.

1.1 INTRODUCTION

Postgraduate training at University of Witwatersrand (Wits) is offered mainly in collaboration with the Gauteng Department of Health at four academic hospitals in Johannesburg. These are Chris Hani Baragwanath, Johannesburg, Helen Joseph and Coronation hospitals. Specialists in training (registrars) register for a Masters in Medicine (MMed) with Wits and, in addition, write the Colleges of Medicine(CMSA) examination for their chosen specialty. Training of registrars is done under the supervision of qualified specialists who hold joint staff appointments with Wits. These joint staff members are considered to be part of the Wits staff establishment as well as hospital staff, and are remunerated by the Gauteng Department of Health.

The Health Professions Council of South Africa (HPCSA) requires a registrar to be jointly appointed by the university and the responsible health authority in an approved registrar post[1]. It also requires that an individual be trained in an approved training department for at least 36 months before writing a final examination. The HPCSA further states that the clinical load of a registrar should be determined by the academic head of department, and should provide sufficient opportunity for 'adequate clinical exposure and opportunities for study, subject discussion, and investigations/ research[1] (p.1).

All registrars are registered for an MMed degree with Wits, and this implies that a master's dissertation should be submitted. However, in previous years, registrars could practise as independent specialists in South Africa without completing a master's dissertation, if they had obtained the Colleges of Medicine fellowship. Thus, many specialists chose not to complete their MMed degree. The following table illustrates the numbers of registrars who obtained their fellowship examinations in 2006 at Wits, as well as the number who completed, submitted and passed the MMed.

Table1.1 Registrars registered and qualified at Wits in 2006

	Medicine	Obstetrics	Paediatrics	Surgery
Registrars registered at Wits	88	33	40	47
Fellowships obtained	11	0	4	8
MMed graduates	1	0	1	0

The table provides insight into the numbers of registrars registered with Wits for the four specialities of interest in this study. It demonstrates the numbers of registrars who obtained their fellowship in 2006, and this is an indication of the approximate numbers of registrars who qualify each year at the institution. As can be seen, only a small percentage of the registrars who obtained their fellowship in 2006 obtained an MMed.

The University is in the process of collaborating with the Colleges of Medicine to address this problem. It has been proposed that it become a requirement for registrars to complete a master's dissertation before being allowed to qualify as fellows of the Colleges of Medicine. In some specialities, the master's dissertation is required before registrars are allowed to write the College examination. This has created many problems for registrars who feel that there is no time within the registrar programme to complete a research project.

1.2 BACKGROUND

1.2.1 Medical education in a democratic era

Medical education in South Africa has undergone a significant metamorphosis since the transition to democracy in 1994. During the apartheid era, the eight medical schools offering medical training in South Africa used race and language spoken as important admission requirements[2]. Three universities, the University of Limpopo Faculty of Medicine (previously the Medical University of South Africa), the University of Kwa-Zulu Natal and the Walter Sisulu University (previously the University of Transkei) admitted Black students. The universities at Stellenbosch, Pretoria and in the Free State admitted White students with Afrikaans-speaking backgrounds, and the University of Cape Town and the University of the Witwatersrand admitted White students who spoke English[2].

Following the 1994 political and social evolution, medical schools came under pressure to change the racial profile of their students to match the demographic composition of the country. In addition to the demographic changes, the conventional model of healthcare in South Africa, which had centred on tertiary care, was replaced by the new government with a primary healthcare approach that was more community centred[3]. Therefore, medical education had to respond to the changing health policy and curricula had to become more community centred in turn.

In a relatively short space of time, medical schools began to undertake a paradigm shift. By 2001, 30% of all final-year medical students in the country were African[4]. Undergraduate curricula were also placed under the spotlight. The previous structure based on the traditional British system of six years of medical training with one year of internship gave way at many universities to a five-year degree. Medical graduates then performed two years of internship and one year of community service, before they were free to practise as independent medical practitioners or undergo further training in a specialty of their choice.

While undergraduate medical teaching in South Africa, including that given by the University of Witwatersrand (Wits), has been undergoing a period of change in the last few years to accommodate the changing political and health environment of the country, the same cannot be said of postgraduate medical education.

1.2.2 Specialist training in South Africa

According to the World Federation of Medical Education[5] (p. 8), postgraduate medical education, including specialist training, is defined as that "phase in which doctors train under supervision towards independent practice after completion of their basic medical qualification". Thus the objective of specialist training is to allow experiential learning by qualified doctors under the supervision of trained specialists, for the purpose of gaining the competencies needed for independent practice in a particular specialty.

Specialist certification in South Africa can be achieved via one of two routes: a) admission as a fellow to one of the Colleges of Medicine of South Africa; or b), by obtaining a Masters in Medicine qualification (MMed) at an accredited university.

Admission as a fellow to the Colleges of Medicine (CMSA) requires that a registrar complete a specified period of training at an accredited institution (a minimum of 36 months, but usually 48

months) followed by the completion of the College examination, which comprises written, oral and clinical components.

For the MMed, registrars are also required to complete the prerequisite number of years of training, followed by written, oral and clinical examinations set by the university with which they are registered. In addition, registrars are required to submit a research report relevant to their specialty.

Once registrars have completed their required years of experiential learning and passed the examination, they are registered with the Health Professions Council of South Africa (HPCSA) as qualified specialists.

1.3 JUSTIFICATION FOR THE STUDY

In a 2002 publication discussing the organisational and environmental factors that affect worker health and safety and patient outcomes, researchers[6] noted that worker attitudes, job satisfaction and employee health and well-being were related to work performance, productivity and ultimately, the quality of healthcare offered. In addition, other researchers[7] commented that professional education faculties should be concerned about student satisfaction with the educational process, as it has been linked to professional attitudes, career commitment and retention. Every one of these aspects is of vital importance in the healthcare setting in South Africa.

While these are all valuable reasons to embark on an evaluation of the registrars' work environment, the assessment of this environment is a complex undertaking. The role of registrars is not entirely the same as that of employees in a purely occupational setting. Registrars have dual functions: to provide a healthcare service in public healthcare facilities; and to learn the necessary skills to be able to practise in their speciality. They are, therefore, as much students or trainees as they are employees. Furthermore, two separate authorities supervise these registrar functions. The University is responsible for the teaching or training component while the Department of Health is in charge of the service component.

Ascertaining the opinions of registrars of their medical education is an important component for motivating for change in the postgraduate programme. Some clinical departments monitor the perceptions of registrars at the end of each training block. However, this evaluation is reported to the

head of department, and this might bias the responses of registrars. This study, concentrating on the training component of the registrar environment, rather than the service component, was motivated by the lack of independent evaluation of the supervision and teaching environment for registrars at Wits and indeed, the rest of South Africa.

1.4 AIMS AND OBJECTIVES

The aim of this research was to determine the perceptions of the registrars of their training on the Wits circuit between 2007 and 2008, and to determine the conditions that facilitate registrars completing the MMed.

Objectives:

1. To describe the demographic profiles of registrars
2. To determine registrars' perceptions of their training on the Wits circuit with respect to:
    a. Hospital support
    b. Specialist support
    c. University support
3. To determine perceptions of registrars regarding the requirement to complete a master's research report and the role of the faculty in facilitating this requirement;
4. To determine the future plans of registrars, including whether they intend staying in the public sector, going into private practice or leaving the country;
5. To make recommendations to the faculty and heads of departments to improve the learning experience of registrars with regards to academic and experiential learning as well as research writing.

1.5 ORGANISATION OF DISSERTATION

Thus far, in this report, the motivation for the research has been discussed and the objectives were defined. The subsequent chapters will focus on:

Chapter two: Literature review.
The purpose of the literature review is to explain and to discuss key concepts, and to search for potential solutions to the research questions.

Chapter three: Research methodology

This chapter describes the research methodology used to conduct this study.

Chapter four: Results

This chapter contains the analysis of the findings from the study in terms of its aims and objectives.

Chapter five: Discussion

In this chapter, the findings of the reviewed literature are integrated with the results obtained from the analysis in order to address the aims and objectives of the study. In addition, the public health implications of this study are highlighted.

Chapter six: Conclusions and recommendations

This forms the final part of the report and draws conclusions from the research related to the aims of the study, and suggests areas for future research into the clinical registrar training programme in South Africa.

CHAPTER 2

LITERATURE REVIEW

In this chapter, relevant reports from the literature with regard to theories of education, the nature and the challenges of postgraduate medical education will be reviewed.

2.1 INTRODUCTION

Reform in postgraduate medical education in South Africa has lagged behind that found in the rest of the world. Postgraduate medical education issues, with which South African medical faculties are only recently engaging, were debated at length in international settings more than a decade ago. Landmark articles on the problems of postgraduate supervision, the balance between service and learning in postgraduate training programs, and increasing registrar research output were abundant in medical and education journals in the 1990s and early 2000s, with the articles from the United Kingdom particularly common.

In contrast, the literature on postgraduate medical education in South Africa is scarce. The researcher conducted a systemic search of research evidence available on Pubmed and Google Scholar using the following search string: [postgraduate medical education] AND [registrar OR specialist] AND [training] AND ["South Africa"]. However, no published literature was found describing postgraduate medical education at South African faculties and no research studies were found reporting the opinions of registrars of their postgraduate medical training in South Africa.

2.2 THEORIES OF EDUCATION

Medical education can be viewed in terms of the theories of education described in a publication entitled "Philosophies of Learning Communities", which listed four educational orientations described below[8]:

a) Transmission approach: In this model, teachers convey knowledge to learners who are expected to absorb or memorise the information received. Students are seen as the receptacles for information, taking in external data.

b) Transaction orientation: This educational orientation is more sensitive to the social context of learning. Knowledge is generated through relationships with people, through interaction of the learner with the environment, and through meaningful activity and experimentation. Knowledge is not fixed as it is in the transmission model through a set curriculum, but is constructed as the learner makes sense of his experiences. The teacher is not an authority figure as in the transmission model, but encourages learning by questioning, engaging in dialogue and playing the role of mentor.

c) Education for transformation or holistic learning: This is described as seeing human development as related to social and cultural as well as ecological and spiritual contexts.

d) Self-directed learning: This philosophy of learning claims that human beings are natural learners. The initiative for learning comes from the learner and the teacher is a resource for the learner, whom he or she freely seeks out or selects.

Traditional undergraduate medical education is generally based the transmission model of education. It involves didactic lectures and the passing on of a prescribed syllabus from experienced qualified clinicians to medical students. Postgraduate medical education on the other hand, through its emphasis on experiential learning in the workplace, can most appropriately be described using the transaction model.

2.3 THE NATURE OF POSTGRADUATE MEDICAL EDUCATION

Medical education can be viewed as the interaction between the clinical educator, the trainee and the learning environment.

2.3.1 The clinician as a teacher

It is generally assumed that good clinicians make good clinical teachers. This is often not the case in medical education. In a survey of qualities attributable to a good educator[9], undergraduate medical students ranked a ‘good communicator’ higher than ‘expert /knowledgeable about a subject’. While

postgraduate students may be more inclined towards experiential learning, there is still the perception of teachers as the 'conveyors of information', with the trainees being the 'receivers' of such knowledge, resulting in the requirement of a teacher to be able to convey the information well; that is, be a good communicator.

Other attributes of good teachers were explored by medical teachers themselves in a 2007 article on the teaching beliefs of medical educators. Taylor *et al*[10] describe three approaches to teaching that medical educators in their study believe were essential to learning. These are, questioning to promote learning, role modelling, and providing opportunities for direct experience.

Providing opportunities for direct experience refers directly to an essential component of the responsibilities of the effective medical educator – that is, the responsibility of effective supervision.

Supervision has been defined by Kilminster *et al*[11] (p.3) as 'the provision of guidance and feedback on matters of personal, professional and educational development in the context of a trainee's experience of providing safe and appropriate patients care'. This definition highlights that the ultimate goal of clinical supervision is to ensure patient safety and the quality of patient care.

Mckee and Black[12] used a literature review as well as interviews with junior doctors to ascertain whether the use of junior doctors in the United Kingdom affected the quality of patient care. These researchers reported that increased patient deaths were associated with less supervision of junior doctors in surgery, obstetrics, anaesthesia, trauma and paediatrics. The researchers argued that patient care suffered when trainees in their study were unsupervised, and that trainees may not have learnt appropriate practice when unsupervised, leading to an acceptance of lower standards of care.

However, clinical supervision should also fit in with the educational objectives of the trainee. Trainee 'safety' falls under the realm of clinical supervision. Trainees are unlikely to acquire the skills they require in an environment where they fear being exposed to risk; for example, the risk of being humiliated for an alleged 'mistake'[11]. Thus, it is the responsibility of the supervisor to ensure an environment where trainees feel secure enough to learn, that is an environment where supervisors provide direct guidance on clinical work, link theory and practise, engage in joint problem solving with the trainee, offer feedback, reassurance and role modelling. Ineffective supervisory environments are ones in which there is rigidity, low empathy, failure to offer support, a lack of teaching, and emphasis on evaluation and negative aspects[11].

Furthermore, it is imperative that trainees work within their competency and with adequate supervision for their level. Junior trainees may require a higher level of supervision, but senior registrars may acquire more confidence when the intensity of the supervision they receive is lower. Effective supervision requires an evaluation of the skill level of the trainee at the outset to ensure that trainees are encouraged to progress along their learning curves with the appropriate level of supervision[11].

Evidence has suggested that in the United Kingdom, while clinical supervision is considered important, the practice is varied. There is inadequate frequency and coverage of supervision activities and there are differences in the perceptions of adequate supervision between trainees and supervisors. There is also concern regarding lack of supervision for after hours' work, lack of commitment to supervision activities, and difficulty finding time for supervisory activities in view of service commitments[11, 13].

Empirical and anecdotal evidence suggests that the circumstances of clinical supervision are very similar in South Africa. However, a lack of published literature on the supervisory environment in South African clinical settings hampers efforts to reform this environment.

2.3.2 Trainees' perspectives on learning

Postgraduate medical education has previously been described in terms of educational theory as being the process of transaction. From the trainees' perspective, it is the process of learning from experience[14]. Therefore, registrar learning is a process of workplace learning. Teunissen *et al*[14] have suggested the following model for how registrars learn in the workplace.

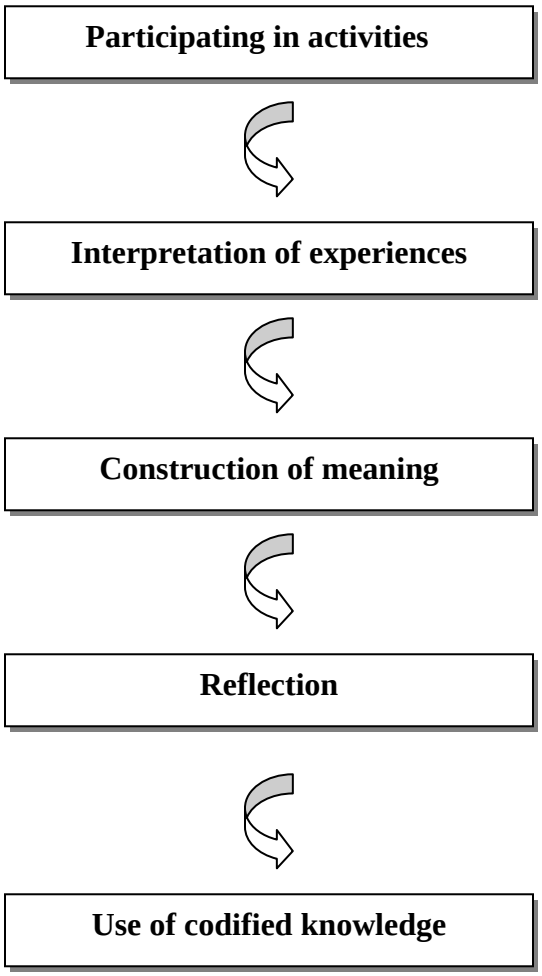


Figure 2.1 Model of registrar learning in the workplace
(*adapted from Teunissen et al, 2000*)[14]

In this model, nearly all learning starts with participation in work-related activities. Opportunities for learning may take the form of clinical lessons in diagnosis and learning of new procedures, but also lessons in communicating and interacting with patients and colleagues. Trainees then interpret the knowledge. This process of interpretation involves noting some aspects of the learning experience while overlooking others. Other people's views, such as senior registrars and specialists, could affect the process of interpretation. Registrars then construct an understanding of the experience, subconsciously asking the question 'What have I learned from this?' Interpretation and construction of meaning serve to transform the experience into personal knowledge for the registrar. Reflection is another important part of the learning process for registrars. They reflect on their personal knowledge and how it compares to other people's experiences and how their knowledge may assist them in future

activities. Finally, there is the use of codified knowledge in the learning process of a registrar. Codified knowledge refers to the use of books, journals and other published literature that could be utilised at any step in the learning process[14].

This view of postgraduate learning places a great emphasis on independent learning and the internalisation and interpretation of knowledge through cognitive and social processes that finally result in personal knowledge[14]. The role of the educator or supervisor becomes a supportive one, with the trainee interacting mainly with the learning environment in an independent capacity.

However, medical education in South Africa has its foundation in a didactic style of learning, and the role of the supervisor cannot be ignored in this context. Undergraduate medical teaching has for a very long time at most medical schools been didactic. It is very optimistic to assume that undergraduates who have been trained in this style of learning would automatically be able to adapt to a problem-based, experiential style of learning that requires deep introspection as soon as they enter a postgraduate programme. Therefore, in the South African context, registrars may need to be gradually introduced to this style of learning, so that the perceptions and expectations of registrars meet those of the academic teachers. Furthermore, the tension between adequate supervision and independent learning must be addressed to ensure the safety and quality of patient care.

2.3.3 Learning environment

The UK Standing Committee on Postgraduate Medical Education highlights the importance of the correct educational environment for trainees with their statement[15] (p.334): 'A working environment that is conducive to learning is critically important to successful training'.

The learning environment in medicine is a complex one. It is not, strictly speaking, an academic milieu but is more a combination of academic and service requirements. Ideally, the clinical working environment should integrate both effective service delivery as well as opportunities for academic and experiential learning. This mix seems to be a tall order for the South African context where, more often than not, service-delivery demands are so high that academic and learning activities are sacrificed.

However, service and training need not necessarily be mutually exclusive[16]. In the study by Derrick *et al*[16] in 2006 United Kingdom senior house officers identified certain factors that affected their perception of whether an activity was considered training or service in nature. The respondents in this study felt that the following activities were more likely to be viewed as training opportunities rather than service delivery:

- Activities that were supervised, where there was interaction and questioning of the respondents' decisions; and
- Activities that the respondents had done less frequently where they felt less experienced.

Thus the activity itself may remain service related. However, input by a supervisor, time afforded by the environment for a learning opportunity (patient load, clinic hours, and other responsibilities) and interpretation of that experience by the trainee may transform it into a learning experience[16].

2.4 LEARNERS' PERCEPTIONS OF TRAINING: INTERNATIONAL STUDIES

Assessing the learning environment of registrars at Wits has never before been done. In fact, a search of the South African literature revealed no studies in this country dealing with the work environment of medical specialists in training. Internationally, the value of studies determining the perceptions of trainees to improving the healthcare system are well recognised[17-19].

Studies investigating trainee performance and trainee satisfaction are important components of outcomes research in medical education. Outcomes research is defined by Prystowsky and Bordage[17] (p. 332) as assessing 'what does and does not work in the delivery of healthcare'. It provides valuable insights into the outcomes of medical education on trainees, educators, the faculty and the patient.

A fundamental goal of medical education is to achieve high quality of care for patients. Therefore, it would seem important to assess patients' perception of their care in order to assess medical education[17]. However, there are many confounding variables in assessing patient outcomes and perceptions and establishing the link between medical education, graduate performance and patient outcomes would be difficult.

Thus, medical education research has concerned itself with a more immediate goal – the effects of medical education on the trainee. In their content analysis of three leading medical education journals,

Prystowsky and Bordage[17] found that a large proportion (25%) of medical education research concentrated on trainee satisfaction. Given that this is one of the principal goals of medical education and that trainees are readily available to be surveyed, it makes sense that they would be the targets of such research.

The Postgraduate Medical Education and Training Board of the United Kingdom states that surveys of trainee opinions are important to improve standards of training and ultimately patient care[20]. Studies of perceptions, while they are vulnerable to bias, are important to highlight areas of potential improvement within clinical departments. These studies allow trainees to air their views, using an anonymous platform without the threat of victimisation that, in the extremely hierarchical structure of medical education, may not otherwise be possible.

The 'London Trainees Point of View Survey' is an example of such an undertaking[18]. This is an annual survey of postgraduate medical trainees in London alternating every year between north and south of the Thames. It has been running since 1996. The purpose of the survey is to monitor the education contract between the London Deanery, the Workforce Confederations and the National Health System Trusts who employ trainees. It is also used to provide information about the demographic profile of postgraduate medical students, their career intentions and their opinion of their training.

In the 2005/6 survey, 3063 responses were obtained, representing 74% of the total population of pre-registration house officers, senior house officers and specialist registrars[18]. Questionnaire responses were generally in the form of Likert scales and results were reported as proportions and means. Sixty-nine per cent of respondents rated their supervision as 'good' or 'excellent'. For those who rated their supervision as 'poor' or 'very poor', the reason most often given was 'lack of contact' or 'lack of teaching'. Thirty-eight per cent of specialist registrars had felt forced to cope beyond their level of expertise on a monthly basis. The responses to this question have been reported to have been very similar in previous London Trainees Surveys. Sixty-four per cent of respondents rated their posts overall as 'good'. The results of this survey have been used to compare trainee satisfaction from year to year and to gauge the opinion of trainees of their medical education.

In a 2006 European study of the quality of supervision, surgical registrars in Amsterdam were surveyed to investigate their perceptions of their supervision at a university hospital and a district hospital[19]. In this questionnaire, Likert scales were used to determine the opinions of registrars on 15

items reflecting different aspects of the supervisor's role. Overall, supervision was perceived by respondents to be better at district hospitals than at university hospitals. The areas of supervision perceived as the best included establishing a good learning environment and allowing autonomy appropriate to the level of the trainee. The areas of supervision that were perceived as poor were cost-appropriate treatments and clear explanations of expectations during the rotation. Once again, this study highlighted that both consultants and registrars were pleased with the opportunity for feedback on the supervisory process, as in routine practice such feedback would have been construed as disrespectful and may have harmed the trainee-educator relationship.

While in many respects South Africa may be considered a developing country, in terms of its medical training, the country has thus far modelled itself on first-world education systems. Now that reform of undergraduate education is well on its way, it is time to focus attention on the postgraduate medical structures. Regular monitoring and evaluation of its components are essential or determining the strengths and weaknesses of the system. Studying the perceptions of trainees, as has been done in first-world countries for many years, is an important tool for maintaining and improving the quality of medical training and, ultimately, the quality of medical care offered to South African patients.

2.5 RESEARCH PERFORMED BY REGISTRARS

Recently, Wits University has discussed making it compulsory for registrars to complete a MMed project before exiting the registrar programme. Certain specialities within the Colleges of Medicine, e.g. obstetrics and gynaecology, have also made the master's dissertation a requirement for entry to the College examination. This has been a marked policy shift within the university and has caused great consternation amongst registrars.

While the attrition rate of master's students in other faculties at Wits has been a focus of much research, the non-completion of MMed dissertations has not enjoyed such attention. In fact, many registrars do not even attempt to begin a master's project. The main reason for this is the lack of importance attached to obtaining a master's qualification; from both the registrar and the departmental perspective, once the registrar has successfully completed the Colleges of Medicine examination. As has been discussed previously, the MMed is not required in order for the clinician to practise as a specialist in South Africa, provided that the specialist has successfully completed the appropriate College of Medicine Fellowship.

However, lack of preparation for research may also play a role. Eyal and Cohen[21] surveyed students and graduates at an Israeli Medical Faculty and found that only 24% of respondents in their study felt able to conduct research, despite the fact that 99% of respondents indicated a desire to be involved in research to some degree. Furthermore, 83% of respondents felt unable to use a statistical software package.

In addition, competing demands during the registrar time result in research being relegated to the bottom of the priority list. Daugherty *et al*[22] maintain that to be successful, postgraduate medical students must learn to balance many responsibilities such as patient care, the need to learn, the demands of specialists and senior registrars as well accommodating their own family responsibilities and personal lives. If one adds to this the responsibility of a research project, the list becomes more complicated, especially if that research is not seen as an integral part of training and patient care.

Adequate supervision in research, especially for postgraduate students who are research naïve, is of critical importance. Yeatman[23] suggests that one of the main complaints of non-completers of master's degrees is that the supervisor is not interested in the work and provides little constructive feedback. This issue of adequate supervision in South African medical faculties is compounded by the lack of suitably qualified supervisors. Supervisors of MMed dissertations are required to themselves have produced a master's dissertation. Given that many specialists have not completed their master's reports, the few that have are compelled to supervise a large volume of students, not all necessarily researching an area that is of special interest to the supervisor.

One of the goals of medical schools should be to produce graduates who are able to engage in research and engage with medical literature. With the recent advent of evidence-based medicine into clinical practice, this goal takes on even greater importance. If South Africa wishes to keep pace with the rest of the world in terms of medical skills and technology, then medical research and research skills must be nurtured.

2.6 HUMAN RESOURCES ISSUES

As has been mentioned previously, clinical registrars perform dual roles: that of trainees as well as that of employees in an organisation. Thus, they can be considered important human resources in the Department of Health workforce.

2.6.1 Human resources in health (HRH)

The World Health Organisation regards human resources for health as including "all those people engaged in actions whose primary intent is to enhance health" [24]. This includes both private and public sectors and different domains of health systems, such as personal curative and preventive care, non-personal public health interventions, disease prevention, health promotion services, research, management and support services. HRH is an important determinant of health outcomes in a community. The important role played by human resources in the health outcomes of a community is demonstrated in the Figure 2.2 below.

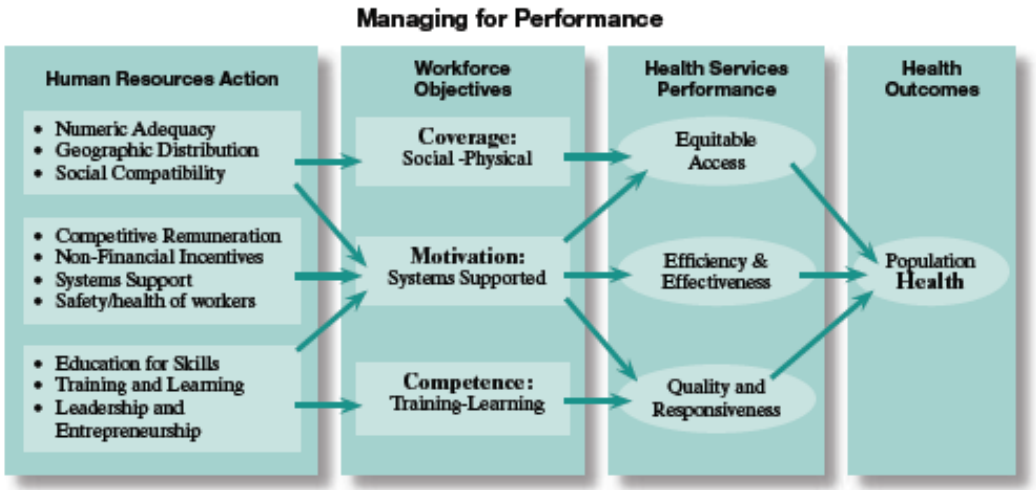


Figure 2.2 Relationship between human resources actions and health outcomes
(*adapted from Human Resources for Health in the WHO European Region*[24])

The classification of human resources is based on the primary intent of the professional education and training provided. Human resources actually engaged in the health system can be referred to as the health system workforce or health workforce.

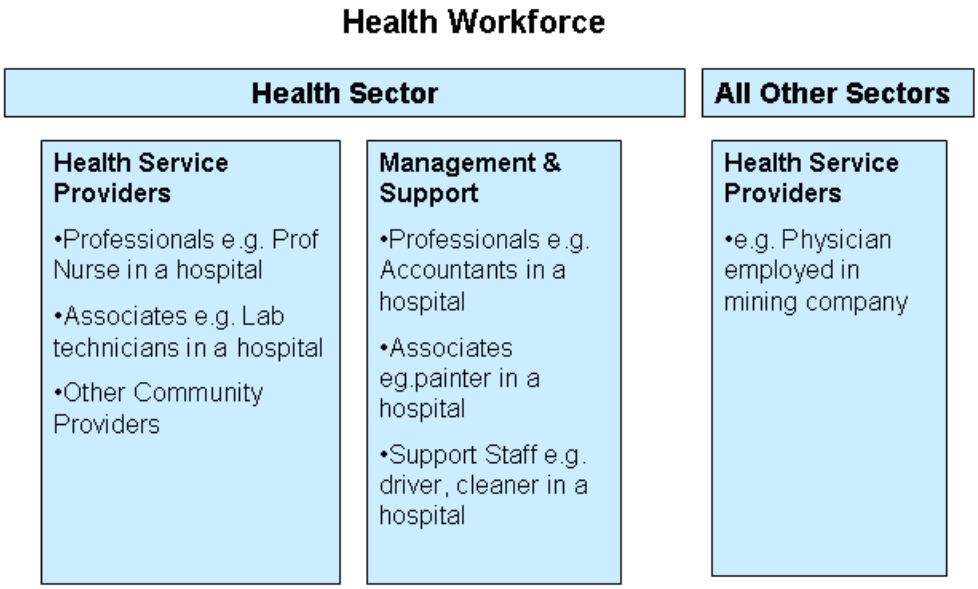


Figure 2.3 A broader picture and classification of the health workforce
(*adapted from Human Resources for Health in the WHO European Region*[24])

The health workforce can be viewed from a political standpoint or an economic standpoint. Both can contribute to a better understanding of the dynamics of the HRH area. The main issues influencing HRH are shown in Figure 2.4, which are as follows: policy, regulation and planning, management and performance improvement, labour market, education, training and research, priority health programmes and monitoring and evaluation[24]. Therefore, this conceptual framework from the World Health Organisation serves to introduce the idea that improving training and education of the health workforce could influence the movement and retention of staff.



Figure 2.4 WHO HRH conceptual framework
(*adapted from Human Resources for Health in the WHO European Region*[24])

2.6.2 Human resources in health in South Africa

South Africa faces a dire human resources shortage in health, which was first reported eight years ago in the Pick report[25]. This was highlighted again in National Human Resources for Health Planning Framework 2006[26]. The problems are multiple and include loss of skilled personnel to overseas countries as well as into the private sector. In 2006, the physician density in South Africa was 0.77 per 1000 population[27]. In comparison, developed countries like the United Kingdom had a physician density of 2.3 per 1000 population. By 2006, there were 8 921 South African doctors practising overseas, with 41% of these individuals practising in the United Kingdom[27].

The South African private sector is also an attractive prospect for medical practitioners and the public sector loses many of the doctors it has trained into private practices. In 1998/1999, 75% of medical

specialists and 73% of general practitioners were working in the private sector. The South African government, therefore, has the challenge of retaining its trained personnel in the public sector[27].

2.6.3 Managing human resources for health in South Africa

Recently, the Departments of Health (National and Provincial) have begun to recognise the importance of caring for their most important resource i.e their staff [26]. In 2008, the National and Provincial Departments of Health introduced Occupational Specific Dispensations (OSD) to attract and retain professional staff[28].

In addition they have recognised the importance of maintaining a healthy workforce. Thus, they have taken cognisance of such factors as chronic diseases, the high cost of high-risk employees and absenteeism. For example inactive people tend to take more frequent and on average longer sick leave, and cost the company more in sick leave/payroll costs as active employees. This has a significant impact on the overstretched public health system. The Department of Health has introduced employee well-being programmes such as the Independent Counseling and Advisory Services (ICAS)[29]. However, the impact of these programmes on health professionals has not been explored. Therefore, it was not possible to comment on the benefit of these programmes on medical doctors such as clinical registrars.

While issues of workload, unfavourable working conditions, employee-well-being and remuneration are at the forefront of the 'brain drain' challenge, it is worthwhile to consider the impact that academic experience may have on clinicians' choice of work later on in their careers. Stith *et al*[7] suggest that satisfaction with educational experiences is important for the development of professional attitude, career commitment and retention. Perhaps it is possible that a thriving academic environment within the health sector, which includes opportunities for learning new and cutting edge skills, for teaching and to advance research may prove to be the distinguishing factor for the public sector, which would encourage more specialists to remain in the public sector training and academic environments.

2.7 HUMAN RESOURCE STUDIES FOR MEASURING ATTITUDE AND PERCEPTIONS

Employee satisfaction and commitment to an organization are influenced by the human resources policies and practices of that organization, but also by the individual's perception of these practices[30].

Perception is what one knows about a problem and all judgments made are based on this perception. Perception of a situation is central to the decision-making process. Overall perception indicates an employee's belief and attitude towards their organisations[30]. Therefore, employees' perceptions are important to understand their behaviors at the workplace[30]. In this context, it is important to study perceptions of clinical registrars about their training environments which includes both hospitals and universities.

In 1932, Rensis Likert introduced a technique for measuring attitudes and perceptions called Likert scales. Respondents are given statements and asked to define their attitude towards these statements using a number of score or degrees (called r-grades) on an r-grade Likert scale[31]. Most popular are five- or seven-grade Likert Scales. However, researchers have also used an even number of responses, thus excluding the neutral response and forcing participants to commit to an opinion.

The analysis and interpretation of Likert scales is not standardised in the scientific community[31]. In theory, attitude data should be treated as ordinal data. Yet many studies have analysed Likert scales as cardinal data. Cardinal or interval scales imply that the difference between scale values is meaningful. In ordinal scales, beyond the obvious ordering of the grades, there is no difference between grade values. Clearly then, Likert scales must be considered as ordinal data.

In the analysis of cardinal data, means, standard deviations and t-tests are used. Calculating means may be useful, but may mask information regarding percentage responses for questions which might reveal a wealth of information. Strong agreements or disagreements may be averaged out, resulting in a neutral score[31].

Treating Likert scales as ordinal data allows the calculation of individual frequencies for particular responses. This provides a more complete picture of the responses in each category and also allows comparability across categories and statements. In this study, data were aggregated into groups representing satisfactory and unsatisfactory responses and were then presented as proportions with chi-square tests calculated for comparison purposes.

2.8 CONCLUSION

This chapter highlights the uniqueness of clinical registrar programmes in South Africa. They play the role of employees in hospitals as well as trainees / students in universities. This dual responsibility places registrars in a difficult position and therefore it is important to study their perceptions about their working and training environment.

CHAPTER 3

STUDY METHODS AND MATERIALS

The methodology for this study was determined by the aims and objectives of this study. In this chapter, the setting, scope and design of the study, the selection of the subjects and research tools will be covered. Further, the collection of the data will be described and the methods of data analysis and statistical testing will be specified.

3.1 STUDY DESIGN

The study was a descriptive cross-sectional survey using self-administered questionnaires.

3.2 STUDY POPULATION AND SAMPLE

The four most popular specialities on the Wits circuit were chosen as the study population. Thus, registrars from medicine, surgery, paediatrics and obstetrics and gynaecology were approached to participate (n = 241).

Table 3.1 Registrars registered at the University of Witwatersrand in 2008 per clinical department

	Registrars registered (n)
Medicine	95
Surgery	45
Obstetrics and Gynaecology	43
Paediatrics	57

The research aimed for a 60% response rate as reasonable assumptions could be made from this feedback with a study population of 241 (at an α of 0.05 and β of 0.15)[32].

Registrars at the four main teaching hospitals on the Wits circuit participated in the study using self-administered questionnaires. The following table illustrates the disciplines practised at the various hospitals.

Table 3.2 Specialities practised at different academic hospitals on the Wits circuit, 2008

	Medicine	Surgery	Obstetrics and Gynaecology	Paediatrics
Johannesburg Hospital	✓	✓	✓	✓
Helen Joseph Hospital	✓	✓		
Chris Hani Baragwanath	✓	✓	✓	✓
Coronation Hospital			✓	✓

All specialities are practised at Johannesburg and Chris Hani Baragwanath hospitals. At Helen Joseph, only medical and surgical services are offered and Coronation Hospital serves the needs of this community with regards to paediatric and obstetric/gynaecology services.

Therefore, not all registrars would have rated every hospital in the questionnaire. Registrars in medicine and surgery, for example, would have left questions pertaining to Coronation Hospital unanswered as those specialities are not practised at Coronation. In addition, depending on their year of study, not all registrars would have rotated to all the hospitals even if their chosen speciality was practised there. Therefore, these registrars would have been unable to respond to questions pertaining to hospitals that they had not as yet rotated through.

3.3 MEASUREMENT TOOL

3.3.1 Data collection tool

A search of international and South African literature did not find a validated tool that could be applied to the South African context and the particular objectives of this study. Therefore, in the questionnaire used, certain questions were adapted from the London Trainees Point of View Survey[18]. Other issues pertained particularly to South African registrars and questions were designed specifically with the South African context and requirements in mind.

3.3.2 Application of the data collection tool

Questionnaires were distributed by the principal researcher to registrars at academic and administrative meetings, and completed questionnaires were returned to the researcher after the

meeting. All questionnaires were filled in anonymously. The responses were captured in the spaces provided on the questionnaire schedule. The time required to complete the questionnaire was no more than 30 minutes. Both open- and closed-ended questions were used (Appendix A).

3.3.3 Reliability and validity

There was no standardised tool available for this research. The researcher, along with her supervisor, designed the tool with the assistance of experts from the University of Witwatersrand. These experts have considerable experience in this area of work. Therefore, it was expected that the tool would be valid for this type of study. The tool was piloted before administration to improve its reliability.

3.4 DATA ANALYSIS

Data were entered onto Epi-info version 6.04d. The data were then checked for errors by the principal researcher. In addition, 10 questionnaires from each clinical discipline surveyed were randomly selected, and data entry was double-checked in each field.

Analysis of data was performed using Stata version 10. A descriptive analysis of variables in the study was made. Means, standard deviations and range of scores were calculated where appropriate. For certain questions (not requiring rating using a Likert scale), participants were invited to tick more than one box. Therefore, when these responses are presented as percentages, they may not add up to 100%. For Likert scales, proportions of responses were presented.

In order to compare levels of satisfaction between various groups, the Likert scales were combined into binomial variables with ‘poor’ or ‘very poor’ representing unsatisfactory, and ‘fair’ to ‘excellent’ representing satisfactory responses. Chi-square tests were used to determine differences between comparison variables. For multivariate analysis, ANOVA and Kruskal Wallis test was used to find differences among different groups.

3.5 ETHICS

The study was approved by the Committee for Research on Human Subjects of the University of the Witwatersrand, Faculty of Health Sciences (Ethics number: M070837).

Modern research methodology requires that human subjects participating in research be properly consulted and have the purpose of the research clearly explained to them. This allows participants to have a thorough understanding of their role in the research and to give fully informed consent. Ultimately, this process protects research participants.

This study dealt with people who were not vulnerable in the true sense of the word and who were autonomous. The researcher was able to explain the study to the registrars at a pre-arranged time and place that was convenient for them. An information sheet explaining the research in full was attached to each questionnaire (Appendix B).

The study was conducted in an ethical manner as far as possible. Information obtained was treated with the strictest of confidence. The questionnaires were completed anonymously and participant names did not appear on the questionnaires. By filling in the questionnaire, participants indicated informed consent. Therefore, there was no need for a separate informed consent signature.

3.6 PILOT STUDY

A pilot study was conducted before commencement of the actual study. This pilot study was carried out on a sample of the 10 current MMed Public Health registrars, as they were not part of the clinical Wits circuit. The pilot study helped to validate the measurement tool as many of the Public Health registrars have had experiences on the clinical circuit at Wits, and all were aware of the challenges of the clinical setting. It revealed possible limitations to the study and brought to light issues that required clarification in the questionnaire.

CHAPTER 4

RESULTS

This chapter outlines the main results of the study. Demographic characteristics of the study sample are presented, followed by the levels of satisfaction of study participants with various aspects of their teaching on the Wits circuit. Comments by participants pertinent to the results presented are also included.

4.1 PARTICIPATION RATE

An overall response rate of 68% (164/240) was achieved in the study. This was higher than the 60% response rate expected during study planning. The following table demonstrates the response rate for the total sample as well as each speciality surveyed.

Table 4.1 Response rate of registrars in four specialities surveyed

	Registrars registered at Wits	**Registrars who participated in the study**	
	n	n	%
Medicine	95	68	72
Obstetrics	43	30	70
Paediatrics	57	33	58
Surgery	45	33	73
Total	240	164	68

The highest response rates were in medicine and surgery and the lowest response rate was in paediatrics.

4.2 DEMOGRAPHIC PROFILE

The demographic characteristics of the study sample are set out in the table below.

Table 4.2 Demographic characteristics of the study sample

	Total		Medicine		Obstetrics		Paediatrics		Surgery	
	n	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**
Race										
African	41	(25)	18	(27)	16	(53)	2	(6)	5	(15)
Coloured	5	(3)	1	(2)	0		1	(3)	3	(9)
Indian	47	(29)	27	(40)	7	(23)	12	(36)	1	(3)
White	62	(38)	19	(28)	5	(17)	15	(46)	23	(70)
Other	4	(2)	3	(4)	0		0		1	(3)
Unknown	5	(3)	0		2	(7)	3	(9)	0	
Gender										
Male	81	(49)	35	(51)	9	(30)	13	(39)	24	(73)
Female	78	(48)	33	(49)	18	(60)	18	(55)	9	(27)
Unknown	5	(3)	0		3	(10)	2	(6)	0	
Nationality										
South African	146	(89)	62	(91)	26	(86)	32	(97)	26	(79)
Other African	13	(8)	5	(7)	4	(13)	0		4	(12)
International	5	(3)	1	(2)	0		1	(3)	3	(9)
Unknown	0		0		0		0		0	
Year of Study										
1st	43	(26)	14	(21)	10	(33)	7	(21)	12	(36)
2nd	39	(24)	19	(28)	6	(20)	6	(18)	8	(24)
3rd	48	(29)	22	(32)	5	(17)	13	(39)	8	(24)
4th	30	(18)	13	(19)	8	(27)	6	(18)	3	(9)
5th	2	(1)	0		0		0		2	(6)
6th	1	(0.6)	0		1	(3)	0		0	
Unknown	1	(0.6)	0		0		1	(3)	0	

4.2.1 Race

In this study, the largest proportion of respondents (38%, 62/164) self-identified as White, with 29% (47/164) being Indian and 25% (41/164) African. A small percentage of respondents (2%) identified themselves as belonging to the race category "other" and these were usually respondents from other African and international countries. Three per cent of respondents did not answer the question of race.

There were significant differences in racial composition of the different departments (chi-square test, $p<0.01$). In surgery a large percentage of registrars were White (n=23/33, 70%). Obstetrics had the highest percentage of African registrars (53%, 16/30). In medicine, the predominant race group was "Indian" (40%, 27/68).

4.2.2 Gender

In the overall sample (n=164), 49% of respondents were male, 48% were female and 3% were unknown. There was a significant difference in gender distribution amongst the different departments (chi-square test, p=0.01). In the obstetrics and paediatric departments, there was a predominance of females, with 18/30 respondents (60%) in obstetrics and 18/33 respondents (54%) in paediatrics being female. The most striking discrepancy was in surgery, where 73% (24/33) of respondents were male and 27% were female (9/33).

4.2.3 Nationality

One hundred and forty-six of 164 participants were South African (89%), with 13 (8%) being from other African countries, and five (3%) being from other international, non-African countries.

4.2.4 Year of study

Respondents ranged in experience from being in their first year of study to having spent six years in the registrar programme. The highest proportions of respondents were in third year (29%, 48/164) and first year (26%, 43/164). The registrar programme is generally of four years' duration. However, surgery does allow registrars an extra year to complete their training, hence the presence of two registrars in their fifth year. The fact that one registrar was in the sixth year of study in obstetrics is difficult to explain. There were differences in the year of study of participants amongst the four specialities, and these differences almost reached statistical significance (chi-square test, p=0.09)

4.2.5 Age

The ages of registrars in the study ranged from 24 to 54 years of age. The age distribution skewed towards the right and there was significant kurtosis, implying an older cohort of registrars. The median age of respondents was 30 years, with an inter-quartile range of 30 to 32. There was no significant differences in age among the four specialities (One way test of ANOVA, p=0.18).

4.2.6 Association between speciality and demographic profile

The above analyses showed that the following variables were significantly different among different specialities: race, gender and years of study.

4.3 PERCEPTION OF HOSPITAL SUPPORT

In this section, registrars' opinions of the hospital support received from nursing staff and hospital management is discussed.

4.3.1 Nursing support

The following table demonstrates the registrars' perception of the nursing support provided at various hospitals with comparisons between the specialities at each hospital.

Table 4.3 Registrar satisfaction with nursing support, University of Witwatersrand, 2007-2008

	Total		Medicine		Obstetrics		Paediatrics		Surgery		p-value
	Unsatis	Satis	Unsatis	Satis	Unsatis	Satis	Unsatis	Satis	Unsatis	Satis	
JHB n=132	32 (24.2)	100 (75.8)	12 (21)	45 (79)	9 (36.0)	16 (64)	8 (36.4)	14 (63.6)	3 (10.7)	25 (89.3)	0.08
HJH n=70	13 (18.6)	57 (81.4)	5 (9.3)	49 (90.7)	-	-	-	-	8 (50)	8 (50)	<0.01
CHB n=148	56 (37.8)	92 (62.2)	41 (63.1)	24 (36.9)	5 (20)	20 (80)	4 (12.5)	28 (87.5)	6 (23.1)	20 (76.9)	<0.01
Coro n=37	3 (8.1)	34 (91.9)	-	-	2 (11.1)	16 (88.9)	1 (5.3)	18 (94.7)	-	-	0.5

4.3.1.1 Johannesburg Hospital

Overall, 76% (100/133) of registrars rated the nursing support at JHB as satisfactory (average, good or excellent). One registrar remarked that "*nursing at this hospital was generally the best encountered*". There were no significant differences amongst the specialities in the proportions of registrars who rated the nursing support as satisfactory (chi-square test, p = 0.08).

4.3.1.2 Helen Joseph Hospital

Eighty-one per cent of respondents felt that the nursing support at HJH was satisfactory. However, when analysed according to speciality, significant differences in the ratings were found (chi-square test, $p<0.01$). Ninety-one per cent of medicine registrars (49/54) considered the nursing staff at HJH to be satisfactory. Although the numbers are small, it is interesting to note that 50% of surgical registrars (8/16) rated the nursing as poor or very poor. Medicine registrars were 9.8 times (95% CI 2.6-37.6) more likely than surgery to rate the nursing support at HJH favourably.

Comments by registrars reflected the differing opinions of medical and surgical registrars. While medicine registrars commented "*nursing staff were very co-operative or unit dependent, but overall very good*", a surgical registrar stated "*nurses were blatantly negligent"* for *"not performing basic duties*".

4.3.1.3 Chris Hani Baragwanath Hospital

Most of the respondents in obstetrics, paediatrics and surgery rated the support from nurses at CHB as "satisfactory". There was dissatisfaction, however, in the medical wards where 41 of 65 registrars (63%) rated the nursing as poor or very poor. All other specialities were significantly more likely to rate the nursing staff at CHB favourably compared to medicine, with odds ratios of 6.8 for obstetrics (95% CI 2.3-20.6), 11.9 for paediatrics (95% CI 3.7-38.2), and 5.7 for surgery (95% CI 2.0-16.1).

One medical registrar observed that "*as always there are a few outstanding sisters who give excellent support, but on the whole nursing support is poor"*. Two registrars commented on the poor nursing support in the medical intake ward at CHB (Ward 20), indicating that the ward was poorly organised and that nursing support was *"disastrous"*.

4.3.1.4 Coronation Hospital

Nursing support at Coronation was rated as above average by 92% of registrars (34/37). There were no significant differences in the proportions of registrars in paediatrics and obstetrics that rated the nursing support as satisfactory (chi-square test, $p=0.5$).

4.3.1.5 Factors influencing perception of nursing support

There was a significant association between perceived nursing support and speciality ($p < 0.01$). Stepwise regression was done to determine the combined influence of demographic profiles (age, race, gender, year of study), hospitals and speciality on perceived nursing support. The total r^2 was 0.16 ($p< 0.01$). A statistically significant positive association was demonstrated between perceived nursing support and speciality and hospitals but not with any of the demographic characteristics.

4.3.2 Hospital management

Hospital management support included support from medical superintendents and matrons. Overall, registrars demonstrated dissatisfaction with support from hospital managers at all hospitals except Coronation. The following table illustrates the perception of registrars of their hospital management at each hospital according to the specialities.

Table 4.4 Registrar satisfaction with hospital management support, University of Witwatersrand, 2007-2008

	Total		Medicine		Obstetrics		Paediatrics		Surgery		p-value
	Unsatis	Satis	Unsatis	Satis	Unsatis	Satis	Unsatis	Satis	Unsatis	Satis	
JHB n=132	82 (62.1)	50 (37.9)	38 (66.7)	19 (33.3)	8 (33.3)	16 (66.7)	17 (73.9)	6 (26.1)	19 (67.9)	9 (32.1)	0.01
HJH n=68	37 (54.4)	31 (45.6)	25 (48.1)	27 (51.9)	-	-	-	-	12 (75)	4 (25)	0.06
CHB n=144	83 (57.6)	61 (42.4)	38 (60.3)	25 (39.7)	9 (37.5)	15 (62.5)	20 (64.5)	11 (35.5)	16 (61.5)	10 (38.5)	0.2
Coro n=36	12 (33.3)	24 (66.7)	-	-	7 (38.9)	11 (61.1)	5 (27.8)	13 (72.2)	-	-	0.5

4.3.2.1 Johannesburg Hospital

At JHB, the majority of registrars rated the support they received from hospital management as “poor” and “very poor” (62%, 82/132). Registrar comments reflected their poor opinion of hospital management. Observations included that the medical superintendent on call had been *“arrogant,*

condescending and rude" and that the matron had been *"pushy"*. In addition, another registrar felt that the hospital management was *"eroding quality of care"* at the hospital.

The chi-square test showed significant heterogeneity amongst the specialities (p=0.01). Observation revealed that this was probably due to the 67% (16/24) of registrars in obstetrics who rated their hospital management team as satisfactory. Obstetrics registrars were four times more likely to rate the hospital management as satisfactory compared to medicine registrars (95% CI 1.5-11.0) and an obstetric registrar noted that hospital managers were "good" and *"they know how to help most of the time"*.

4.3.2.2 Helen Joseph Hospital

Fifty-four per cent of registrars (37/68) rated the hospital management as below average. There were no significant differences in the rating of management of HJH between the two specialities that practiced there (chi-square test, p=0.06).

Comments by respondents revealed tremendous dissatisfaction with hospital management. Registrars found that hospital managers were *"not helpful"* and one registrar reported being told by a hospital manager that hospital patients were *"not her responsibility"*.

4.3.2.3 Chris Hani Baragwanath Hospital

Management at CHB was rated as unsatisfactory overall (58%, 83/144) with registrars commenting that there was *"a lot of room for improvement"*. There were no significant differences in rating of the hospital management per speciality (chi-square test, p=0.2) although 63% (15/24) of obstetric registrars rated their management as average or above average. This observation was supported by the odds ratio which demonstrated that obstetrics registrars were 2.5 times more likely than medicine registrars to rate their hospital management as satisfactory, although this association did not reach statistical significance (95% CI 1.0-6.7).

4.3.2.4 Coronation Hospital

In general, the management at Coronation Hospital was rated well by registrars. There were no significant difference between specialities (chi-square test, p =0.5).

4.3.2.5 Factors influencing perception of hospital management support

Overall, there was a significant association between perceived hospital management support and speciality ($p < 0.01$). Stepwise regression was done to determine the combined influence of demographic profiles (age, race, gender, year of study), hospitals and speciality on perceived hospital management support. The total r^2 was 0.12 ($p< 0.001$). A statistically significant positive association was demonstrated between perceived hospital management support and speciality, hospital, race and year of study.

4.4 SPECIALIST TEACHING AND SUPPORT

In this section, registrar perceptions of the formal teaching activities at various hospitals, in various aspects of teaching are presented. In addition, registrar opinions of informal specialist activities, such as supervision of daily work are discussed.

4.4.1 Specialist teaching at various hospitals

More than 75% of registrars rated the specialist teaching at the four academic hospitals as satisfactory. The following table demonstrates the rating of registrars of their specialist teaching at each hospital with comparisons between specialities practised at each hospital.

Table 4.5 Registrar perception of specialist teaching according to hospital and speciality, University of Witwatersrand, 2007-2008.

	Total		Medicine		Obstetrics		Paediatrics		Surgery		p-value
	Unsatis	Satis	Unsatis	Satis	Unsatis	Satis	Unsatis	Satis	Unsatis	Satis	
JHB N=132	14 (10.6)	118 (89.4)	5 (8.9)	51 (91.1)	1 (4)	24 (96)	6 (26.1)	17 (73.9)	2 (7.1)	26 (92.9)	0.06
HJH N=67	16 (23.9)	51 (76.1)	12 (23.1)	40 (76.9)	-	-	-	-	4 (26.7)	11 (73.3)	0.8
CHB N=146	12 (8.2)	134 (91.8)	0 (0)	64 (100)	3 (12)	22 (88)	5 (16.1)	26 (83.9)	4 (15.4)	22 (84.6)	0.01
Coro N=37	5 (13.5)	32 (86.5)	-	-	3 (16.7)	15 (83.3)	2 (10.5)	17 (89.5)	-	-	0.6

4.4.1.1 Johannesburg Hospital

Of those registrars who had rotated at JHB, most described the teaching received from specialists as satisfactory (89%, 118/132). According to the chi-square analysis, there were no statistically significant differences between the ratings by registrars in various specialities (chi-square test, p=0.06).

However, it was interesting to note that in paediatrics, 26% of registrars (6/23) thought that the teaching by specialists was "poor", although numbers in this subset of the sample were small. In fact, on univariate analysis of specialist teaching according to speciality, paediatric registrars were the least likely to rate teaching at this hospital as satisfactory, with an odds ratio of 0.3 (95% CI 0.1-1.0) and a p-value approaching significance at 0.055. One paediatric registrar observed that "*some consultants are very eager to help; however, others avoid helping and may be difficult to get to give tuts*".

4.4.1.2 Helen Joseph Hospital

Specialist teaching at HJH was considered satisfactory by 76% of medical and surgical registrars (51/67). There were no significant differences between the two specialities (chi-square test, p= 0.8).

4.4.1.3 Chris Hani Baragwanath Hospital

Specialist teaching at CHB was rated highly by registrars with 92% feeling that it was average and above average (134/146). 66% of registrars (96/146) felt their teaching at this hospital was "good" or "excellent". The chi-square test was found to be significant (p=0.01) and this was probably as a result of the 100% (n=64) of medicine registrars who rated the teaching at CHB as satisfactory. Medicine registrars commented that the teaching program was *"well structured and comprehensive"* and that *"consultants were willing to teach"*.

4.4.1.4 Coronation Hospital

Overall the teaching at Coronation was evaluated as satisfactory, with 87% of registrars (32/37) rating the teaching as average, good or excellent. There were no significant differences between the ratings of the paediatric and obstetric registrars (chi-square test, p= 0.6).

4.4.2 Factors influencing perception of specialist teaching

There was a significant association between perception of specialist teaching and respondents' speciality ($p < 0.01$). Stepwise regression was done to determine the combined influence of demographic profiles (age, race, gender, year of study), hospitals and speciality on perceived specialist support. The total r^2 was 0.21 ($p< 0.01$). A statistically significant positive association was demonstrated between perceived specialists teaching and respondents' speciality and hospitals but not with other demographic characteristics.

4.4.3 Teaching and support rated according to specific areas

Registrars were invited to rate their teaching by specialists in particular areas. These areas were informal teaching including bed-side teaching and teaching on ward rounds, teaching during journal clubs and tutorials, mentoring activities, and research support.

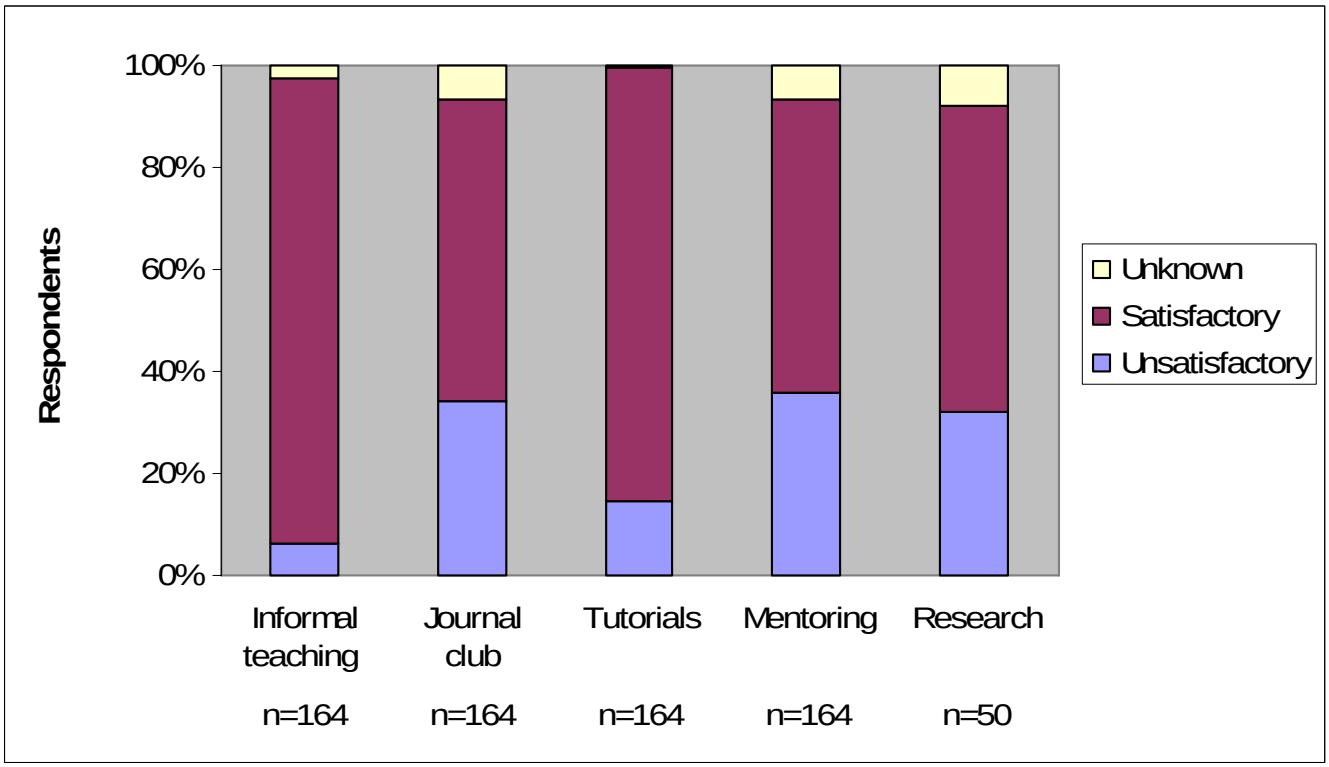


Figure 4.1 Registrar perception of specific aspects of specialist teaching, University of Witwatersrand, 2007-2008.

Overall, the majority of registrars felt that informal teaching (92%, 150/164) and teaching at tutorials (84.8%, 139/164) was satisfactory. For informal teaching, there were significant differences amongst the specialities (chi square test, p=0.04), with 100% of obstetric registrars rating their informal teaching as satisfactory. Although the majority of registrars rated their tutorial teaching as satisfactory, surgical registrars were the least likely of the specialities to give a satisfactory rating as compared to medical registrars (OR 0.01, 95% CI 0.001-0.1). Surgical registrars felt that there was *"very poor formal registrar teaching"* in their department and that tutorials were *"very few and far between"*.

Fifty-nine per cent of registrars (97/164) rated teaching during journal clubs as satisfactory. There were significant differences amongst specialities (chi-square test, p <0.01) with, once again, the majority of obstetrics respondents (97%, 28/29) rating their journal club teaching as satisfactory.

Comments by respondents indicated that the frequency of journal clubs was problematic. One registrar commented that journal clubs were taught well when they did happen, while others remarked that journal clubs were *"non-existent"* and *"never happened"*.

Sixty per cent of registrars who had started a research project (30/50) rated their supervision as satisfactory and there were no significant differences amongst the specialities (chi-square test, p=0.6). Johannesburg Trauma Unit was cited by two registrars as a department where specialists encouraged and supported research.

The lowest proportion of satisfactory responses was obtained for the mentoring category. Fifty-seven per cent of registrars (94/164) thought that mentoring was performed adequately within the departments. Very few comments were offered regarding the mentoring support on the Wits circuit, but registrars did remark that mentoring was *"practically non-existent"*. In the surgical department, mentoring was evaluated to be "poor" or "very poor" by 17 of 33 registrars (52%) and odds ratios demonstrated that surgical registrars were less likely to rate their mentoring as satisfactory compared to medical registrars (OR = 0.4, 95% CI 0.2-0.99).

4.4.4 Supervision during daily work and ward rounds

Eighty-nine per cent of registrars (n=146/164) felt that supervision during daily work was adequate. There were no significant differences amongst the different specialities (chi-square test, p=0.4).

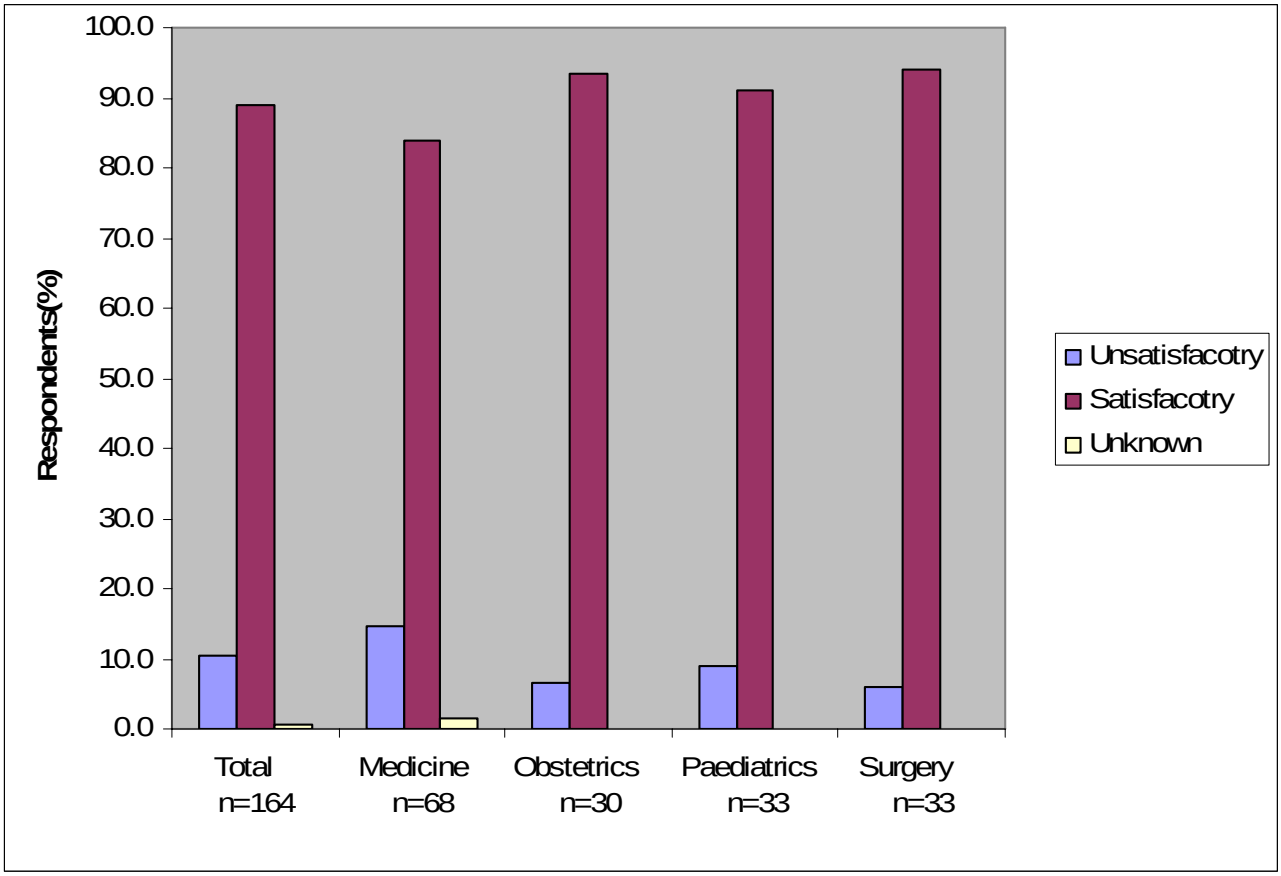


Figure 4.2 Registrar perception of supervision by specialists during daily work, University of Witwatersrand, 2007-2008 (n=164)

4.4.4.1 Reason for unsatisfactory supervision

The following figure demonstrates reasons for unsatisfactory supervision and the percentage of respondents who selected each reason. Respondents were invited to tick more than one box. Therefore, the percentages did not add up to 100%.

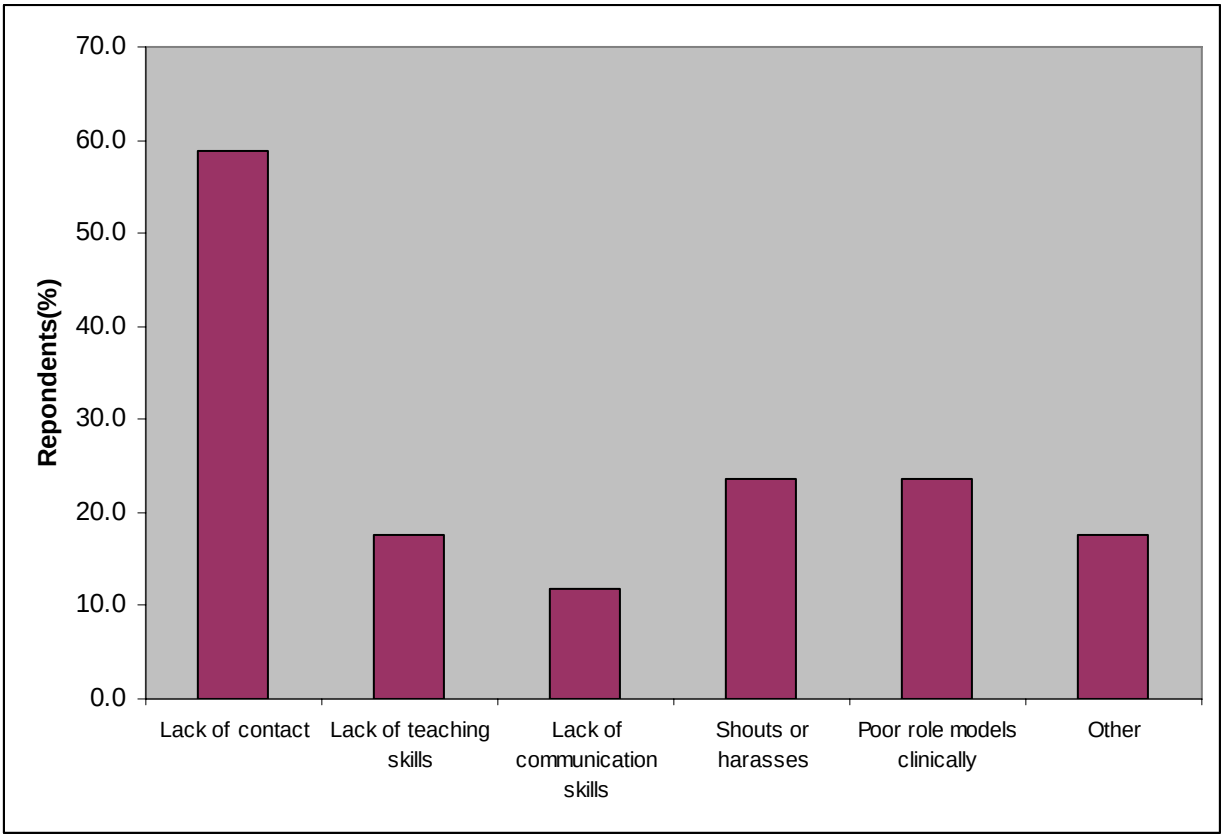


Figure 4.3 Reasons for registrar perception of specialist supervision as unsatisfactory, University of Witwatersrand, 2007-2008, (n=17).

Seventeen registrars felt that supervision of daily work by specialists was unsatisfactory. Of these, 10 registrars (59%) felt that the problem was a lack of contact between registrars and specialists.

Comments from respondents added further insight into their complaint of lack of contact with specialists. They commented on the unavailability of consultants and that specialists were *"not always available after hours"*. In addition, registrars felt that specialists were *"never around during ward rounds"* and that there was a *"lack of interest from them"*. Finally, they observed that some units had too few specialists and therefore there was insufficient supervision post-intake and too few grand ward rounds.

4.4.5 Coping beyond expertise

The following figure illustrates the percentage of registrars in each speciality who felt that at some point in their careers as registrars they had been compelled to cope with circumstances beyond their level of expertise.

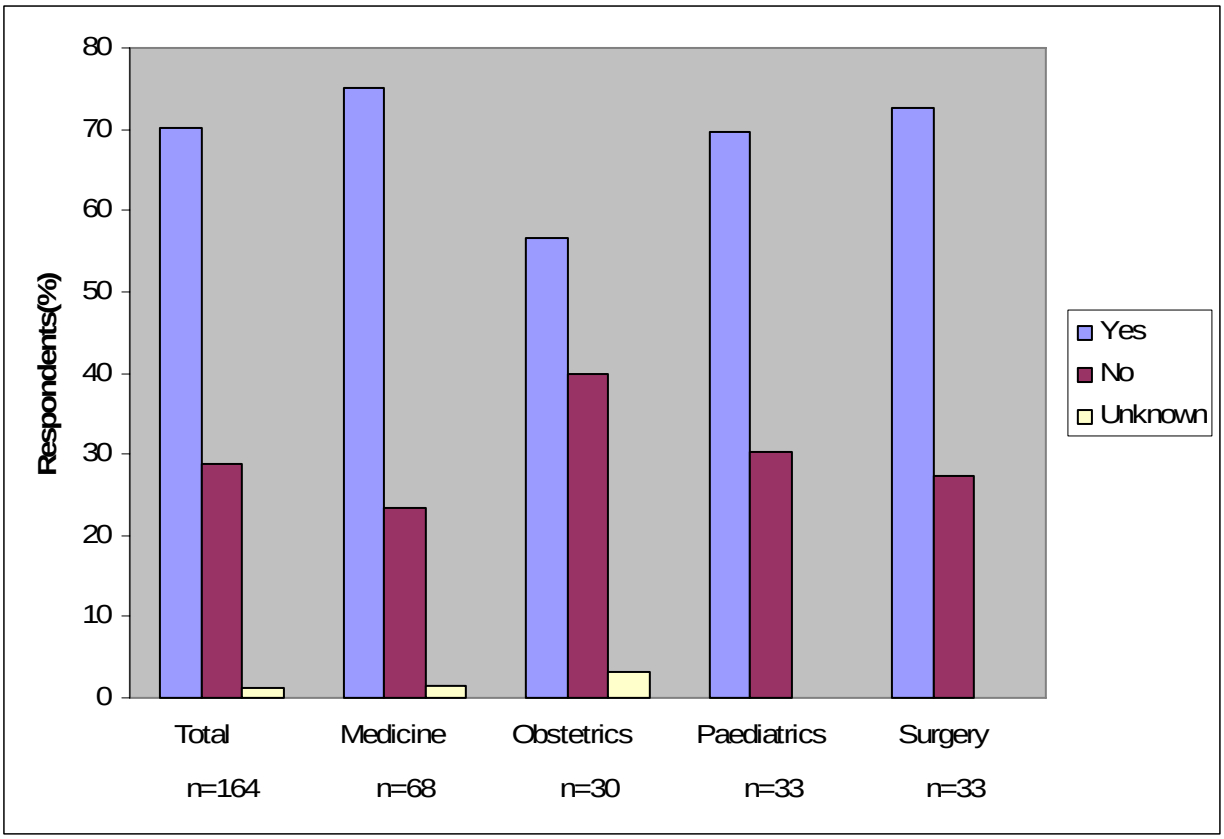


Figure 4.4 Percentage of registrars who felt forced to cope beyond their expertise, University of Witwatersrand, 2007-2008

In total 115 registrars (70%) felt that at some point, either "daily", "weekly", "monthly" or "all the time" in their careers as registrars, they had been compelled to cope with situations that they were ill-equipped at that stage to handle. There were no significant differences amongst the specialities (chi-square test, p=0.4).

4.4.5.1 Reasons for being forced to cope beyond level of expertise

The following figure demonstrates the reasons most frequently selected by registrars for being forced to cope beyond their level of expertise.

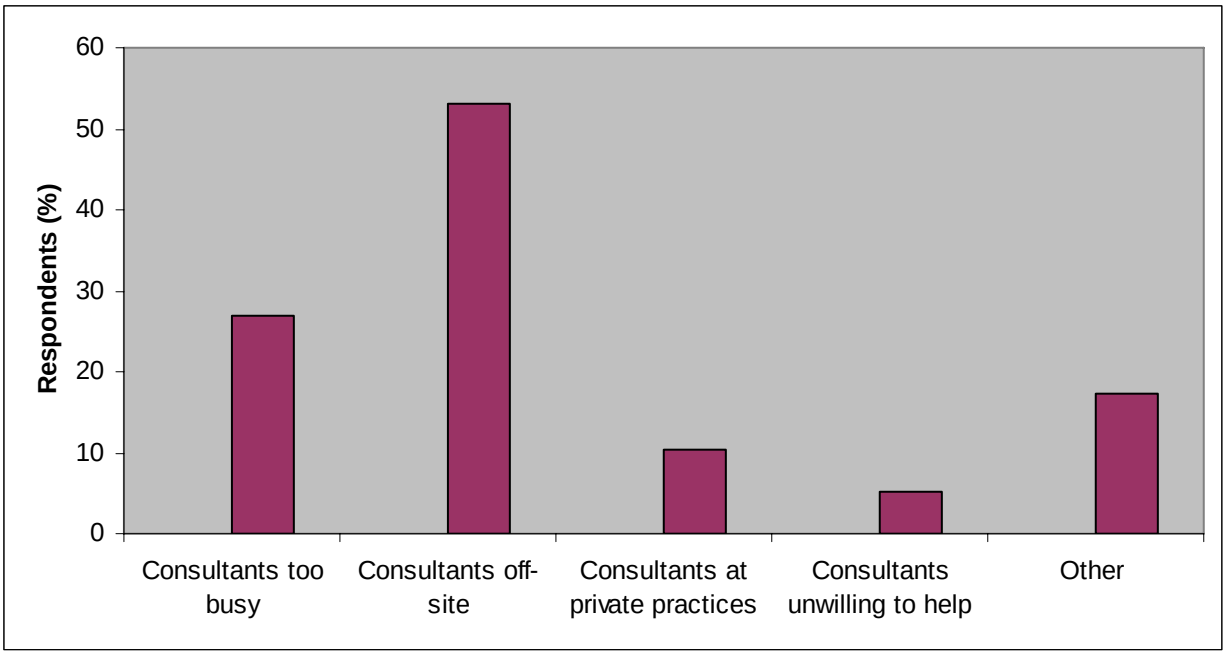


Figure 4.5 Perceived reasons for registrars coping beyond expertise, University of Witwatersrand, 2007-2008, (n=115).

Fifty-three per cent of registrars (61/115) felt that the reason for their being forced to cope with situations beyond their level of expertise was that consultants were not at the hospitals, often during night calls when consultants were on call from their homes. One registrar commented: *"[I] mostly tackle these overwhelming situations after hours when the consultants are not on the hospital premises"*. However, registrars also observed that there were problems with telephonic communication when specialists were off site, including *"poor cellphone reception"*, specialists who *"don't answer phones"*, and the fact that *"telephone communication does not always present problems and answers adequately"*.

4.4.5.2 Factors influencing perception of coping beyond expertise

There was a significant association between perceived coping beyond expertise and supervision of daily work by specialists ($p < 0.01$). Stepwise regression was done to determine the combined influence of demographic profiles (age, race, gender, year of study), speciality, specialist supervision of daily work and hospital on coping. The total r^2 was 0.19 ($p< 0.001$). A statistically significant positive association was demonstrated between perceived coping beyond expertise and specialist supervision of daily work as well as race but not with other demographic profiles.

4.4.6 Discussion of progress

Sixty per cent of registrars (n=99/164) had a meeting with supervisors to discuss their progress during the current rotation. There were significant differences between the specialities, with obstetrics registrars being less likely than medical registrars to have had a progress meeting (OR = 0.2, 95% CI 0.1-0.6).

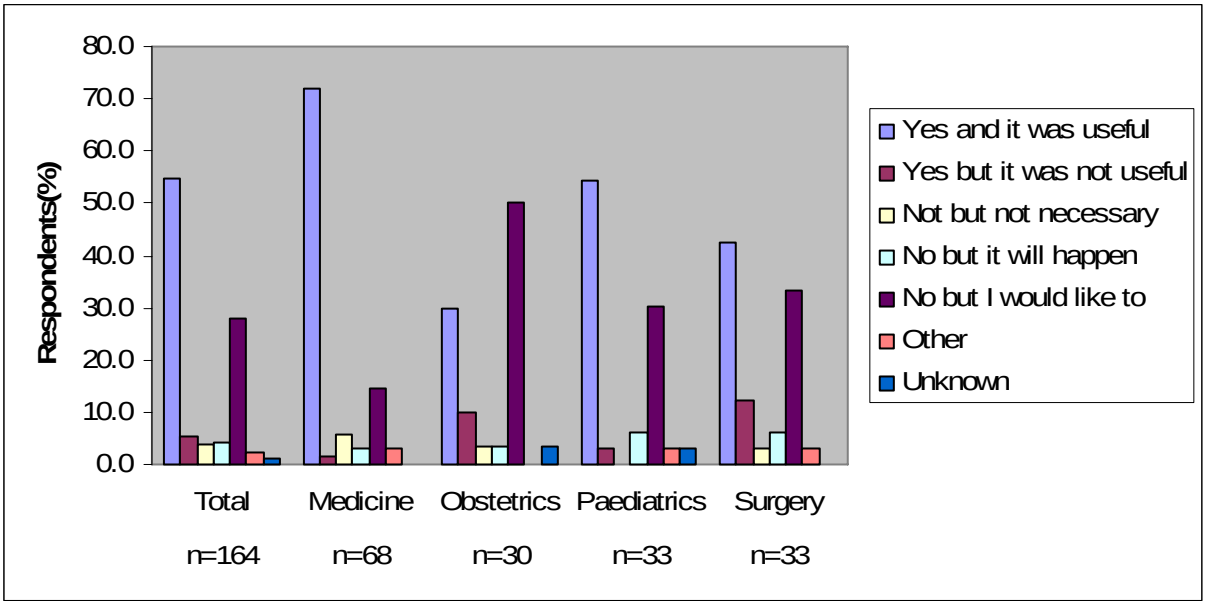


Figure 4.6 Registrars' appraisal by departments, University of Witwatersrand, 2007-2008.

4.4.7 Learning environment

The following figure illustrates the percentage of registrars who felt that the learning environment was always, sometimes or never registrar-friendly.

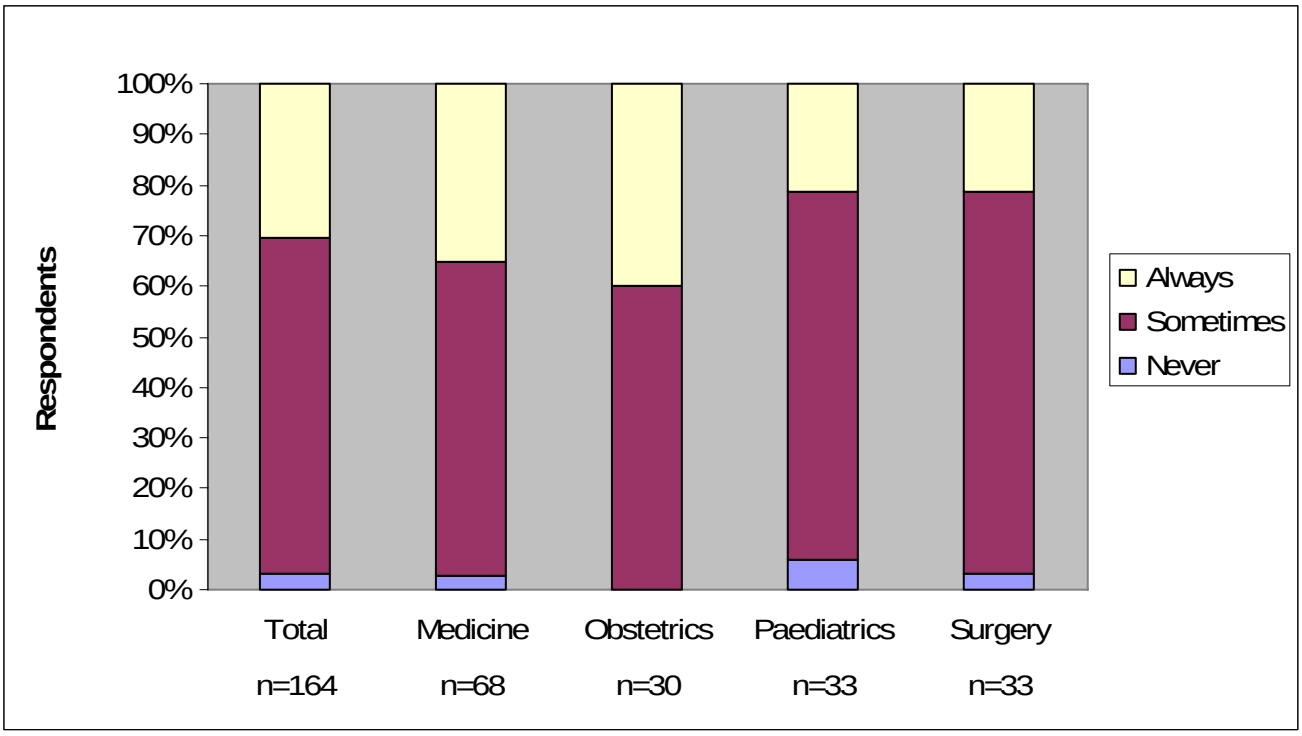


Figure 4.7 Perception of the learning environment as registrar friendly, University of Witwatersrand, 2007-2008.

Most registrars felt that the learning environment on the Wits circuit was sometimes registrar friendly (67%, 109/164). This view was supported by comments that included the following: *"My impression is that this is changing to 'mostly'. In my experience this is true"*.

However, respondents indicated that that there was still variation amongst different hospitals and amongst specialists. Registrars noted that *"Some institutions are friendly and supportive. Others are negative and insulting"* and *"It depends on the unit and specialist. Some are approachable and friendly and others are disinterested and busy"*.

4.5 ADMINISTRATIVE SUPPORT FROM FACULTY

Perception of administrative support from the faculty included registrars' perception of library and computer services, fees office and postgraduate office.

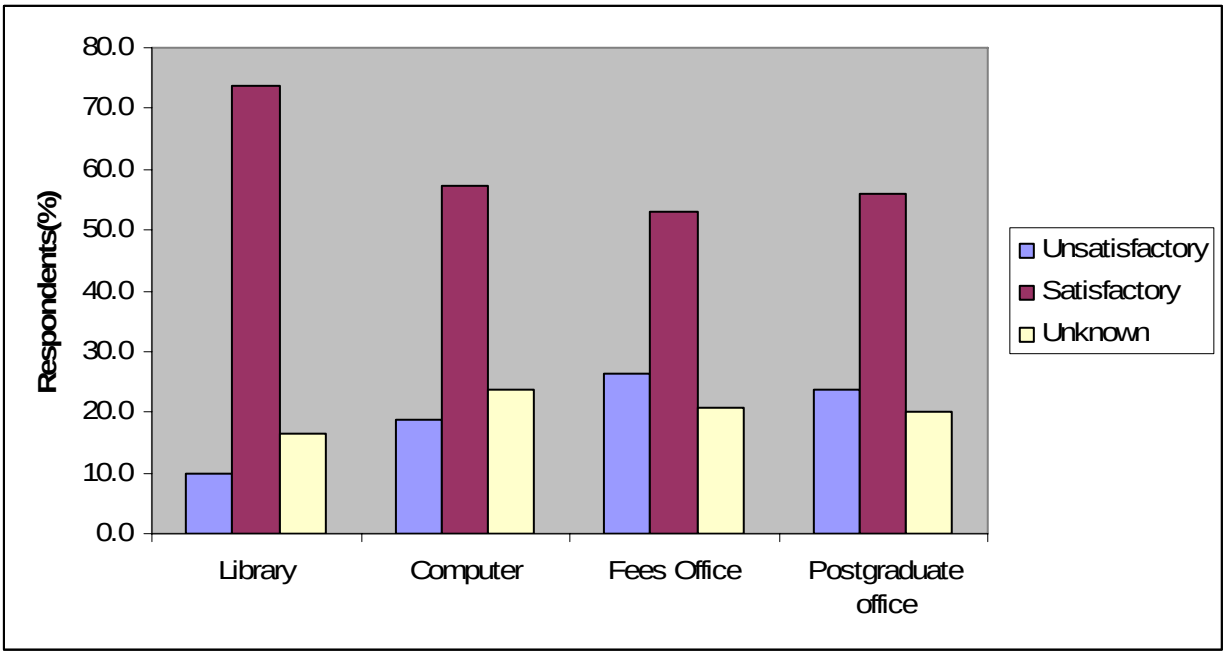


Figure 4.8 Perception of the administrative support from the faculty, University of Witwatersrand, 2007-2008, (n=164).

Overall, the majority of registrars in each category of administrative support rated the support as satisfactory.

The highest proportion of satisfactory responses was in the library category where 74% of registrars (n=137/164) reported satisfaction. The other proportions of satisfactory responses were 57% (94/164) for computer support, 53% (87/164) for the fees office, and 56% (92/164) for the postgraduate support. Too few registrars answered the questions relating to the international office and the university accommodation and, therefore, these responses were not analysed.

There was no significant association between perceived faculty administrative support and speciality ($p = 0.4$). Stepwise regression was done to determine the combined influence of demographic profiles (age, race, gender, year of study), and speciality on perceived specialist teaching. The total r^2 was 0.04

($p < 0.01$). No statistically significant positive association was demonstrated between perceived faculty administrative support and these variables.

4.6 RESEARCH REPORT SUPPORT

4.6.1 Started master's research

Only 50 of the 164 registrars surveyed had started a master's project (30%). Of these 50 registrars, 28% were from medicine, 32% from obstetrics, 18% from paediatrics, and 22% from surgery. When stratified by year, it was found that 39% (19/48) of third-year and 50% (15/30) of fourth-year registrars had started a master's research study. As expected, very few first- and second-year registrars had attempted a master's project.

4.6.2 Reason for non-completion of master's dissertation

The following figure shows the percentages of registrars who selected particular reasons for non-completion of master's dissertations.

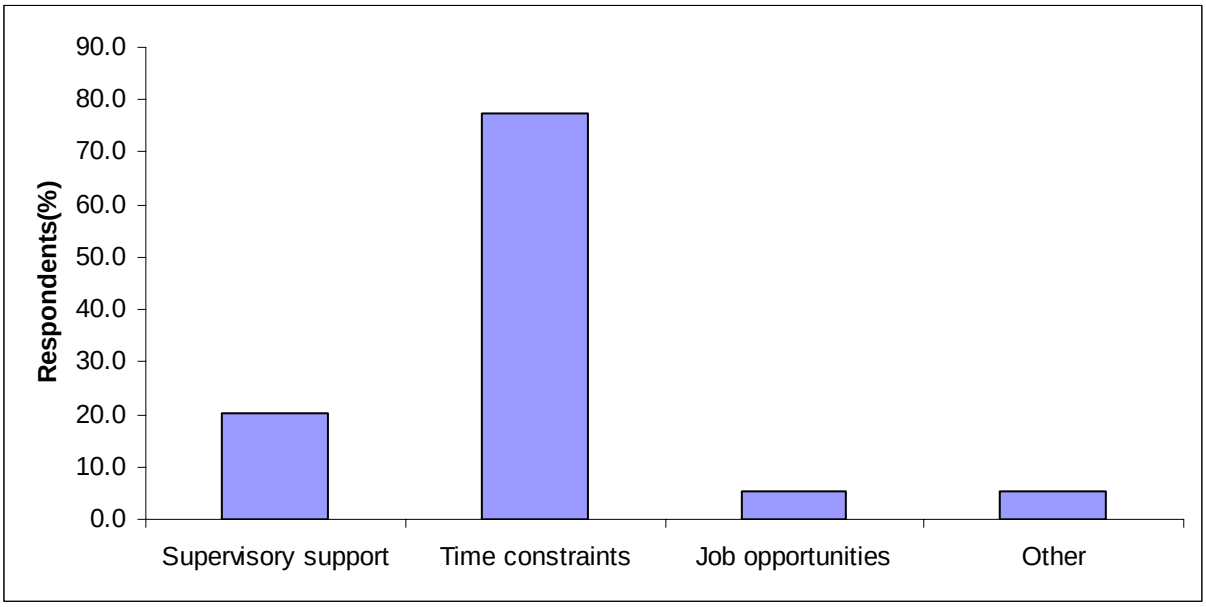


Figure 4.9 Reasons provided by registrars for non-completion of master's dissertations, University of Witwatersrand, 2007-2008, (n=164).

The two most common reasons that registrars gave for not completing a master's dissertation was that there was no time in the registrar programme to devote to research (77%) and that there was a lack of supervisory support (20%). Registrars commented: *"Registrar academic posts are actually 'service' posts" and that they were "not truly on a research/training programme"*. Other reasons for non-completion included a lack of interest in research from registrars.

4.6.3 Support from faculty for research projects

Registrars who had started a master's dissertation evaluated the support from the faculty at various stages of the research project. The following figure demonstrates the ratings offered by registrars of their research support.

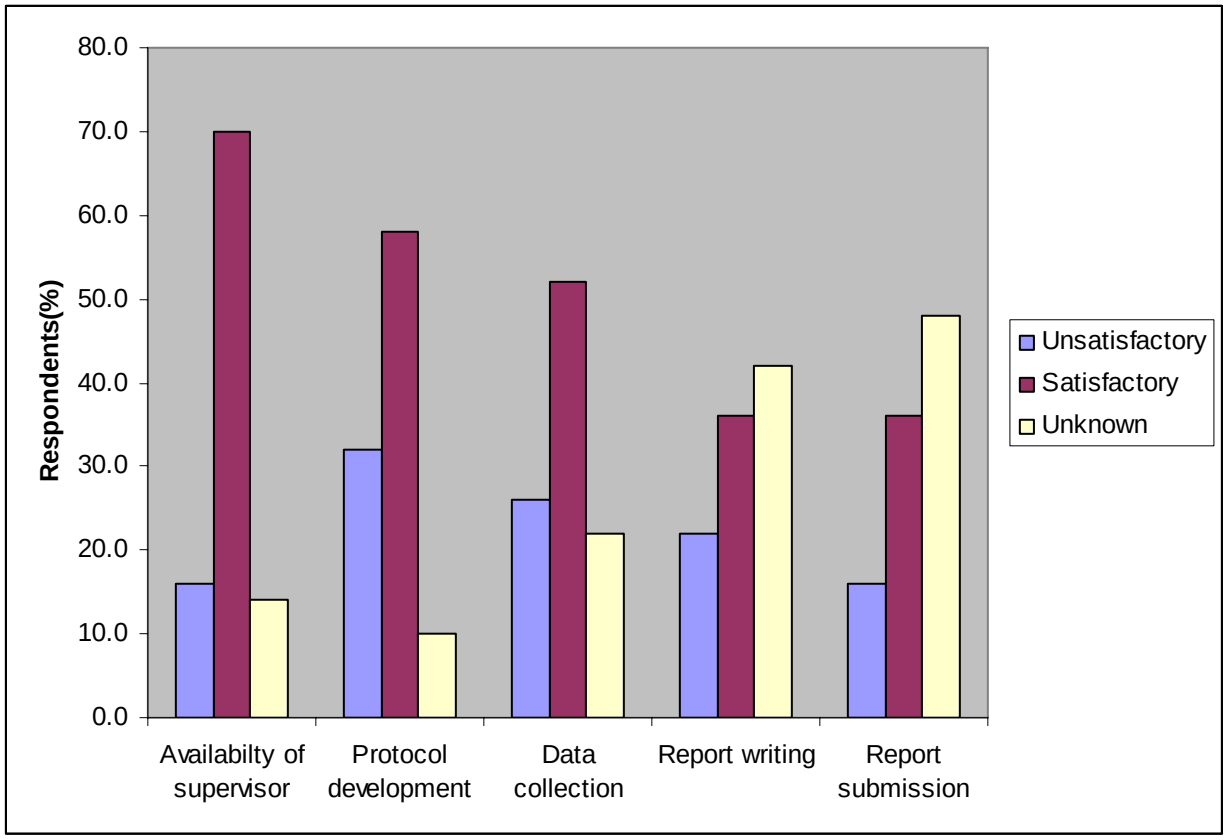


Figure 4.10 Perception of faculty support for various aspects of research, University of Witwatersrand, 2007-2008, (n=50).

Seventy per cent (35/50) of registrars who started a master's project reported the availability of their supervisors to be satisfactory. Thirty-two per cent (16/50) felt that the support received from the faculty during protocol development was unsatisfactory while 58% felt that the protocol development support was satisfactory and 10% did not answer the question. Proceeding from data collection

through to report submission, the proportion of unknown responses increased. These unknown responses were from registrars who had started their research but had not reached the stage of the project mentioned in the questionnaire and, therefore, could not rate the support received.

Suggestions to the faculty to improve research output included the request to *"allocate time for research"* and for the faculty to "*allocate supporting supervisors"*. Registrars also appealed to the faculty for *"formal teaching/introduction to research"* and to *"schedule registrars to it so as to not disturb clinical duties"*.

4.6.4 Factors influencing research report support

There were no significant influences of demographic characteristics (age, race, gender, year of study), and respondents' speciality on faculty's support for research report development (Stepwise regression, p = 0.08).

4.7 WORKING IN FIVE YEARS

The figure below demonstrates the career plans of respondents in this sample five years from qualification.

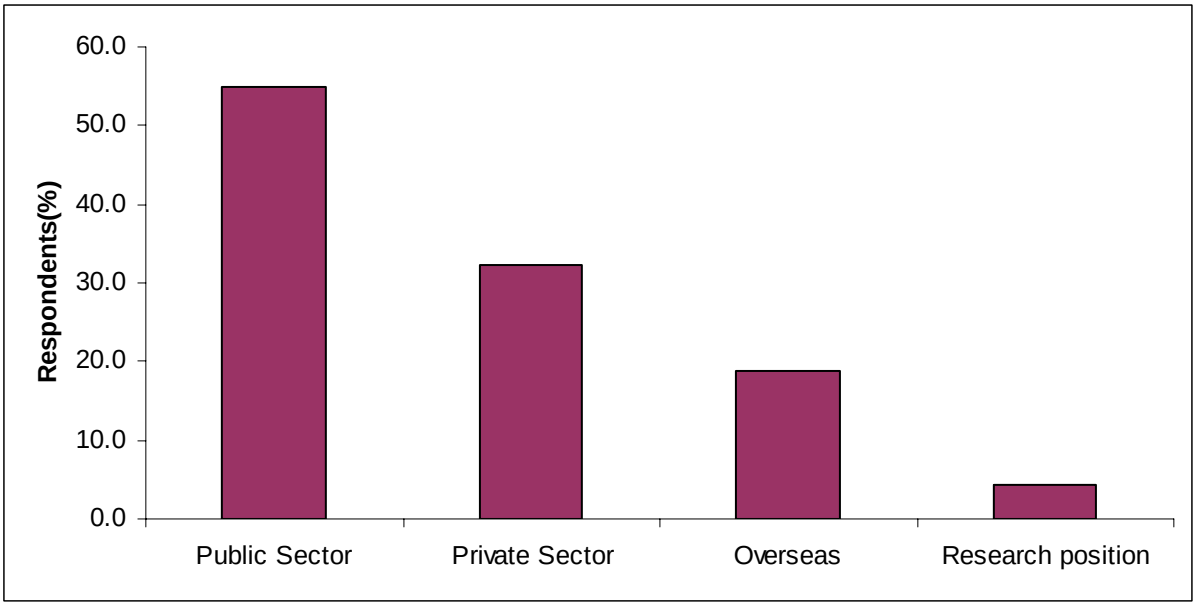


Figure 4.11 Career plans of registrars five years from qualification, University of Witwatersrand, 2007-2008, (n=164).

Only 19% of respondents (31/164) intended to work overseas when qualified. The majority of respondents saw themselves working in the public sector five years from qualification, with many respondents also expressing an intention to work part-time in the private sector.

When stratified according to speciality, more than 50% of registrars in each speciality intended to work in the public sector, and no significant differences were found amongst the specialities (chi-square test, $p = 0.8$).

4.8 ADEQUATELY PREPARED FOR INDEPENDENT PRACTICE

Sixty-eight respondents (41%) felt that their registrar training did not adequately prepare them to be specialists while 44 (27%) were unsure. Therefore, overall 69% (112/163) of registrars felt inadequately prepared for independent practice. There were significant differences amongst the specialities, with 85% of paediatric registrars (n=28/33) feeling inadequately prepared for independent practice (chi-square test, $p=0.05$).

4.8.1 Areas where registrars felt least prepared

Of those registrars who were unsure or did not feel adequately prepared to be specialists, 67% (75/112) felt that the registrar programme did not deal adequately with business management of a private practice (Figure 4.12). Thirty-three per cent (37/112) felt ill-equipped to deal with managing a service. Forty-two registrars (38%) thought that they were not well trained to carry out research.

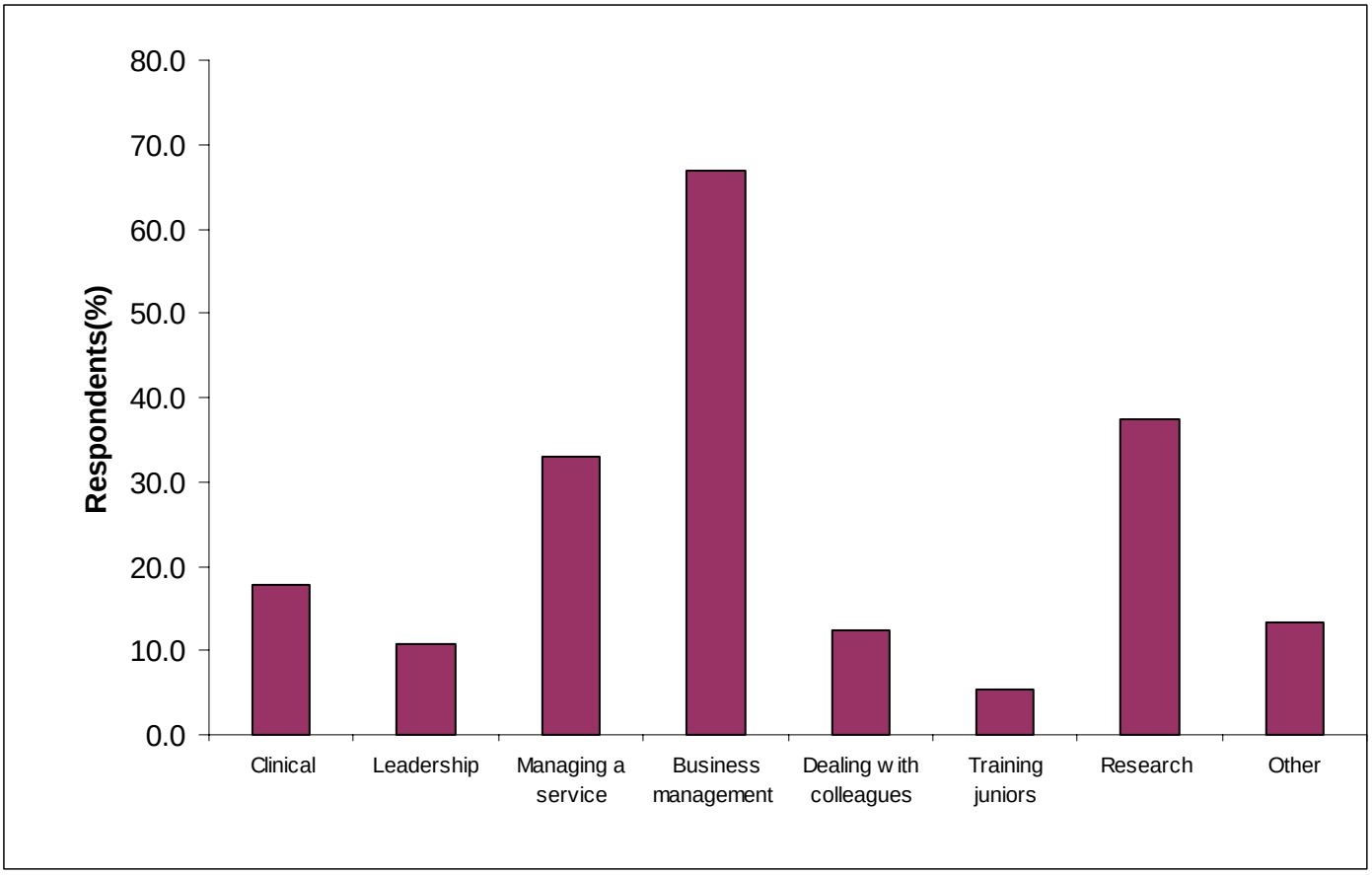


Figure 4.12 Areas in which registrars felt inadequately trained, University of Witwatersrand, 2007-2008, (n=112).

Registrars felt that *"Registrar training prepares you mostly for your clinical work. Training in most other fields is lacking"* and that *"The programme does not address management issues at all…..Largely focuses on clinical only. If I had to go into private practice now, I would not know what to do"*.

Other respondents felt that areas of clinical competence were inadequate. Some areas mentioned were: *"No subspecialist clinics e.g. infertility, endoscopy, oncology. Not exposed to technology available out there"* and *"Further specialist techniques – e.g. laparoscopic techniques"* as well as outpatient management in paediatrics and ambulatory paediatrics.

4.9 OPINIONS OF REGISTRARS FOR PROGRAMME IMPROVEMENT

Recommendations from registrars were very varied, depending on what that registrar perceived as the main problem with the Wits circuit. These recommendations focused on improving the research output

by allocating time and supervisors to each registrar and by making the rotations more research orientated. Comments were that "*more research and study time was needed"* and "*All registrars should be actively encouraged to do research, and a supervisor assigned. Help choosing a topic should also be given"*.

Of particular concern to registrars was the balance between service and training in the registrar programme. Numerous respondents felt that the faculty needed to view them more as trainees and less as service providers. Comments included the fact that *"registrars are seen as a workforce, not as doctors in a training post"* and that *"a lot of time service delivery is more important than teaching"*. Registrars requested that "*the fact that you study while you work should be balanced"* and that they be allowed protected academic time. They felt that this "*may mean hiring more staff – junior and senior*" and many commented on the need for more posts to allow more teaching and learning to occur.

Registrars also appealed for more structured teaching including tutorials and teaching ward rounds. They recommended that specialists be more available and approachable and that they receive *"better supervision, with consultants more readily available"*.

The importance of this survey to registrars was summarised by a comment by one registrar who observed that *"all areas identified in this questionnaire need to be addressed"*.

CHAPTER 5

DISCUSSION

In this chapter, the results obtained from the analysis of the data were discussed and compared with those from other published studies. Furthermore, in some instances the researcher attempted to explain the findings according to her own hypothesis. Although not every aspect of the findings was discussed in this chapter, selected topics from the study were covered.

5.1 SAMPLE

Before the commencement of the study, the research aimed for a 60% response rate as reasonable assumptions could be made from this feedback with a study population of 241 (at a α of 0.05 and β of 0.15). However, a response rate of 68% was achieved in this study. We were unable to perform a responder/non-responder analysis, and therefore cannot report whether there were differences between those registrars who participated in the study and those who did not. The response rate of 68% is more than anticipated and therefore, the results could be generalised to the rest of the registrars in the specialities surveyed.

5.2 DEMOGRAPHICS

According to the South African Employment Equity Act[33], employers are obliged to ensure that designated groups (that is, Black people, women and the disabled) are equitably represented in the workforce. The study demonstrated that the predominant race and gender grouping in surgery was that of White males. The problem, however, is not a straightforward illustration of lack of transformation from departmental authorities. Surgery has traditionally been the domain of male physicians, as work hours are not as flexible as other specialities. Therefore, it may be possible that there are fewer female applicants for surgical registrar posts, resulting in fewer females being appointed.

5.3 HOSPITAL SUPPORT

It is well recognised that good relationships between doctors, nurses and hospital managers are important for healthcare delivery. This study has demonstrated a satisfactory relationship between registrars and nurses at most hospitals on the Wits circuit, but a poor relationship between doctors and hospital managers.

5.3.1 Nursing support

In this study, more than 50% of registrars at each hospital on the Wits circuit perceived nursing support as "satisfactory". Baragwanath received the lowest proportion of satisfactory responses (62%). Comments by registrars, however, acknowledged the problems of nursing specific to the South African context. Comments such as *"nurses try to be good, but workload forbids it*" and *"nurses are very helpful but there are not enough qualified nurses"* reflected the fact that of the 41 563 registered professional nurses in South Africa in 2003, only 43% were working in the public sector[34]. Registrars showed themselves to be aware of the nursing shortage in the public sector and acknowledged the role it played in poorer nursing support at Baragwanath, a hospital which possibly has a higher nurse-to-patient ratio than other hospitals on the Wits circuit.

There were significant influences of specialities and hospitals on perceived nursing support. This should be explored further to develop a better understanding of this variation as the same group of nursing staff rotate through the various departments within a same hospital and sometimes other hospitals within the same District.

In addition, registrars commented on the variability of nursing support in different wards within hospitals. Comments like "*there are often marked differences in wards in the same department"* and *"unit dependent but overall very good"* alluded to this problem.

Finally, outright dissatisfaction with nursing support was evident in comments such as nurses being the reason *"….I enjoy Chris Hani Baragwanath Hospital so little"*. Registrars with unsatisfactory rating of nurses perceived nurses to be, at best *"not very helpful"* and at worst *"obstructive"* to patient care and *"refusing doctors' orders"*.

The relationship between doctors and nurses has always been a difficult one. The conventional idea of the doctor as the main decision maker and the nurse as the helper was personified in this statement by a nurse in 1917[35] (p. 277): "The first and most helpful criticism I ever received from a doctor was when he told me I was supposed to be simply an intelligent machine for the purpose of carrying out his orders". This relationship, traditionally bound by gender stereotypes of the subordinate female and the dominant male, has been challenged in the twentieth century by the changing gender profile of the nursing as well as the physician profession. The result of this, and many other changes in the nursing profession, is a more collegial relationship between doctors and nurses.

However, this change has not occurred without complications. The previously explicit relationship between doctors and nurses has evolved, but new role definitions have not been delineated. When nurses and doctors were asked to list in order of importance six desirable and six undesirable characteristics of each profession, the opinions of the two professions differed when it came to undesirable characteristics of nurses[36]. Nurses felt that "lack of communication" was an important failing, while doctors felt that a "failure to obey doctor's orders" was an important undesirable characteristic of nurses. Therefore, while considerable effort may be put into improving the working relationship of doctors and nurses, the problem remains that the expectations of the two professions differ in terms of the qualities expected of each other and, until these are clarified, the working relationship between doctors and nurses will be burdened with difficulties.

In the absence of a specialist presence, the experience of nursing staff could be an invaluable source of information and support for less experienced registrars. Only one registrar alluded to this important role that nurses could play in the teaching of registrars. In commenting on the nursing staff at Coronation Hospital, a second year obstetrics registrar wrote that nurses were "*very helpful"* and, in addition, they *"also teach"*.

The tensions between doctors and nurses in South African public hospitals are legion. Anecdotal evidence abounds on this subject, but very little published South African literature has tackled this problem. This study has provided the opinions of registrars on the issue but has not interviewed nursing staff and, therefore, only one side of the problem has been presented.

5.3.2 Hospital management support

Doctors and managers have relationships that are equally fraught with difficulties. As Smith[37] (p.610) states: "Doctors and managers have different cultures, which opens up possibilities not only for fruitless fighting but also rich learning". Smith himself acknowledges that this relationship has failed to live up to the promise of rich learning that is on offer. In fact, poor doctor-management relationships have led to unhappiness, stress and talk of early retirement amongst doctors in the United Kingdom[37].

This study highlighted the poor doctor-manager relationship at hospitals on the Wits circuit overall. At Johannesburg, Helen Joseph and Baragwanath hospitals, more than 50% of registrars rated the hospital management support as unsatisfactory. There was a statistically significant positive association between perceived hospital management support and speciality, hospital, race and year of study. This implies the style and leadership of hospital management vary among different hospitals as well as in their interactions with different specialities in the same institution. This is worrying as it is expected that the registrars should receive similar treatment within the Wits circuit, or else they may not be willing to work in certain hospitals. Moreover, some specialities may not able to attract applicants of the highest quality.

However, the most concerning aspect is the influence of race on perceived hospital management support. This should be addressed urgently by the University as well as the Hospital authorities within the Gauteng Department of Health. It is not known, if this phenomenon persists only in the Wits circuit or whther it is also applicable to other academic hospitals within this province.

In their comments, registrars accused hospital managers of *"care[ing] only about budgets"*, having a *"lack of understanding of day-to-day realities and stresses that registrars deal with"* and having *"poor clinical insight"*. Some registrars alluded to a lack of contact between hospital managers and registrars, with one sarcastically commenting that *"this one scores the highest because he actually introduced himself to us"*.

There is an inherent mistrust between doctors and managers that reflects Smith's thoughts on different cultures. Doctors are concerned with individual patients and react to clinical demands[38]. They are not primarily concerned with costs and feel answerable ultimately to patients. Managers, on the other hand, are concerned with groups of patients and institutional agendas, and are answerable to

government. They are under constant pressure by government departments to extend health services within existing resources[38]. Thus, what is seen as a mismatch between goals (caring only about budgets and caring about patients) is a source of constant "fruitless fighting".

A concerning theme in registrars' comments was the lack of acknowledgment of registrars by hospital management. In the South African setting, registrars are the workforce in the academic public sector. While it is true that, more often than not, specialist consultants are the line of communication between registrars and hospital management, and that registrars change hospitals often during their four-year tenure, it is important that hospital managers make themselves known to their workforce and a working relationship be established. It was worrying that registrars felt isolated from hospital management and felt that management was out of touch with their problems. In a 2003 investigation in the United Kingdom into health, it was found that inadequate teamwork, lack of clinical leadership and poor doctor-management relationships were responsible for health service failures[39]. Therefore, it is in the interests of the public health system to attend to the relationships between health professionals, as it impacts not only the retention of individuals in the public sector, but also the service offered to patients.

5.4 SPECIALIST SUPPORT

There was a statistically significant positive association between perceived specialists' teaching and resondents'speciality and hospitals but not with other demographic characteristics. This implies the registrars do not receive the same teaching from their specialist supervisors in various specialities. In addition, that support is also influenced by their rotating hospitals. This is of concern as registrars are expected to receive the same quality of support and training from all the four hospitals within the Wits circuit. Otherwise, they would be reluctant to rotate through certain institutions.

5.4.1 Formal teaching

Trainees' perceptions of their departments can provide valuable information that can be used by departments to enhance the quality of their registrar programmes. In this study, registrars rated the specialist teaching at the hospitals as acceptable, with more than 75% of respondents at each hospital expressing satisfaction with specialist teaching. However, there were differences amongst the specialities and with the different aspects of teaching.

5.4.1.1 Journal club

Although 59% of registrars felt that teaching during journal clubs was satisfactory, comments revealed dissatisfaction with the frequency of journal clubs. Registrars felt that journal clubs *"never happened"* or that the journal clubs were worthwhile *"when they happened*". Journal clubs serve myriad purposes in postgraduate medical education. Since the advent of evidence-based medicine, journal clubs have increased in importance. They serve as a platform for trainees to keep abreast of current trends, and to emphasise issues around clinical decision making, clinical epidemiology, and research design. It has also become important for participants to acquire skills in assessing the validity and applicability of literature and to develop skills of critical appraisal[40]. Journal clubs are an important platform for contact between trainees and specialists and should be used as an opportunity for both to improve their knowledge of current literature.

5.4.1.2 Tutorials

Surgical registrars were least likely to rate their tutorials as satisfactory. As one surgical registrar put it, tutorials were "*not really part of the training programme*". Does postgraduate experiential learning then preclude formal teaching opportunities? Certainly, registrars felt the need for teaching other than experiential learning and the academic institution is faced with the problem of fulfilling its obligation to its trainees when the service demands of the public health sector in South Africa undoubtedly afford little time and opportunity for formal teaching activities. As one registrar complained - registrars needed more *"structured, protected teaching time"*.

Is this the classic situation as described by Derrick *et al*[16] (p.360) of "trainees expecting to be trained and trainers expecting trainees to learn"? Surely there is more here than just the mismatched expectations of trainees and teachers. Other departments seem to have met their trainees' expectations for formal teaching. Therefore, it would be an important for the surgical department to understand the teaching requirements of its registrars and formulate a plan within the context of its service-delivery obligations to meet these training needs. The willingness to spend time with trainees has been shown to be more important than the type of teaching specialists chose to do. In a study evaluating faculty teaching, Silber *et al*[41] reported that residents felt the best teachers were those willing to devote time to

teaching regardless of the type of teaching offered, and the worst were those considered to be unavailable for teaching.

5.4.2 Mentoring

Mentoring is defined as "a dynamic, reciprocal relationship in a work environment between an advanced career incumbent (mentor) and a beginner (protégé), aimed at promoting the development of both" [42] (p.1104). In many professions, mentoring is seen as a crucial step in career development. It provides mentees with socialisation into the profession, discussion of career paths, meaningful involvement in academic activities, and the development of academic networks[43]. In clinical departments, informal mentoring relationships may have occurred, with young doctors and more experienced specialists gravitating towards each other as a result of shared interests. Yet, formal mentoring in clinical departments is a fairly new concept and young doctors find difficulty identifying appropriate mentors[43].

In this study, 43% of respondents expressed dissatisfaction with mentoring within their departments. Comments indicated that mentoring activities were absent in departments, or that individuals encountered mentoring in certain rotations if they happened to encounter particular specialists.

Mentoring should be considered a core obligation of medical faculties in fulfilling their training obligation. However, mentoring is undervalued by academic departments. This is reflected in the remark of one respondent in this study who commented that she "*never needed anything like this*", as well as by the lack of formal mentoring activities evident in most departments.

There are also benefits for faculties in introducing formal mentoring programmes. Wingard *et al*[44] reported improved staff retention in their study, with 85% of mentees staying at their home institution and 93% remaining in academic medicine. In addition, there were benefits for research output, with mentees being more likely to allocate more time to research and to complete their research thesis[45-46].

5.4.3 Supervision

According to Kilminster *et al*[13], supervision encompasses such activities as monitoring of a trainee's performance and guidance and giving feedback on matters pertaining to personal, educational and

professional development. This definition alludes to the three main functions of supervision, which are seen as management, education, and support. The ultimate goal of supervision is to optimise patient care. The intermediate goal, however, is to impact positively on the development of the trainee.

The HPCSA holds universities in South Africa responsible for providing adequate education, training and supervision of registrars[1]. In addition, the HPCSA states that training should occur in a supportive environment with graded supervision depending on the registrar's level of expertise.

In this study supervision of registrars was rated as satisfactory overall (89%). For the few who rated the supervision as unsatisfactory, the most frequent reason cited was a lack of contact with specialists (59%, 10/17). Various reasons may be postulated for this lack of contact, including specialists being too busy with other hospital work or being off-site.

Other comments from registrars (even those who rated supervision as satisfactory offered comments) revealed a multitude of problems with supervision. Firstly, registrars alluded to the fact that there were too few consultants in some departments and that these specialists were too busy to supervise registrars. Secondly, consultants were not always available after hours and during calls. As one registrar commented, "*Mostly, specialists in the wards are simply not available to ask for advice or help, and will NEVER come out on a call to assist you"* and another wrote less emotively, *"consultants are not always available after hours".* Thirdly, the graded nature of supervision required by the HPCSA was not in evidence. One registrar felt that *"especially in the first year of work and study, specialists expect one to be as competent as final-year registrars. They give orders post-intake, and leave (probably because they need to) and I would be expected to handle the rest myself".* Finally, perhaps the most critical comment and one that would require further investigation is the observation that specialists were *"out of touch with reality - disappear and do private work".*

Linked to the question of supervision was the question of registrars being compelled to cope with situations beyond their expertise. Even though supervision was rated as satisfactory overall, 70% of registrars stated that at some point in their careers, they had been forced to cope beyond their level of experience. A significant association was demonstrated between perceived coping beyond expertise and specialist supervision of daily work as well as race. This implies that specialist supervision is intricately linked with the registrars' coping mechanisms. Support from specialist peers is crucial not only for registrar training but also for their survival in the difficult clinical and academic environments. However, the significant influence of race on coping mechanisms implies that registrars

from different racial groups deal differently with the same situation. This means that registrars from certain racial groups would require more support particularly from their specialist peers.

One registrar summarised the problem succinctly by stating: *"Sometimes [I] feel the need to sink or swim".* While specialists may feel it necessary to challenge registrars, the nature of a training environment should imply that this challenge occurs within a secure, controlled environment with a safety net of quick and reliable specialist availability. McKee *et al*[12] noted that while trainees may feel that they benefit from the experience of unsupervised work (i.e., they "learn to swim") patient care suffers in such circumstances.

Of those registrars in the study who remembered instances of coping beyond their skill level, 53% felt the problem was that consultants were "off site", 27% felt that specialists were "too busy" and 10% felt that specialists were at private practices. Other comments pointed to junior staff being unwilling to call on specialist help as a result of the subtle implication that trainees *should* be able to cope without specialist intervention: *"Late calls can be daunting as one is left as a single registrar responsible for Ward 20 (including high care) and, by and large, one avoids inconveniencing consultants by calling at night (even though most are willing to help). I feel we're expected to be able to cope until the post-intake ward round in the morning"*.

Other registrars alluded to the limitations of supervisory assistance that may be offered, with the comment that specialists were *"available telephonically or for problem patients – available mainly for advice"*. Another registrar was more direct with the observation that specialists *"get irritated if you call them and never volunteer to come in to help (with a few exceptions – few and far between)"*. The problem with telephonic communications as noted by a respondent was that it did *"not always present problems and answers adequately".*

Finding time for supervision is a problem that is consistently mentioned in the literature. With a shortage of staff, specialists may find it difficult to supervise adequately because of the other demands on their time during work hours. In addition, specialists may feel that they have paid their dues as registrars themselves, and that they are now in the position where they should be allowed undisturbed after-work hours *("They feel they have been there before and they are finally off the hook. Probably how I feel about doing so-called 'intern' work").*

The benefits of efficient supervision, however, are unmistakable. Firstly, Griffith *et al*[47] point to more efficiency, with trainees ordering fewer tests when adequately supervised. Secondly, trainees who had constructive feedback of their performance (an important component of supervision) felt more competent, less overwhelmed by responsibility and had better relationships with their seniors[48]. If graded supervision were applied such that more experienced registrars were less supervised, a rapid acquisition of skills and improved confidence would imply that registrars were helped along their learning curve more rapidly, resulting in more time ultimately being freed up for specialists. Finally, and most importantly, adequate supervision was associated with better patient outcomes[12]. Clearly, adequate supervision has significant implications for trainee wellbeing, efficiency of healthcare delivery, and quality of patient care.

5.5 UNIVERSITY SUPPORT

The HPCSA holds universities who offer postgraduate medical training responsible for providing library, information technology and other facilities suitable to support approved postgraduate education and training[1]. Registrars rated the library facilities at Wits highly. The results from this study showed that race, gender, age, respondents' speciality and year of their study have no influence on perceived faculty support.

Fifty-seven per cent of respondents felt that the computer facilities were satisfactory while 25% of respondents did not offer a perception of the computer facilities. It would have been interesting to discover why these respondents did not answer this question. The possibility exists that these respondents had not accessed the information technology services at Wits that are available to all registered postgraduate students, including email services, access to the Wits intranet, and access to the library's online journals. If this was the case, the university would need to investigate the reason why students were unable or unwilling to access these services. Perception of the postgraduate office demonstrated that 56% of respondents felt that these services were satisfactory. A consistent comment though, with regards to the postgraduate office, was that staff members were unfriendly.

5.6 RESEARCH SUPPORT

According to the World Federation for Medical Education, postgraduate education should make opportunities available for clinical training and research[5]. There are significant benefits to involving

postgraduate medical students in research. It is proposed that research experience is essential for developing expertise in searching and reviewing literature, critical reading and appraisal of such literature, and developing knowledge in epidemiology and biostatistics. All these skills are considered essential for the practice of evidence-based medicine[49-51]. Furthermore, research activity may inform future career choices and determine whether a registrar would engage in further research activity and continue in academic medicine[49, 51-52]. Participation in research is said to equip trainees with essential skills for lifelong learning[49, 52]. Even trainees themselves agree that there is benefit to research experience. In one study, 66% of residents agreed that all physicians should have some research experience[49].

While all stakeholders, trainees, specialists and healthcare accreditation boards agree on the principle of registrar research, there is also acknowledgement that improving registrar research output faces considerable challenges. The results from this study showed that race, gender, age, respondents' speciality and year of their study have no influence on perceived faculty support.

However, the most significant obstacle to research in registrar programmes is the lack of time for research. In this study, 77% of respondents felt that this was one of the main reasons for non-completion of master's dissertations. This finding was supported by international literature. Levine *et al*[51] reported that 67% of Internal Medicine Residency Program Directors interviewed in their study cited a lack of time as a perceived barrier to research. Alguire *et al*[49] also found this to be the most important barrier to research.

Various suggestions have been proposed in response to this obstacle. The Institute of Medicine in the United States proposed in 2004 that residency programmes be made more flexible to allow residents who acquired skills at an accelerated pace to use the time thus made available to carry out research[53]. Fischer *et al*[50] in their study in 2005 introduced a one-month, elective research rotation to interested residents in an internal medicine programme in the United States. Residents in this elective rotation were required to continue overnight calls and outpatient duties. In addition, they had to identify a project and show active progress, but not necessarily completion. The investigators noted, however, that of their four interventions implemented, the elective rotation had the least impact on research productivity[50]. Alguire *et al*[49] and Blake *et al*[54] in separate studies noted that protected research time alone was not a significant factor in improving research output. It was suggested that, if research productivity is to be improved, dedicated research time should be accompanied by further departmental improvements, as discussed below[49].

Poor research training has also been cited as a problem with attempting a research project. In this study, respondents commented on their complete lack of knowledge and skill in tackling research. *"We have never been taught how to do research/read an article, so we don't know where to start"* and *"Research protocols are not known to us. It is not part of MBChB or normal study. Need more guidance"* were two of the comments received. Undergraduate medical teaching in South Africa does, in fact, expose students to research, usually during the Community Health block, where groups of students undertake a research project. However, this is certainly insufficient exposure for the level of research that is subsequently required in postgraduate studies. The Wits Medical Faculty runs a research methodology course but registrars have commented in the study that they found it difficult to attend the course due to their clinical responsibilities: *"Faculty does offer a research methodology course. However, it is very difficult to attend due to busy rotations. Faculty should make this course compulsory and schedule registrars to it so as to not disturb clinical duties."*

In the South African context, given the previous non-requirement for master's dissertations for specialist practice, a lack of adequately qualified supervisors for master's research may also be a barrier to research. Twenty per cent of the respondents of this study cited this as a barrier to completion of master's research projects. Participants expressed their frustration at having to identify their own supervisors and communicated the need for the faculty to assist by allocating supervisors to them.

The allocation of a supervisor with an MMed to a registrar's research project is a requirement for a master's project. However, *effective* supervision is imperative for timely completion of research studies. While supervisors are responsible for ensuring that junior researchers produce research of adequate quality, they are also responsible for educating, motivating and leading the postgraduate student[55]. This involves an element of mentoring, which has been shown previously to increase research output[45-46].

Creating a research culture and a working environment conducive to research has also been identified by registrars as a requirement for increasing their research productivity *("Invoke a culture of research and learning not just service delivery and survival"*). Wits has already started to create a research culture by introducing the requirement for a research project amongst registrars, thus emphasising to them the importance of research. In addition, a "culture of expectation" [56] of research has been fostered at Wits by ensuring that first-year registrars are aware of the possible research requirement when they

apply for specialisation. Incorporating evidence-based medicine into daily clinical practice will ensure that the link between good research and patient care is established in the minds of registrars and specialists alike. In addition, the attitude of faculty members towards research is important. A programme director in the study by DeHaven *et al*[56] (p.506) commented: "It is difficult to convince residents that research is valuable if their physician role models are not involved in research". A registrar in our study put it more succinctly when he implored specialists to "actually show interest".

Therefore, in attempting to improve the research output of registrars, the university must engage with a number of issues including the education/service delivery balance of registrar training, equipping registrars with the correct skills to attempt research, improving the research output of its specialists to ensure adequate supervision is available and creating a supportive research culture within its medical faculty. There was no lack of interest amongst participants in this study when it came to research, and many had useful suggestions to the faculty to facilitate their research efforts. The logistics of such suggestions may be problematic, but the challenges must be managed in order to produce good clinical research in the faculty.

5.7 ADEQUATE PREPARATION OF REGISTRARS FOR INDEPENDENT PRACTICE

Sixty-nine per cent (112/163) of the respondents in this study did not feel adequately prepared for independent practice or did not know if they were adequately prepared. In his editorial "Why are doctors unhappy?" Smith notes that there is a mismatch between what doctors are trained to do and what they are actually required to do[57]. While traditional medical training focuses on science, pathology and patient care, doctors may increasingly be compelled to think in terms of management, finances, ethics and communication, none of which is covered extensively in the postgraduate training for registrars[57]. Increasingly, doctors and specialists in particular, are being called upon to play managerial and leadership roles within the public health service and, as has been discussed previously in this report, the cultures of doctors and managers are worlds apart.

More interestingly, almost 18% of respondents felt that they were not adequately prepared clinically. South Africa has always prided itself on the quality of medical personal it has trained and has pointed to the high rate of employment of its physicians internationally to substantiate this claim. However, registrars in this study commented on their inability in the public sector to gain experience in specific areas. These included routine clinical areas such as ambulatory paediatrics which should be available

in the public sector, to laparoscopic techniques used in the private sector and overseas. This was a study of registrar perceptions and, as such, might be biased by the natural apprehension of trainees towards independent practice. Perhaps a further study would be appropriate to elicit the opinions of qualified specialists of whether their training adequately prepared them for their future careers.

5.8 PUBLIC HEALTH IMPLICATIONS OF THIS STUDY

The important public health implications of this study will be discussed in the following sections.

5.8.1 Training linked to patient outcomes

In 1984, a young woman admitted to a New York hospital died as a result of an adverse drug reaction apparently missed by an overworked and fatigued resident[58]. While this example may not have been directly linked to poor training or supervision, it does have some bearing on the point that a lack of regulation of registrar training (in this case, working hours) can result in poor patient outcomes. More to the point, Mckee *et al*[12] demonstrated in their study that inadequate supervision of junior doctors was clearly associated with mistakes and an acceptance of lower standards of care by doctors.

Patients who access academic hospitals have the same right as patients in any other hospital to expect high-quality and safe healthcare. It is the responsibility of training institutions and training hospitals to provide this safe and effective care, while at the same time affording trainees the opportunity to practise their medical skills and become competent in their speciality. The purpose of medical education is to provide medical practitioners who can, among other skills, make a diagnosis, effect treatment, communicate effectively, assess prognosis, and work in a team. Overall, however, one should not lose sight of the fact that medical education is a tool to improve patient care[59]. As Leach[60] (p.ii56) writes: “The public needs assurance that graduates of residency programmes are competent”.

One way to guarantee that quality healthcare is provided in academic institutions is to regularly assess the training programmes through which registrars rotate. As the concept of medical education in South Africa evolves, so too must the training programmes adapt and improve to ensure that patients in the public sector access the highest quality of care.

5.8.2 Organisational culture

Hoff *et al*[61] propose that the establishment of a supportive, learning-type culture is critical in developing competent physicians. These authors further assert that the organisational culture within which trainees work and learn is instrumental in shaping this learning culture. More simply, organisational culture is important to foster learning.

In their model of context, culture and residency competency, Hoff *et al*[61] postulate that the work context or organisational culture of trainees is influenced by factors such a supervisor availability, physician-nurse collaboration, work/non-work balance, workload (or the training/service continuum) fatigue, and time. In this study, the concepts of supervisor availability and nurse-physician collaboration have been investigated, while issues surrounding the training/service continuum have been mentioned by respondents. In addition, another aspect of the organisational culture has been assessed; that is, the interaction between hospital managers and trainees.

Once again, it is the responsibility of the university and the hospital to ensure an organisational culture that creates opportunity for learning. Regular assessment of this culture is imperative if improvement is to be effected. This study could be the beginning of regular and comprehensive assessment of both the learning environment and the organisational culture of training hospitals on the Wits circuit.

5.8.3 Evidence-based medicine

Evidence-based medicine is the process of systematically finding, appraising and using research information for clinical decision making[62]. Four steps can be identified in practicing evidence-based medicine[62]:

a) Formulating a clear question from a patient's problem;
b) Searching the literature for relevant articles;
c) Evaluating/critically appraising the literature for validity and usefulness; and
d) Implementing useful findings in clinical practice

Many of the skills mentioned above can be enhanced by becoming involved in research studies. The undertaking of a research project allows registrars the opportunity to formulate a hypothesis, search and critically appraise the literature, design an appropriate study to test the hypothesis and, if their

results are of significance, to publish the findings and ultimately influence clinical practice. Therefore, while the research question in a master's dissertation may be of vital importance to the speciality, the involvement in research allows the trainee to acquire skills that will result in improved healthcare practice.

This study attempted to investigate trainees' perceptions of research projects to allow the university to facilitate improvements in the research programme, such that research output by trainees is increased and the registrars themselves, as well as the faculty and patients, reap the benefits of trainees' involvement in research.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

In this chapter the results were assessed in relation to the aims of the study, so that conclusions could be drawn. The limitations of the study were analysed and recommendations were made with reference to the findings of the study. These recommendations focused on the improvement of training for clinical registrars. Finally, ideas for further research were presented.

6.1 CONCLUSIONS

The broad objective of this study was to determine the perceptions of the registrars of their training on the Wits circuit between 2007 and 2008, and to determine the conditions that facilitate registrars completing the MMed.

6.1.1 Description of the demographic profiles of registrars

In this study, the majority of the respondents were White, with a large percentage of surgical registrars being White. There were a similar proportion of male and female respondents and the medial age of the sample was 30 years.

6.1.2 Determination of registrars' perceptions of their training on the Wits circuit with respect to support from hospitals, specialists and the University

Overall registrars were satisfied with the support from nursing staff at the four hospitals. This perception was significantly influenced by specialities and hospitals of the respondents.

Registrars generally felt that there was room for improvement in hospital management. Perception of support from hospital managements was influenced by speciality, hospital, race and year of study.

Perception of specialist teaching was influenced by speciality and rotating hospitals. Formal academic teaching programmes such as journal clubs and tutorials in certain departments were found to be inadequate. Informal academic programmes such as mentoring received the lowest proportion of satisfactory responses.

Supervision by specialists of registrars' daily work was considered to be satisfactory, although the majority of registrars admitted that they had been forced to cope with situations beyond their expertise at some point. This perception was influenced by their speciality and racial group. In addition, many registrars attributed this situation to the unavailability of the specialists on-site.

Registrars rated the administrative support from the university as acceptable. The library facilities in particular received a particularly positive rating.

6.1.3 Determination of perceptions of registrars regarding the requirement to complete a master's research report and the role of the faculty in facilitating this requirement

Few respondents (30%) in this survey had started a master's research. Registrars felt that there were no time made available during the registrar programme for research and that there was a lack of suitably qualified supervisors. This study found that race, gender, age, respondents' speciality and year of their study play no significant role in the rating of research support.

6.1.4 Determination of the future plans of registrars, including whether they intend staying in the public sector, going into private practice or leaving the country;

The majority of registrars indicated that they intended to work in the public sector. Very few respondents indicated an intention to work overseas.

6.1.5 Respondents opinion for improvement of the learning experience with regards to academic and experiential learning as well as research writing

Few registrars (32%) felt that their training adequately prepared them for independent practice. The areas where there was a lack of preparation were in the business management of a practice and the management of a clinical service.

6.2 LIMITATIONS

The present study was affected by the following limitations:

(a) Selection bias: The small numbers of registrars in the total population in some specialities made the sub-classification and comparison between sub-categories difficult.

(b) Response bias: This study might have response bias due to non-respondents. A responder/non-responder comparison was not possible due to lack of information.

(c) Measurement bias: In this study, measurement was done using Likert scales. A 5-point Likert scale was used, which might have caused a central tendency bias (participants avoiding extreme responses). A Likert scale that had an equal number of positive and negative responses without a central neutral response might have obviated this bias. However, it would also have forced participants to commit to a negative or positive opinion when they were unsure.

(d) Information bias: Studies of perception and Likert scales may be prejudiced to social-desirability. This is the inclination of participants to portray themselves or their organisations in a favourable light. By convincing the participants of the anonymity of the study and the real possibility of it improving their registrar training experience, it is expected that a more valid response would have been obtained.

(e) Furthermore, the longer time period for the study may impact the registrars' perception about their nursing and management colleagues who might have rotated, retired, resigned.

6.3 RECOMMENDATIONS

6.3.1 Demographics

This study showed differences in demographics in various departments. Further research is necessary to determine if there are racial and gender trends in applicants to different specialities and whether racial and gender transformation has been encouraged in different departments. The significant influence of race on perception of hospital management support and coping mechanism of respondents must be explored further and urgently addressed.

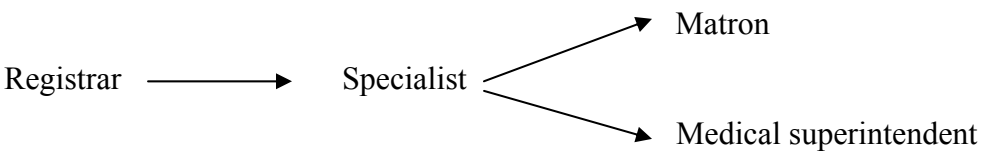
6.3.2 Nursing support

Health workforce planning is the subject of much research and debate in South Africa at present. It is beyond the scope of this research to offer recommendations for such a complex issue as the nursing shortage in the public sector.

However, it is evident from this survey that further investigation is necessary into the relationships between nurses and doctors on the Wits circuit and particularly at Chris Hani Baragwanath Hospital. The roles of doctors and nurses and the expectations they have of each other require clarification. At the simplest level, the responsibilities of nurses towards doctors (such as whether registrars expect nursing staff to accompany them on ward rounds and whether nursing staff feel that in a busy public hospital, this is acceptable) need to be clarified.

6.3.3 Hospital management support

This study demonstrated a very poor relationship between hospital management and registrars, which could impact on patient care. It is the responsibility of managers to attempt to improve this relationship, as registrars are a very mobile workforce, moving from one hospital to the next in relatively quick succession. Managers should attempt to foster a closer working relationship with clinicians. Opportunities for this include registrar-orientation meetings at the beginning of each new rotation, where managers would be able to introduce themselves to the new registrar workforce. In addition, it must be questioned whether it is the responsibility of registrars to communicate directly with hospital management. A protocol for communication should be established between specialist departments and hospital managers, such that registrars are aware of their direct line of communication should a problem arise. An example of such a line of communication is presented below:



Finally, registrars should be given some insight into the cost of the service they provide. This might go some way towards bridging the ideological gap between the perceived role of managers and clinicians.

Registrars themselves have identified the lack of business management in their training and alluded to the fact that a hospital manager's primary concern is that of the budget. Understanding of the economics of healthcare would be very useful to registrars, not only in improving their relationship with managers, but also in improving their capacity to practise independently in the private as well as the public sector.

6.3.4 Specialist support

Once again, the issue of specialist support of registrars is inextricably linked to the issue of human resource planning in the public health sector. Sufficient specialists are required in the public sector academic hospitals to provide adequate service delivery, supervision and formal training of registrars.

Certain aspects of formal teaching were found by registrars to be lacking in their training. Frequency of journal clubs, tutorials and mentoring were considered inadequate in some departments.

In particular, surgical registrars felt that tutorials were lacking in their department. It is thus clear that the academic and training contract between the department and its registrars requires clarification. Surgery, more than many other specialities, lends itself to experiential learning. If formal tutorials are not considered by the department to be an essential component of their training, then this should be made clear to registrars, so that they do not have the expectation of formal tutorials. However, if there is clearly a need for more formal teaching, the department must find the time within its service commitments for it.

Mentoring was also mentioned by registrars as particularly inadequate. Perhaps the solution lies in introducing a structured programme of mentoring as has been discussed in the literature[63]**.** This would involve a mentor being assigned to each registrar in the department, and a contract between mentor and mentee where the goals and responsibilities of each are clearly set out.

Further investigation into the supervisory responsibilities of specialists is required. While 89% of registrars rated their supervision as adequate, 70% also reported being forced to cope beyond their level of expertise. These results would seem to be contradictory and further research into such aspects as the hours spent by specialists supervising registrars, the availability of specialist on-call rosters, and

the frequency of non-availability of specialists would help to describe more clearly the nature of supervision on the circuit.

As mentioned previously, postgraduate medical education can most appropriately be described in terms of the transaction model of education. While the recommendations above are important practical suggestions, a paradigm shift is also required to truly improve the learning experience of registrars. Postgraduate medical education must be moved towards a transformational model of education, where the social, cultural as well as the spiritual context of the learner and the environment is taken into account. This is the educational orientation described by Miller[8] as holistic learning.

6.3.5 Research support

The most important recommendation is for the University to encourage a culture of research amongst its departments. Wits has already begun to foster a research environment with its collaboration with the CMSA to make the master's dissertation a requirement.

Departments must begin to organise registrar rotations in a way that incorporates research time into the four-year registrar programme. This would have to be a long-term vision for each department, as it might require the employment of more registrars in each department in order to allow a dedicated research block or dedicated research days for registrars.

Research supervision is a challenge. The solution lies in departments making it a priority to employ specialists who already have an MMed and in encouraging presently employed specialists to undertake their master's dissertations. This might require a shift in thinking of departments towards a more research-orientated focus, which would contribute to improving the research culture in the faculty.

The University has the responsibility to improve the accessibility of its research methodology course to registrars. Research training has been identified by the registrars as a necessity. The University must negotiate with its specialist departments to allow all registrars access to this course, so that it is not the responsibility of the individual registrar to negotiate time off from clinical duties in order to attend.

6.3.6 Harmonisation of registrars training

This study found subtle differences in the training programme among different specialities and different hospitals in the same speciality. This should be addressed urgently as this might create dissonance in registrar training at this University. .

6.3.7 Adequate preparation for independent practice

Registrars identified areas of management, clinical aspects, and areas of research training that were lacking in their preparation for their specialities. It is the responsibility of departments to ensure that the training offered keeps pace with the changing demands of healthcare in South Africa. This may involve the continual perception of training programmes by the University and departments.

While business management may be viewed as an unimportant skill in the public sector, it should be noted that the University is training specialists for *independent* practice, be that in the public or private sector. In any event, it has already been argued that business management and management of a service (two items identified most frequently by registrars as lacking in their training) have important benefits in the public sector.

6.3.8 Monitoring and evaluation of registrar training

The survey carried out in this study has demonstrated important areas where the registrar training programme on the Wits circuit has failed to meet the expectations of registrars and areas where registrars were very satisfied with their training. It has allowed registrars to express their opinions candidly and contribute to the development of their training programme, without fear of reprisal. The findings of this study could be used by departments and the university to plan further research into registrar training on the circuit, as well as to institute appropriate changes.

However, it is also important that such registrar surveys be extended to the entire registrar population at Wits, so that the opinions of all registrars in all departments are canvassed. Furthermore, such surveys should be undertaken regularly to determine if changes instituted at Wits have had an impact and to allow registrars continued participation in developing their training programme.

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APPENDIX A: MEASUREMENT TOOL

Registrar Training Perception

Code: ☐☐☐☐☐☐☐

Demography

Male ☐ Female ☐

Race: White ☐ African ☐ Coloured ☐ Indian ☐ Other ☐

Age _____

Nationality:

☐ South African

☐ Other African (Country name) _____

☐ International (Country name) _____

Speciality for which you are registered _____

Year first registered for this speciality _____

Present year of study _____

At which hospital are you currently working? _____

Rating Scale

1 **Very poor**	**2** **Poor**	**3** **Average**	**4** **Good**	**5** **Excellent**

Please use this rating scale where indicated.

Tear off this code and retain to claim your prize in the lucky draw.

CODE:

1) HOSPITAL PERCEPTION

1.1 On a scale of 1-5 (5 being excellent) please rate the support you receive from **nurses** at the different hospitals. Please add comments if you wish.

Rotations	**RATING**	**COMMENTS**
Johannesburg Hospital		
Helen-Joseph Hospital		
Chris-Hani Baragwanath Hospital		
Coronation Hospital		
Other (please specify)		

1.3 On a scale of 1-5 (5 being excellent) please rate the support you receive from **hospital management (medical superintendents, matrons)** at the different hospitals. Please add comments if you wish.

Rotations	**RATING**	**COMMENTS**
Johannesburg Hospital		
Helen-Joseph Hospital		
Chris-Hani Baragwanath Hospital		
Coronation Hospital		
Other (please specify)		

1.4 Are there any hospital rotations that you remember as being pleasant /enjoyable? Please specify.

_____

_____

1.5 Are there any hospital rotations that you feel were not pleasant or you did not enjoy? Please specify.

_____

_____

2. SPECIALIST TEACHING AND SUPPORT

2.1 On a scale of 1-5 (5 being excellent) please rate the **teaching you received from the specialists** during your training in the various hospital rotations. Please add comments if you wish.

TEACHING METHODS	**RATING**	**COMMENTS**
Johannesburg Hospital		
Helen Joseph Hospital		
Chris Hani Baragwanath Hospital		
Coronation Hospital		
Other (please specify)		

2.2 On a scale of 1-5 (5 being excellent) please rate the **teaching** you received from the specialists with regard to the following categories. Please add comments if you wish.

TEACHING METHODS	**RATING**	**COMMENTS**
Informal registrar learning support from specialists(ward rounds, bed-side teaching, teaching in Outpatients Departments)		
Article reviews /Journal clubs		
Tutorials		
Individual academic mentoring and support		
Research supervision		

2.3.1 Please rate the **supervision** you received from the specialists during your daily ward work and during calls. ***(Please tick only one box.)***

Very Poor ☐

Poor ☐

Fair ☐

Good ☐

Excellent ☐

2.3.2 If you answered “fair”, “poor” or “very poor”, what is the main problem with specialist/consultant supervision?

Lack of contact ☐

Lack of teaching skills ☐

Poor communication skills ☐

Shouts or harasses ☐

Poor role models clinically ☐

Other ☐

(If you have ticked “other”, please elaborate.)

_____

_____

_____

2.4.1 How often do you feel forced to cope with problems beyond your level of expertise?

(Please tick only one box.)

All the time ☐

Daily ☐

Weekly ☐

Monthly ☐

Never ☐

2.4.2 If you have ticked “all the time”, “daily”, “weekly” or “monthly” is this because your consultants are:

Too busy ☐

Off site ☐

At private practices ☐

Unwilling to help ☐

Other ☐

(If you have ticked “other”, please elaborate.)

_____

_____

2.5 Have you sat down with your consultant to discuss your progress? ***(Please tick only one box)***

Yes, and it was useful ☐ Yes, but it was NOT useful ☐

No, but it was not necessary ☐ No, but it will happen ☐

No, but I would like to ☐ Other ☐

(If you have ticked “other”, please specify)

_____

_____

_____

2.6 The learning environment fostered by specialists is one of mutual respect and registrar friendly. ***(Please tick only one box.)***

Always ☐ Sometimes ☐ Never ☐

Please comment should you feel it is necessary.

_____

_____

3. ADMINISTRATIVE SUPPORT FROM FACULTY OR UNIVERSITY

3.1 On a scale of 1-5 (5 being excellent) please rate the following support services received during your MMed programme. Please add comments if you wish.

SERVICES	RATING	COMMENTS
MMed course administrative support		
International Office (if applicable)		
Library facilities (Wits Medical School)		
Computer facilities (Wits Medical School)		
Fees office		
Postgraduate Office (Faculty of Health Sciences)		
University accommodation – please specify which residence		

4. RESEARCH REPORT SUPPORT

4.1 What do you think is the main reason registrars have difficulty completing their master's research?

Lack of supervisory support ☐

No time in the registrar programme for research ☐

The master's research does not improve job opportunities ☐

No interest in research ☐

Other (please specify)

_____

_____

4.2 .1 Have you started master's research?

Yes ☐ No ☐

4.2.2 At what stage are you in completing your master's?

Protocol writing ☐ Protocol submission ☐ Data collection ☐

Data entry/analysis ☐ Report writing ☐ Report submission ☐

4.3 On a scale of 1-5 (5 being excellent) please rate the school support you received with your research report from the Faculty of Health Sciences, with regards to the following categories. Please add comments if you wish.

SUPPORT	**RATING**	**COMMENTS**
Protocol development		
Availability of supervisor during protocol development		
In collecting data		
In writing report		
In submitting report		
In getting you to graduate on time		

4.4 What specifically would you advise faculty to do to assist registrars to complete the master's research report? Please elaborate.

_____

_____

_____

_____

5. VALUE OF THE REGISTRAR PROGRAMME TO YOUR CAREER

5.1 Where do you see yourself working five years after you qualify as a specialist?

Remaining as a specialist in the public sector ☐

Working in the private sector ☐

Working overseas ☐

Taking up a research post ☐

5.2 Do you feel that your registrar programme adequately prepares you for all areas of your job as a specialist?

Yes ☐ No ☐ Don't know ☐

If "no" or "don't know", in which way do you feel least prepared?

Clinical ☐

Leadership ☐

Planning and managing a service ☐

Business management of a practice ☐

Dealing with managers/colleagues ☐

Training juniors ☐

Carrying out research ☐

Other ☐

If you have ticked "other", please specify.

_____

_____

_____

6. **RECOMMENDATIONS**

6.1 If you could improve your registrar programme how would you want it changed? Please elaborate.

THANK YOU!!!

APPENDIX B: INFORMATION SHEET

Hello,

My name is Dr Elvira Singh. I am a registrar in the Wits School of Public Health. I am undertaking a research project on behalf of the Faculty of Health Sciences. One of the responsibilities of the committee is to improve the learning experience of registrars through the Wits circuit. I am particularly interested in your experience as a registrar at the Wits circuit, with a view to improving your and future registrars' training experience. I would like to invite you to participate in this important study, so that I get a full spectrum of registrars' views of their rotations and their recommendations towards improvement.

Why am I doing this?

The University of the Witwatersrand's Faculty of Health Sciences has expressed an interest to assess registrars' experiences in their training environment, and to take measures to improve it. The aim of the registrar programme and the MMed degree is to prepare medical professionals to become competent specialists, comparable to the best in the world. In addition, the registrar programme aims to influence in a positive way the management and delivery of health and healthcare to all South Africans. You are kindly requested to assist in filling out a questionnaire that asks you about your experience as a registrar in the various hospitals, and whether there can be improvements in your rotations, the specialist support, the hospital support and, most importantly, the faculty support in completing your training and your MMed research report successfully. I would also like to know your future career plans and whether you would consider studying further at Wits. By assessing your responses to the questions it can be determined whether the Faculty has fulfilled its mandate in as far as your career is concerned, and what changes or improvements you would like to recommend.

What is expected of the participants?

You will be expected to answer questions regarding your feelings about your registrar training and the rotations that you have experienced; the support given to you; and if you require support to complete your MMed degree. I would also like to know whether your training has enabled you to feel competent in your speciality, and whether it will advance you academically. Finally, I would like to know what you have planned for yourself for your future. By participating in this important study, you will contribute towards improving your registrar training experience, and also ensuring that academic standards of the Faculty are not only maintained but, more importantly, are improved. Through this

questionnaire the faculty will be informed by you where the programme is lacking and where it needs improvement. It will take between 20 and 30 minutes of your time at most.

Are there benefits to the participants?

You may not appreciate the benefits directly and immediately. However, in the interest of enhancing the quality of education for future generations of registrars, there definitely are benefits. In addition, where immediate change and improvement can be implemented, it will be done. The research will also be used to increase the number of current registrars completing their MMed. Therefore, your participation is one way of helping to enhance the quality of the education offered by the Faculty.

May I withdraw from the study?

Certainly, you may withdraw at any time by not completing the questionnaire. You may choose one of two ways – firstly by declining to fill in the questionnaire and not post it in the designated collection box or by enclosing an unfilled questionnaire in the box. There are no penalties for non participation!

What about confidentiality?

This will be maintained in that the results will not be presented on an individual basis but will be presented in a group format so that no individual will be identifiable in the results. These questionnaires are also completely anonymous. The grouped results will be made available to you upon request after the study. By filling in the questionnaire you will be giving consent to participate.

In the event of you requiring more information or having queries, you may contact me at 011 717-2613/2205 or email at elvira.singh@wits.ac.za.

Should you require more information pertaining to your rights as a participant in the research study, or have complaints regarding this study, you may contact Ms Anisa Keshav, the secretary to the University of the Witwatersrand Human Research Ethics Committee at (011) 717-1234.

Thank you.

APPENDIX C: POSTGRADUATE APPROVAL LETTER

Faculty of Health Sciences Medical School, 7 York Road, Parktown, 2193
Fax: (011) 717-2119 / Tel: (011)717-2125

Reference: Ms Helen Selolo

E-mail: monyai.selolo@.wits.ac.za
9504683V
01 September 2008
PAG

Dr E Singh
Suit 504
Postnet X09
Weltevreden Park
1715

Dear Dr Singh,

Master of Medicine (in speciality of Community Health): Approval of Title

We have pleasure in advising that your proposal entitled *Clinical registrars perceptions of their specialist training on the University of the Witwatersrand training circuit* has been approved. Please note that any amendments to this title have to be endorsed by the Faculty's higher degrees committee and formally approved.

Yours sincerely

Mrs Sandra Benn
Faculty Registrar
Faculty of Health Sciences

APPENDIX D: ETHICS APPROVAL

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Division of the Deputy Registrar (Research)

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
R14/49 Singh/Naidoo

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER M070837**
PROJECT	Clinical Registrars' Perceptions of their Specialist Training on the University of the Witwatersrand Training Circuit
INVESTIGATORS	Dr/Prof E/S Singh/Naidoo
DEPARTMENT	School of Public Health
DATE CONSIDERED	07.08.31
DECISION OF THE COMMITTEE*	APPROVED UNCONDITIONALLY

Unless otherwise specified this ethical clearance is valid for 5 years and may be renewed upon application.

DATE 07.09.03 **CHAIRPERSON** .....
(Professors PE Cleaton-Jones, A Dhai, M Vorster, C Feldman, A Woodiwiss)

*Guidelines for written 'informed consent' attached where applicable

cc: Supervisor : Prof S Naidoo

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10005, 10th Floor, Senate House, University.
I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to a completion of a yearly progress report.**

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES