

**PROFESSIONAL DEVELOPMENT  
OF  
DIETITIANS COMPLETING  
COMPULSORY COMMUNITY SERVICE IN  
SOUTH AFRICA WITH  
SPECIAL FOCUS ON KWAZULU-NATAL**

**By**

**MARIE PATERSON**

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School of Agricultural Sciences and Agribusiness  
Faculty of Science and Agriculture  
University of KwaZulu-Natal  
PIETERMARITZBURG**

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## ABSTRACT

### Introduction

The aim of this research was to establish the attitudes, knowledge, job satisfaction and professional development of community service dietitians because negative attitudes, poor knowledge, low levels of job satisfaction and poor professional development would be detrimental to the process of community service and ultimately to the provision of health services.

### Methodology

Three distinct annual intakes of qualified dietitians completing compulsory community service were the subjects of an analytical cross sectional survey conducted biannually for the period 2003-2005. Data collection methods included telephone interviews, mail, e-mailed questionnaires and focus group discussions. Individual factors: sex, population group, language, university attended; institutional factors: organisation of community service, mentorship rating, hospital manager support type of facility, rural allowance, hospital location, access to resources, working and living conditions and personal safety and other factors: attitude, community nutrition knowledge, job satisfaction and professional development were included in the data set.

### Management of data

Data were divided into 2003 cohort (n=20) and 2004-2005 cohorts (n=26). Analysis of the demographic details for 2003 and 2004-2005 cohorts were, respectively: mean ages 23.6 ( $\pm 0.99$ ) and 24.05 ( $\pm 4.96$ ) years, 60 percent and 73 percent white, 90 percent and 96 percent female, 35 percent and 73 percent University of KwaZulu-Natal graduates and 65 percent of both cohorts were placed in rural facilities.

## Results

Community nutrition knowledge of the 2003 cohort was unacceptable but improved in the 2004-2005 cohort. Subjects had a generally positive attitude towards community service. Community nutrition levels of knowledge of the 2003 ranged between 60 percent at entry and 67 percent at exit and for the 2004-2005 between 72.8 percent and 78.42 percent. The job satisfaction level of the 2003 cohort at exit was 13.65 ( $\pm 3.573$ ). In the 2004-2005 cohort job satisfaction was 15.75( $\pm 3.360$ ) at entry and 15.75 ( $\pm 3.360$ ) at exit. 85 percent of the 2003 cohort rated their professional development positively whereas 65 percent of the 2004-2005 cohort rated theirs' positively. This decline and associated problems were to some extent shown in the interview responses. The 2004-2005 cohort did however show a tendency for improvement in the professional practitioner ranking ( $p=0.088$ ). The majority (95%) of the 2004-2005 cohort rated the dietetic services positively.

Focus group discussions highlighted problems that the community service dietitian (CSD) encountered such as lack of supervision and support, lack of basic facilities, poor hospital administration, problems with transport, work overload and problem with their professional role in the community and health facility.

A model showing the results of the research indicated that the objectives of the Department of Health for improved service in rural areas were obtained but the retention of health professionals and capacity was lost due to annual rotation of subjects. Community service as a strategy to overcome service delivery has merit provided identified problems are addressed.

Declaration of Originality

I, *Marie Paterson*, hereby declare that the research in this thesis are the results of my own investigations, except where acknowledged, and has not in its entirety or in part been previously submitted to a University or Institution for degree purposes.

SIGNED.....*MPaterson*..... DATED.....*24/10/06*.....

I, *Maryann Green*, chairperson of the Supervisory Committee and

I, *Eleni Maunder*, co-supervisor, approve the release of this thesis for examination.

SIGNED.....*MGreen*.....

DATED.....*24.10.06*.....

SIGNED.....*Eleni Maunder*.....

DATED.....*24/10/06*.....

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## CHAPTER 1 INTRODUCTION

According to the White Paper on Health (Department of Health 1997, p19), health access for the poor rural person and those living in other under-served areas was a major concern in South Africa and was the Department of Health's (DOH) first priority in the development of the district health systems. In June 2001, Statistics South Africa identified 13 nodal areas<sup>1</sup> which again raised the plight of poor rural communities (Statistics South Africa 2002, p12). Previous apartheid policies had fragmented health provision, resulting in costly duplication of services, inaccessible and inadequate service delivery for the majority of the population. The provision of health services to rural areas world-wide is problematic both in developed and developing countries (Reid 2001).

The government in South Africa is committed to a policy of redistributing health personnel fairly amongst all sectors of the community (Department of Health 1997, p26). Legislation amending the Medical, Dental and Supplementary Health Service Professions Act, 1974 (Act No 98 of 1997) enacted by parliament, allowing for compulsory community service for health professionals, was one strategy of delivering services to rural and previously under-served areas. Doctors, dentists and pharmacists have been employed in the Community Service Programme since July 1998 (Reid 2001).

The first group of community service dietitians (CSDs) (2003) were allowed a measure of choice as to where they were placed in various facilities of the Department of Health (DOH) throughout South Africa. These newly qualified dietitians completed their professional training at the end of 2002 and were then placed with other health professionals such as doctors or physiotherapists to

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<sup>1</sup> Nodal areas were identified as specific rural areas which experience extreme poverty and a serious shortfall of service delivery in general and health in particular. These nodal areas have been targeted by the government for special attention to alleviate poverty and lack of service delivery.

undertake community service. Given that many of the CSDs would be operating away from direct supervision of a professional in their own discipline there was a strong likelihood that CSDs would be isolated and perhaps not function adequately in the situation where they had been placed. A mentorship system for CSDs was therefore introduced in KwaZulu-Natal (Department of Health - KZN 2002).

### *Historical perspective*

Internationally, people in rural areas have higher mortality and morbidity rates (per thousand of the population) than those living in urban areas (Cavender & Albán 1998). In South Africa the policy of fragmenting health services introduced by the apartheid government, exacerbated the problems of health provision to the vast majority of South Africans (ANC 1994, p7). Rural South Africa is considered to be under-served in terms of the provision of health services and by implication have higher mortality and morbidity rates than urban areas (Yach & Buthelezi 1995, p31). Specific problems in South Africa are high infant mortality rates, HIV infections and nutritional deficiencies (Giddy & Reid 2003). Since 1995<sup>2</sup>, the government has used a number of interventions to improve this situation. Amongst others there has been the upgrading and building of new clinics, improved salaries for public sector doctors, incentive payments in the form of rural allowances to health professionals and the deployment of Cuban doctors (Reid 2001). In the period 1992 to 1996 the amount of money allocated to public spending on primary health care (PHC) increased from 11% to 21% (South African Marketing Council of South Africa undated). However, as far as dietitians were concerned there appeared to have been no specific incentive in the past to encourage individuals from this profession to practice in rural or under-served areas. In fact very few posts for dietitians existed outside the urban hospitals in RSA before 2003. For instance in KwaZulu-Natal (KZN) there were 8 posts for community

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<sup>2</sup> In 1994 the African National Congress (ANC), was democratically elected to serve as the government of South Africa (South African Marketing Council of South Africa undated).

dietitians (Campbell 2002), servicing a population of 9,4 million (Statistics South Africa 2001). That is one post per designated region of which there are a total of eight regions (Campbell 2002). This translates to roughly over a million persons per community dietitian post. In addition, these posts were attached to regional offices and not to the health facilities in rural areas. New, 1-year contract posts for CSDs were specifically created for the compulsory community service. A total of 138 CSDs were placed in all provinces throughout South Africa with 20 being placed in KZN in 2003 (Department of Health 2002).

### *The Department of Health Objectives*

The DOH has set a number of objectives for community service. These included an improved distribution of health service provision especially in under-served areas and the improvement of the capabilities (i.e. professional growth) of the health professional especially with regard to PHC (Department of Health 1997, p29). This would mean health professionals would need to develop skills and critical thinking, upgrade knowledge and change attitudes so that they could respond in an appropriate manner (Department of Health 1997, p29; Reid 2001). The change in attitude would presumably be the willingness to practice in rural areas. Another objective set by the DOH was the development of institutional capacity, in other words the retention of health professionals with experience in rural health and improving service delivery (Department of Health 1997, p33).

## **1.1 The problem and the setting.**

### **1.1.1 Focus on the dietitian**

With the advent of community service, a number of new dietetic posts were created specifically for the purpose of community service in underserved areas where there had been no prior service. The majority of new CSDs were therefore placed in new positions where no directives for dietetic services existed previously. They had to report directly to the manager of the health

facility in which they were placed, rather than report to another qualified dietitian. Community service posts were fixed term appointments for a period of one year. At the end of this time, the CSDs had to apply for transfer to other dietetic posts or resign from their positions (Campbell 2002). Continuity of service was questionable with each new group of community service dietitians having to start again without the advantage of a handover period or continuity of service. This was compounded by an intermittent service where a periodic shortage of CSDs (due to fluctuations in the number of graduates produced by the training institutions), resulted in some posts not being filled every year. Where posts were not filled each year, this resulted in a loss of previously established structures and networks, undermining the DOH objective of the development of institutional capacity (Department of Health 1997, p33). However, should these problems of service delivery in rural areas be addressed the improved environment would then serve to enhance the professional development of the CSDs.

#### 1.1.2 Rationale and motivation for the research

Within South Africa (and worldwide) community service for dietitians is an innovative and novel system. Community service therefore provides an ideal opportunity for evaluation and research because it has not previously been investigated. This research aimed to determine the attitudes, knowledge, job satisfaction and professional development of CSDs (2003-2005) because poor attitudes, ignorance, low job satisfaction, a lack of professional development and poor service delivery would detract from the objectives of the DOH. The findings of this research could be used by the DOH for their appraisal of community service for dietitians and the implementation of possible corrective action to enhance effective dietetic practice during community service and thereafter. Furthermore, the results could be used to ensure that universities are training dietitians appropriately for community service. Additionally by ascertaining where dietitians were placed (rural or urban), their changes in attitude and their levels of knowledge, the service delivery objectives of the DOH could be assessed.

The merit of using mentors as a substitution for direct supervision of CSDs by dietitians was also evaluated. An investigation into personal concerns and perceived level of the organisation of community service by the placement facility could give the DOH guidance in how they should proceed with the programme of compulsory community service for dietitians.

## **1.2 Statement of the research problem:**

To what extent did community service change the attitudes of CSDs, improve their knowledge, impact on job satisfaction, and enhance professional development and what was the relationship between the various listed factors and the CSDs' perception of service delivery, their acquisition of new skills, loss of knowledge, and the availability of resources and support networks.

## **1.3 Subproblems**

### **1.3.1 Determination of the attitude of community service dietitians towards community service at entry and exit and related factors**

Determine the attitude of the CSDs towards community service at entry<sup>3</sup> and at exit<sup>4</sup> and whether this was related to the demographics (individual factors) and institutional/situational factors such as organisation of community service in the facility, mentorship<sup>5</sup> rating, support by health facility manager of CSDs, the type of facility (hospital or community health centre/district office), eligibility for rural allowances, working conditions, living conditions, personal safety and access to resources.

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<sup>3</sup> Entry meaning at the start of the year

<sup>4</sup> Exit meaning towards the end of the year

<sup>5</sup> Mentors are qualified dietitians employed in various hospitals in the KZN province, who were assigned by the Nutrition directorate of KZN to give support and assistance to CSDs. The majority of the mentors were placed at the larger district and regional hospitals and could be a considerable distance from the CSDs. The CSDs were encouraged to phone their mentors should they require advice and assistance.

### 1.3.2 Gauging the community nutrition knowledge at entry and exit and related factors

Gauge the entry and exit levels of community nutrition knowledge using a multiple choice questionnaire to measure change over the year; and how entry and exit on the levels of community nutrition knowledge were related to individual and institutional factors and the attitude of CSDs.

### 1.3.3 Assessment of job satisfaction levels at entry and exit and related factors

Assess entry and exit levels of job satisfaction to measure the change over the year; compare this to the job satisfaction levels of South African registered dietitians and determine whether job satisfaction was related to individual factors, institutional/situational factors, attitude to community service, community nutrition knowledge, self-rated professional development (single statement rating - see definition) at exit, and levels of professional practitioner ranking (multiple statement rating - see definition) at entry and exit.

### 1.3.4 Determination of professional development<sup>6</sup> and related factors

Determine the self-rated professional development (single statement rating - see definition) at exit and the professional practitioner ranking (multiple statement rating - see definition) of CSDs at entry and exit of the community service year and whether these were related to individual and institutional/situational factors, attitude towards community service and community nutrition knowledge.

### 1.3.5 Determination of level of dietetic service to the community and related factors

Determine the perceived level of dietetic service to the community by the CSDs<sup>7</sup> and how

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<sup>6</sup> Professional development is the self-rated progress of the CSD within the profession of dietetics during the community service year.

service delivery was related to individual factors, institutional/situational factors, attitude towards community service, community nutrition knowledge, job satisfaction, professional development (single statement rating) and professional practitioner ranking (multiple statement rating).

#### 1.3.6 Evaluation of the outcome of community service on community service dietitians in terms of acquisition of new skills and other qualitative information

Evaluate the outcome of community service on CSDs such as new skills acquired through the year, areas of new and lost knowledge, access to training, support and constraints to achieving objectives as well as helpful or obstructionist networks (qualitative information measured through focus groups as additional information to the previous subproblems) as well as the long-term outcome of professional development through post hoc interviews (Epilogue).

### 1.4 Statistical analysis

This research project was an analytical and qualitative study of CSDs which used paired and independent *t*-tests, cross tabulations, chi square tests, ANOVA, correlations and general linear models (repeated measures) to establish relationships between changes in attitude, levels of knowledge, job satisfaction, professional development (single statement rating) and professional practitioner ranking (multiple statement rating), as well as a number of demographic and situational variables. Attitude, level of community nutrition knowledge, job satisfaction, professional development (single statement rating) and professional practitioner ranking (multiple statement rating), were the dependent variables of subproblems listed in 1.3.1 – 1.3.5.

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<sup>7</sup> It had been the intention to use the CSDs' quarterly reports to obtain an independent evaluation of the level of dietetic service. These reports were however a self-evaluation and not used because they would not be an independent measure of the level of service rendered.

Focus groups were used to determine new skills acquired through the year, areas of new and lost knowledge, and access to training, support and constraints to achieving objectives as well as helpful or obstructionist networks. Analysis of qualitative data was conducted using the computer programme, "QSR NVivo". Results from the focus group discussions were also used to reinforce the quantitative findings.

## 1.5 Parameters of the research

All community service dietitians in KZN (2003-2005) were furnished with an entry community service and exit community service questionnaire either directly, telephonically by fax or via the post. The sample size was relatively small (n=46) and all were inexperienced newly qualified dietitians. Generalisation of the results would therefore be limited. Community members, medical personnel and other health professionals were not included in the study. The focus was on the Province of KZN.

## 1.6 Definition of terms

### 1.6.1 People

**Community service dietitians (CSDs):** Dietitians completing the compulsory community service as defined under community service.

**Mentor:** An experienced and trusted advisor (pocket Oxford dictionary), in this case experienced dietitians employed by the KZN DOH to act as a consultant to provide support, information and advice. This person would not act as a supervisor.

**Supervisor:** A person who directly oversees the work of subordinates

### 1.6.2 Structures

**Community service:** The statutory, compulsory service required before a number of various health professionals may register as full professionals with the Health Professions Council of South Africa (HPCSA). This includes doctors, dentists, pharmacists, radiographers, physiotherapists, speech and hearing therapists, occupational therapists, dietitians and nutritionists and clinical psychologists (Anon 2002).

**Department of Health:** The South African Department of Health, which is a Department of the National Government situated in Pretoria.

**Provincial Department of Health:** Each of the nine provinces of South Africa has a Department of Health to whom local powers and finance have been devolved. The Provincial Department of Health is a subsection of the National Department of Health overseeing health facilities in KZN in this research. The province of KZN is divided into eight regions and eleven districts (Figure 1.1).

**Health Facility:** A hospital or cluster of health clinics providing health services to group of people in a designated area. PHC clinics, community health centres (CHC) and district<sup>8</sup> offices were considered non-hospital placements. See Figure 1.2 for model of various levels of health care within the province.

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<sup>8</sup> KZN is comprised of eleven district health authorities which are meant to be accountable to local government (Budlender 2000, 109). Provision has been made for dietitians to be appointed in district offices to oversee nutrition programmes within their district (Campbell 2002).



Figure 1.1: Map of KwaZulu-Natal depicting the demarcated districts (Department of Health - KZN Undated)

### 1.6.3 Variables

**Attitude towards community service:** A single question rating by the CSD of their attitude (ie positive or negative) in terms of personal disposition towards community service, taken at entry and exit.

**Community nutrition knowledge:** A score derived from a multiple choice questionnaire testing the level of knowledge on a variety of topics within the scope of community nutrition. Topics included are breastfeeding promotion, ante-natal practice, growth monitoring and promotion and general nutrition.

**Hospital location:** Location of a hospital or health care facility whether it is placed in a rural area or in an urban area. For the purposes of this study, CSDs who were more than 100km from Durban or Pietermaritzburg were classified as being placed in a rural area although strictly speaking some were placed in fairly large towns such as Dundee or Estcourt which could arguably be classified as urban. Hospital location was deduced from the CSD address lists.

**Institutional/situational factors:** Included the organisation of community service, hospital manager support rating, and type of facility (see health facility), eligibility for a rural allowance, distance from home, locality of placements, working conditions, living conditions and the attitude towards community service and knowledge of the dietetics profession by other health professionals.

**Job satisfaction:** Was measured using the 4 item, 5-point Likert type scale Kaldenberg & Becker Job Satisfaction scale (Kaldenberg & Becker 1991) and was quoted as being “.... a pleasurable or positive emotional state resulting from the appraisal of one’s job of job experience” (Hochwarter *et al* 1999, p299).

**Living conditions:** A six-item, yes/no scale regarding various aspects of living including questions on adequate housing, basic utilities and transport.

**Mentorship rating:** Rating by the CSD of the support provided by their mentors.

**Organisation of community service:** Rating by the CSD whether they felt that community service was well organised at their facility and included aspects such as the provision of budgets, transport, office accommodation and housing.

**Personal safety:** Rating by the CSD regarding their perception of their own safety in the work and living environment.

**Professional development (single statement rating):** A self-rated measure of progress of the CSD during the year assessing their development in the profession using a single statement rated by the CSDs on a 4-point scale (Excellent, good, poor, very poor). The statement is “Rate your professional development”.

**Professional practitioner ranking (multiple statement rating):** A self-rated measure using a 4-item, 4-point scale measuring current levels of capacity to practice the profession of dietetics. Statements that required responses included; adequate level of knowledge to perform the community nutrition tasks and access to advice and information sources when needed. See Table 1.1.

Table 1.1: Four-item professional practitioner ranking scale (multiple statement rating):

My level of knowledge is adequate to perform the community nutrition tasks required of me
My community service work thus far has led to an increase in my community nutrition knowledge
My community service work thus far has led to the development of new skills
I have access to advice/information sources when needed

**Quality service delivery:** A comprehensive, competent and caring provision of needs required by the end user. In the context of this research it would be health promotion and monitoring, implementation of relevant section of the Integrated Nutrition Programme, nutrition education, dietetic services and the quality of food service in rural health facilities.

**Support:** Refers to the support given to CSDs by management and staff.

**Resource access:** Refers to access to resources such as basic office equipment, budgets and supplies of feeds and supplements so that CSDs could perform their duties.

**Rural allowance:** An allowance payable to health care professionals working in previously under-served areas and not necessarily only in rural health care facilities

**Working conditions:** A six-item, 4-point Likert scale evaluating work conditions by assessing various aspects of the working environment including questions on support of staff, orientation and accountability (Table 1.2).

Table 1.2: Six-item working conditions questionnaire

I receive adequate support from the hospital management and other hospital staff
I was adequately orientated with regards to my work place.
I was adequately orientated with regards to my community service work within my province.
I have clearly defined work goals /roles.
I am accountable and take responsibility for the work that I do.
My salary is adequate.

## 1.7 Assumptions

It was assumed that the following were valid and that:

- Scales were measuring the stated items. The scales for measuring working conditions, living conditions, community nutrition knowledge, job satisfaction and professional practitioner ranking (multiple statement rating) were accurate.

- Respondents were truthful when rating themselves on the self-rated scales.
- International studies were relevant to the South African situation.

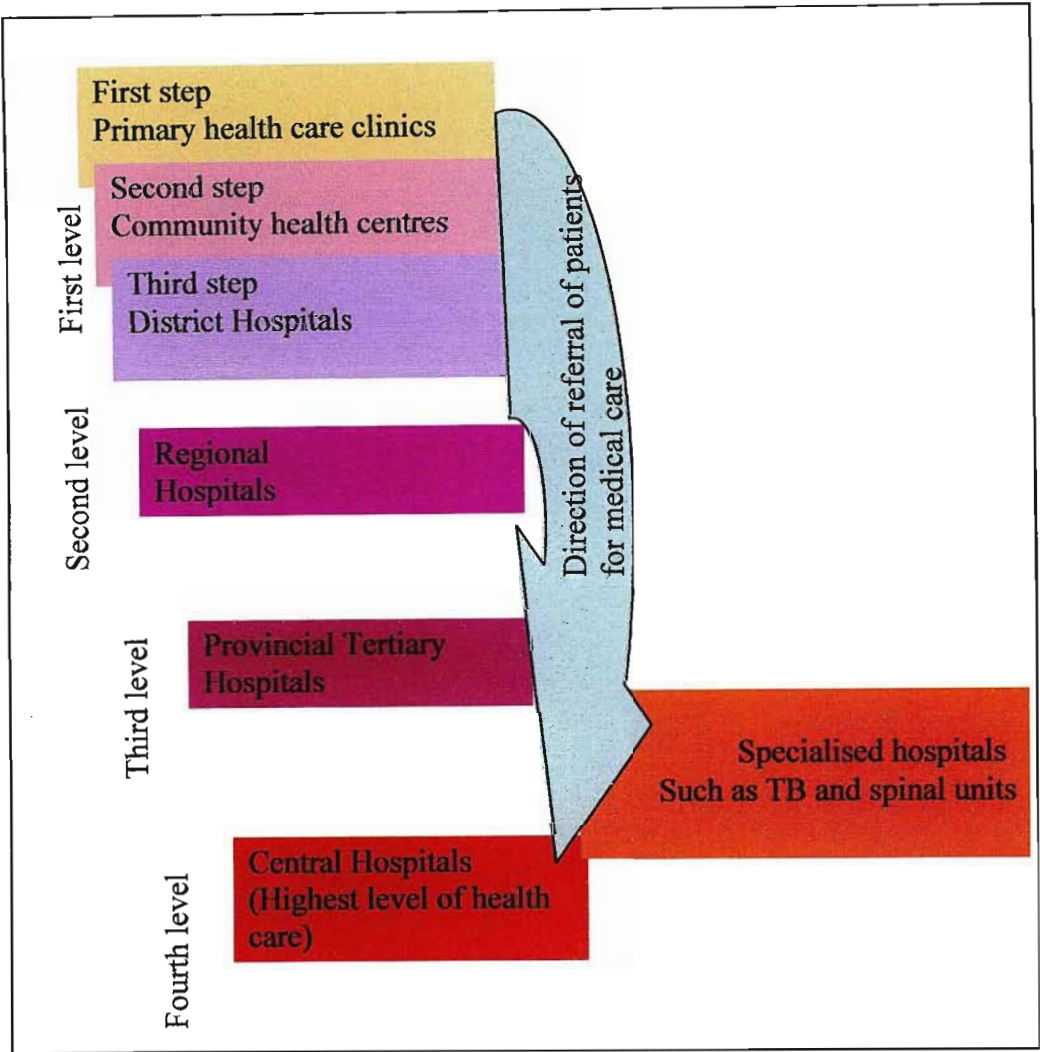


Figure 1.2: Model of levels of health care in KwaZulu-Natal (After Hendricks 2004)

### 1.8 Summary

Poor health service delivery especially in rural areas although an international phenomenon was exacerbated by the apartheid policies of the previous government. The dearth of health professionals in rural and under-served areas led to the decision by the DOH to introduce compulsory community service for a number of health professionals including dietitians. The

appointment of newly qualified dietitians as CSDs has afforded a unique opportunity to evaluate the dietitian within community service environment.

The focus of this thesis was to establish the attitudes, community nutrition knowledge, job satisfaction, the professional development (single statement) and the professional practitioner ranking (multiple statement) of community service dietitians, perceived levels of dietetic service and the outcome effects of community service on CSDs, because negative attitudes, poor knowledge, low levels of job satisfaction, poor professional development, poor service provision and other negative effects of community service would be detrimental to the process and purpose of community service and therefore ultimately to the provision of nutrition services within health services.

A number of variables were measured in a survey conducted over a three year period and included individual and institutional factors. A number of statistical analyses were conducted to establish the significance of and correlations between the variables. Focus groups discussions were held to ascertain the outcome effects of community service in terms of new skills acquired, areas of new and lost knowledge, access to training, support and constraints to achieve objectives for community service and identify the supportive and obstructionist networks as well as to reinforce the quantitative findings.

The value of the findings of this research is that the DOH and the training universities would be appraised of the situation and possible corrective action could be implemented by the training universities and DOH resulting in effective dietetic practice during community service.

## **1.9 Construct of the dissertation**

The dissertation is constructed in the following manner. The research topic is introduced in Chapter 1 and includes the problem and the setting and the statement of the research problem. The subproblems are detailed and followed by the proposed statistical analyses, parameters of

the research, definition of terms and the assumptions. Chapter 2 is a review of the literature and covers the problems of rural health internationally and nationally. The specific problems in health in South Africa as a direct result of the Apartheid policies of the previous South African government are described. Particular circumstances facing the health professional working in rural and under-served areas are detailed and the innovative health policies and in particular the introduction of compulsory community service for health professionals by the ANC government are explained. Details of the role of the dietetic profession in the integrated nutrition programme are also presented, as well as the role of the dietitian in the public service. Community service for dietitians is revealed and the role of mentorship in the current system of community services explained. Job satisfaction, knowledge, attitude and professional development are also discussed. A theoretical framework for community service is also presented. The methodology, Chapter 3, details how the project was conducted and includes the population selection, survey design, the materials and approaches. Details regarding the treatment and analysis of variables in relation to the subproblems are explained.

Chapter 4 includes the sample characteristics, descriptive statistics and the statistical analyses. The treatment of the data and how the cohorts were derived are discussed and the demographic profiles of the cohorts are presented. The results and analysis of the scales measuring working conditions, living conditions, community nutrition knowledge, job satisfaction levels and professional practitioner rankings are also incorporated in this chapter.

Details of the attitudes of CSDs and related factors, their levels of community nutrition knowledge, job satisfaction and professional development are included in this chapter.

The focus group discussion results are illustrated in Chapter 5 with the inclusion of detailed comments of the 2005 CSD cohort. Also included in this section are the aims of the focus group discussion.

The discussions of all results are included in chapter 6. A critique of the methodology is presented. Other results discussed include the attitude of CSDs, job satisfaction, professional development and the findings of the focus group discussions.

In Chapter 7 the conclusions drawn from the research are presented and include the attitude of the CSDs, their community nutrition knowledge, job satisfaction and professional development, perceived level of dietetic service delivery and the outcome of community service delivery. A theoretical model for community service is proposed and the effectiveness of the policy for community service debated.

Chapter 8 is an epilogue where post hoc findings with regard to professional development of CSDs and progress made to improve the quality of supervision of the CSDs working in rural areas are covered.

## CHAPTER 2: REVIEW OF LITERATURE

### 2.1 Introduction

The Department of Health recently initiated compulsory community service of a year's duration for a number of health professions<sup>1</sup> as a strategy both to overcome service delivery problems in rural and under-served areas and to attract and retain professionals in these areas (Department of Health 2002). After extended literature searches by this researcher, it appears that South Africa is the first country to introduce compulsory community service for such a wide selection of health professions and in particular, dietetics.

To understand the context of rural placement of dietitians it is necessary to give a historical perspective on health care delivery in South Africa within the framework of rural health problems and rural health policy. The problems that occur in rural areas and other under-served communities will be presented in the context of global problems pertaining to rural health and health care delivery to the poor in both the developing and developed world. The first section of this review deals with the provision of health services to rural and under-served communities and the associated problems of health care delivery within the global context. Thereafter the strategies employed by other countries to overcome these problems and their degree of success will be examined.

Extraordinary circumstances occurred around the provision of health for rural and under-served communities as a consequence of the policies of the previous South African government. The effect of these earlier policies on health and especially on rural health are presented with a section on the current health policy and the provision of health services in South Africa.

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<sup>1</sup> Doctors, dentists and pharmacists (1999) and clinical psychologists, dietitians, environmental health officers, occupational therapists, physiotherapists, speech & hearing therapists and radiographers (2003).

The review will also draw attention to the status of the profession of dietetics in South Africa, the role of the dietitian in South Africa and the problems the dietetic profession encounters. Accounts of job satisfaction, including the positive and negative influencing factors especially with regard to dietitians are presented. The Dreyfus model of professional development (2004) in terms of knowledge and skills that dietitians should acquire during their community service placement is discussed.

## **2.2 Global perspective of rural health – the problems associated with rural health and the strategies used to address the problem**

### **2.2.1 Rural health: A worldwide problem**

The provision of adequate health care in rural and under-served areas is a recognised problem in both the developed and developing countries of the world (Cavender & Albán 1998; Chunharas 1997; Couper 2000; Gray 1997; Jones SJ 1996; Moores *et al* 1998; Nigenda 1997; Rabinowitz *et al* 1999; van Etten 1976). In many countries such as Australia, Canada, Ecuador, Mexico, Thailand and the United States of America where adequate numbers of doctors are trained to meet their countries' needs, the anomaly arises where there is not enough work for doctors in urban areas but the rural areas are still underserved (Cavender & Albán 1998; Chunharas 1997; Couper 2000, p ix; Gray 1997; Langwell *et al* 1986; Moores *et al* 1998; Nigenda 1997). Rural areas in these countries are perceived to be or are in reality underdeveloped and under-funded. This is in terms of general development but also specifically with regard to health care delivery. Where sustained development has been linked to human development with improved public services, such as in countries like Japan and Malaysia, especially when health and community development has not been fragmented there has been a marked improvement in the provision of health (Mason *et al* 1999). Health services in some countries are fragmented and health workers feel isolated and encounter cultural and language barriers. There are also problems with accommodation, transport and communication (Cavender & Albán 1998). Cuba who lost most

of their health professionals after the revolution in 1959, is the exception and goes against the trend of problematic health service delivery in rural areas. It has successful programmes of providing health care for all their citizens, rural and urban (Swanson 1988). Information regarding programmes in developing and developed countries that are reported in the literature can be found in Tables 2.1 and 2.2.

Table 2.1: Summary of rural health care intervention and outcomes in developing countries

Country and researcher	Strategy	Problems and Success rates
China (Benyoussef & Christian 1977)	Use of "barefoot" doctors with 3 months of formal training. Cooperative medical care system. Active campaign to eradicate rats, flies, mosquitoes, bed bugs and schistosomiasis.	Patients are required to pay a small fee. Comprehensive health coverage has been achieved
Cuba (Swanson 1988)	Doctors and nurses publicly employed (no private health care). Nurses extensively trained and employed in primary health care. Two systems: 1. After the revolution in 1959 community nurses worked in sectors of 3000 people. This also included a primary horizontal team of 3 nurse pairs per sector (nurse paired with a paediatrician, internist or gynaecologist). In addition to lay health activists and a sanitarian <sup>2</sup> also included access to social workers, psychologists dentists 2. In 1985, nurse paired with doctor and lived in sector which served 120 families	Aimed at keeping the population healthy by health promotion and disease prevention. Strategy successful as entire population has access to health and medical care.  1. Focus was on selected aspects, child care, and nutrition in high risk categories of infants, adolescence & the elderly.  2. Focus on health of all. Although provision of after-hours emergencies was available it was limited because neighbourhood is kept healthy.

<sup>2</sup> It is assumed that a sanitarian is an environmental health worker

Country and researcher	Strategy	Problems and Success rates
Ecuador (Cavender & Albán 1998)	One year compulsory community service for doctors, dentists & nurses. Produces enough doctors but all want to be in urban areas. This author suggests an alternative to compulsory community service – a rural health corps of trained rural practitioners with compulsory rotations of medical students.	Reports of absenteeism either due to lack of commitment, transport or housing. Some of the pre-rural preparation for rural service poorly done; therefore many not prepared for the service. Lack of telephones and therefore communication problems, isolation, poorly equipped health facilities. About 38% experienced language & cultural problems. Many community service workers made aware of health problems in remote areas. Many viewed this as a continuation of their medical training.
Korea (Peabody <i>et al</i> 1995)	14 % of the population in rural areas have health services provided by non-physicians. Additional financial incentives to work in rural areas and tax incentives to those who provide private care.	Not entirely as successful as desired – wanted to increase the financial incentives to rural health workers.
Mexico (Nigenda 1997)	Variety of programmes. Introduction of rural placements during training but 20 to 26% have avoided these placements. Paradox of unemployed doctors in cities and limited numbers in rural areas. Limited positions for rural placement.	Conclusion is that none of the training programmes has produced the kind of doctors needed to work in rural areas.
Nigeria (Ezenwa 1986; Ojo 1990) (Fadayomi & Oyenene 1984)	Suggested decentralisation of health services but not implemented Focused on the problem of lack of PHC in preference for curative care.	There are increased numbers of doctor and other health therapists but rural areas are under-served.
Thailand (Chunharas 1997)	1. Doctors do not pay for medical training but must deliver compulsory three year service in rural area after graduation 2. Upgraded health facilities in rural areas 3. Free medical services to poor	1. Some initially opt to pay fines by finding lucrative employment in the USA. This option no longer available as work is now difficult to obtain in the USA. 2. This strategy is attracting doctors to rural areas. 3. Allows for better services in

Country and researcher	Strategy	Problems and Success rates
	and fees from better off users used to improve rural facilities.	rural areas.
Zambia (Maseka 2001, pp12-13)	Minimum period of a year of community service to repay loan.	Many remained in the rural area where they were posted.

Table 2.2 Summary of rural health care interventions and outcomes in developed countries

	Strategy	Problems and Success rates
Australia (Couper 2000)	<ol style="list-style-type: none"> <li>1. Rural incentives of lump sum payments.</li> <li>2. Locum support programme for continuing professional development.</li> <li>3. Recognised the importance of the needs of spouse and children eg jobs for spouse and schooling for children.</li> <li>4. Medical schools increased intake of students from rural areas.</li> <li>5. Placed in rural areas during training.</li> </ol>	Has improved but rural areas still under-served.
Canada Alberta (Moore <i>et al</i> 1998)  Newfoundland (Gray 1997)	<p>Included rural practice in under- and post graduate practice and courses for special skills in rural health.</p> <p>“Northern Family Medicine education Programme” for qualified doctors.</p>	<p>Since 1991 doctors undertaking the special training increased from 3 to 17 over a number of years. A total of 49 overall have graduated of whom 26 took up rural placement.</p> <p>Of those choosing the rural practice rotation, 90% have opted to stay in the rural practice</p>
USA (Rabinowitz <i>et al</i> 1999)	Specific programme at one medical school to address the shortage of rural doctors.	Of graduates from this programme, 21% have taken up positions in rural areas although these graduates only make up 1% of all the graduates of the medical schools nationally.

Problems in rural health appear to be an international phenomenon, irrespective of the level of development in these countries. In the next section, strategies that are implemented to address the problems with rural health internationally will be presented.

### 2.2.2 Global perspective of strategies employed in other countries to overcome the lack of health services in under-served and rural communities

A number of strategies have been used to overcome the lack of health services in rural areas (Tables 2.1 and 2.2). Maseka (2001, pp12-13) in his dissertation refers to his rural posting in Zambia which was for a minimum period of a year in order to repay loans. He reported that after this compulsory period, many doctors chose to remain in the rural area where they were originally posted. In Alberta, Canada the problem of underserved rural areas was addressed by including under- and postgraduate rural placements and special skills<sup>3</sup> training for rural practice (Moore *et al* 1998). Australia followed a similar route to Canada (Couper 2000) but also makes it compulsory for registrars to work in rural areas before being allowed to study to become specialists. Australia also has a rural health career path and a speciality in rural health (Couper 2000).

Cuba, classified as a developing country, is held up as an example to the rest of the world and is more successful than the United States of America in providing health services to their rural population (Swanson 1988). Cuba effectively implemented primary health care which is accessible to all their citizens and employed a system of recruiting medical and nursing students from rural areas. All medical staff are employed by the state and private medicine is not practiced in Cuba. It can be argued that the system employed in Cuba does not allow for freedom of choice but the results are telling.

In Thailand, doctors do not pay for their training but are fined if they do not complete the required working period of three years in a rural area (Chunharas 1997). Initially many Thai doctors opted to pay their fines so that they could work in the USA and but this practice is now

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<sup>3</sup> Special skills required for doctors working in rural areas are identified as emergency and orthopaedic surgery, anaesthetics and caesarean sections (Moore *et al* 1998; Reid 1999).

less common. The reason for this is because job opportunities in the USA are limited and therefore many Thai doctors now undertake their rural duties in Thailand. A similar programme to that in use by Thailand could be introduced in to South Africa which could help to reduce the loss of qualified staff to foreign countries<sup>4</sup> (Wynchank & Granier 1991) and help improve the demographic profile of the health professionals in South Africa<sup>5</sup> (Seedat 1984, p84).

Ecuador has a one year compulsory community service programme which included dentists and nurses (Cavender & Albán 1998). In their evaluation of the compulsory community service in Ecuador, Cavender & Albán (1998) felt that a rural health corps of trained rural practitioners would better serve the purpose of getting health care to rural areas rather than the current practice of compulsory community service. They argue that the rural health corps practitioners will be appropriately trained to deliver a service in rural areas. They would be more likely to become integrated into the communities they serve and this system would reduce the rotational nature of the one-year compulsory placements. This proposed system could also be adopted in South Africa because the problems with rotations through the community placements have already been noticed in South Africa (Department of Health - KZN 2003). Problems mentioned are the lack of continuity between annual placements and therefore logically, a loss of experienced personnel.

Lessons that can be learned from global approaches include the improvement of facilities in rural areas to attract and retain health workers. Compulsory community service, although an option is not always successful in addressing shortages in rural areas. There is also an emphasis on

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<sup>4</sup> Fifty-four percent of medical students from the University of Cape Town indicated that they planned to emigrate after graduation.

<sup>5</sup> In the mid seventies 93% of doctors were white which did not reflect the demographic distribution of the population in South Africa. In 2005, Africans made up 79% of the population and whites made up 9.4% (Statistics South Africa 2005)

appropriate training for working in rural areas. Prevention of disease and health promotion are successful strategies and it is important to match the health professional with the population to avoid cultural problems (Cavender & Albán 1998).

Strategies for addressing the problems in providing health care in rural areas with the varying degrees of success internationally are presented. In general the following approaches can be implemented to improve health care delivery in under-served areas: improvement of health care facilities from primary to tertiary care, the introduction of compulsory community service to address the problems of lack of personnel in under-served areas, placing the emphasis on the promotion of health and prevention of disease, including rural practice in the training of health professionals and taking culture into account when recruiting students for training in the health service professions. In the next section a brief historical overview of health developments in South Africa and the need for reform in the rural health system is presented.

## **2.3 Historical perspective – A special case for South Africa**

### **2.3.1 Background - Rural health and associated problems in apartheid South Africa**

In South Africa, as early as 1942, the necessity of focussing on primary health care (PHC)<sup>6</sup> was identified (Savage & Benatar 1990, p163). This task was undertaken by the Karks. Sidney assisted by his wife Emily, set up the first “Health Centre” in Pholela near Bulwer in 1942 and within a decade established 44 health centres (Susser 1999). It was Sidney Kark who developed the model for community oriented primary care and together with John Cassel were considered to be the most influential leaders in social medicine in the 20<sup>th</sup> century (Brown 2002). The elements of community oriented primary care, are as quoted:

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<sup>6</sup> Primary health care as defined by the World Health Organisation is “essential health care based on practical scientific and socially acceptable methods and technology....universally accessible and affordable... It should be as close as possible to where people live and work” (Filmer *et al* 2002).

“(It) is a community, family and personal practice;.... (it) requires multidisciplinary and team practice; ....and (requires) innovations of community oriented primary care entail(ing) monitoring, evaluation and research” (Susser 1999, pp436-437). Kark & Cassel (1952) also realised the importance of nutrition in the management of disease and pioneered the concept of demonstration vegetable gardens, daily markets for selling excess vegetables, cooking demonstrations, seed buying cooperatives and vegetable garden competitions as ways of increasing the consumption of vegetables. The nutrition of mothers and infants was also identified as being an important intervention and where necessary supplements such as skimmed milk powder, vitamin enriched oil, iodised salt and vegetables were prescribed (Kark & Cassel 1952).

The system of community oriented primary care was abandoned by the Nationalist government who cut the health budget drastically (Brown 2002; Seedat 1984, p63). Thereafter the apartheid policies of Nationalist government sought to create segregated health care through legislation which resulted in an inefficient, unjust and fragmented health service (ANC 1994, p7).

### *Forced removals*

In her book, “Forced Removal”, Unterhalter (1987, p3) estimated that in the period between 1960 and 1983, three and a half million Africans were forcibly moved from their own land or homesteads situated on farms of white South Africans to resettlement camps which were without basic amenities. These displaced persons were systematically stripped of their land or access to land. Their access to food, water, sanitation, health and education was either radically reduced or gradually eroded. These forced removals when compounded with the decreased government spending on health and active discrimination in terms of providing basic health care, placed these communities at extreme risk for increased morbidity and mortality especially amongst the

children. In the resettlement camps, many families could barely afford food, clothes or transport (Unterhalter 1987, pp98-99), thus exacerbating the effect of the rural health problems in South Africa.

### *Influx control*

The Nationalist Government also practiced influx control up until 1985, in an effort to keep Africans from settling in the predominantly white urban areas and thereby restricting Africans to the underserved rural areas (Unterhalter 1987, pp27-28). In spite of these laws, a number of Africans moved into the urban areas but the greater population still resided in the underserved rural areas. Those Africans in urban areas were restricted to living mainly in townships which were also under-served.

### *Underprovision of basic health services*

Seedat (1984, p63), highlighted the lack of correlation between curative and preventative services in the structure of the health services in South Africa, the focus was on curative rather than on preventative medicine. This resulted in the under provision of basic health services to Africans and the over provision of mainly curative services to white South Africans. All hospitals serving African communities were severely overcrowded while many hospitals serving the mainly white South African section of the population were under-utilised (Seedat 1984, p66).

### *Plight of the mission hospital*

Many mission hospitals that previously provided health and hospital care to people living in rural areas were somewhat unilaterally taken over by the Nationalist Government and placed under the jurisdiction of local authorities where funding for health was considerably reduced. This resulted

in deteriorating health care for African people both rural and urban (Seedat 1984, p66).

### *Doctor patient ratios*

In 1981 the doctor:patient ratios of the various population groups were 1:330 for white South Africans, 1:730 for Indians, 1:12 000 for coloureds and 1:91 000 for Africans compared to 1:10 480 in all of Botswana (Seedat 1984, p84). This showed a gross distortion favouring white South African patients whilst there is a distinct lack of services to African patients. Of the doctors serving the population, 93 percent were white South Africans which also confirmed that there is a bias against the majority of the population<sup>7</sup> in the access to training as well (Seedat 1984, p84). Once again the Africans are discriminated against, which further exacerbated the health and other problems of rural and under-served communities.

### *Demographic profile of dietitians*

In a study of South African dietitians, 81.4 percent of dietitians in the sample of 145 were white South Africans which also differs significantly from the demographic profile of South Africans in general (Paterson 2000, p64). The latest figures for the population group distribution of registered dietitian presented by the HPCSA (Professional Board for Dietetics 2005), list some 51.5 percent as white South Africans. This figure is however misleading because one of the listed population groups (34.8%) of registered dietitians is “unknown”. It can probably be safely assumed that the majority of this “unknown” group of dietitians is white which will then resemble the findings of Paterson (2000). This reflected a similar trend to that of the medical

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<sup>7</sup> Seedat (1984, p8) gave the following 1980 distribution of the population: 72.7% African, 9% coloured, 2.8% Indian and 15.5% white. These figures were a combination of the 1980 census and estimates of the “independent” Bantustans. The distribution at the last estimated census was 79.3% African, 8.7 % coloured and 9.4% white (Statistics South Africa 2005).

profession regarding access to training by the majority of the population and appeared to be a problem inherited from the era prior to 1994.

From a historical perspective the past apartheid policies discriminated against the African patient and the African patient in the rural areas was at a distinct disadvantage. In the next section the health problems in South Africa since 1994, are addressed.

### 2.3.2 Rural health problems in South Africa since 1994

#### *Health status of individuals in rural areas*

Internationally, people living in rural areas have higher mortality and morbidity rates than those living in urban areas (Cavender & Albán 1998). Rural South Africa is no different and is considered to be under-served in terms of access to health (Ntsaluba & Pillay 1998) and other services (water, sanitation and electricity) and also has higher mortality and morbidity rates than urban areas (Giddy & Reid 2003). The government has identified 13 nodal areas (Figure 2.1) in rural areas where poverty eradication and service delivery is addressed (Statistics South Africa 2002), thereby acknowledging the problem of the distortion of resources between and poorer rural and the more affluent urban areas.

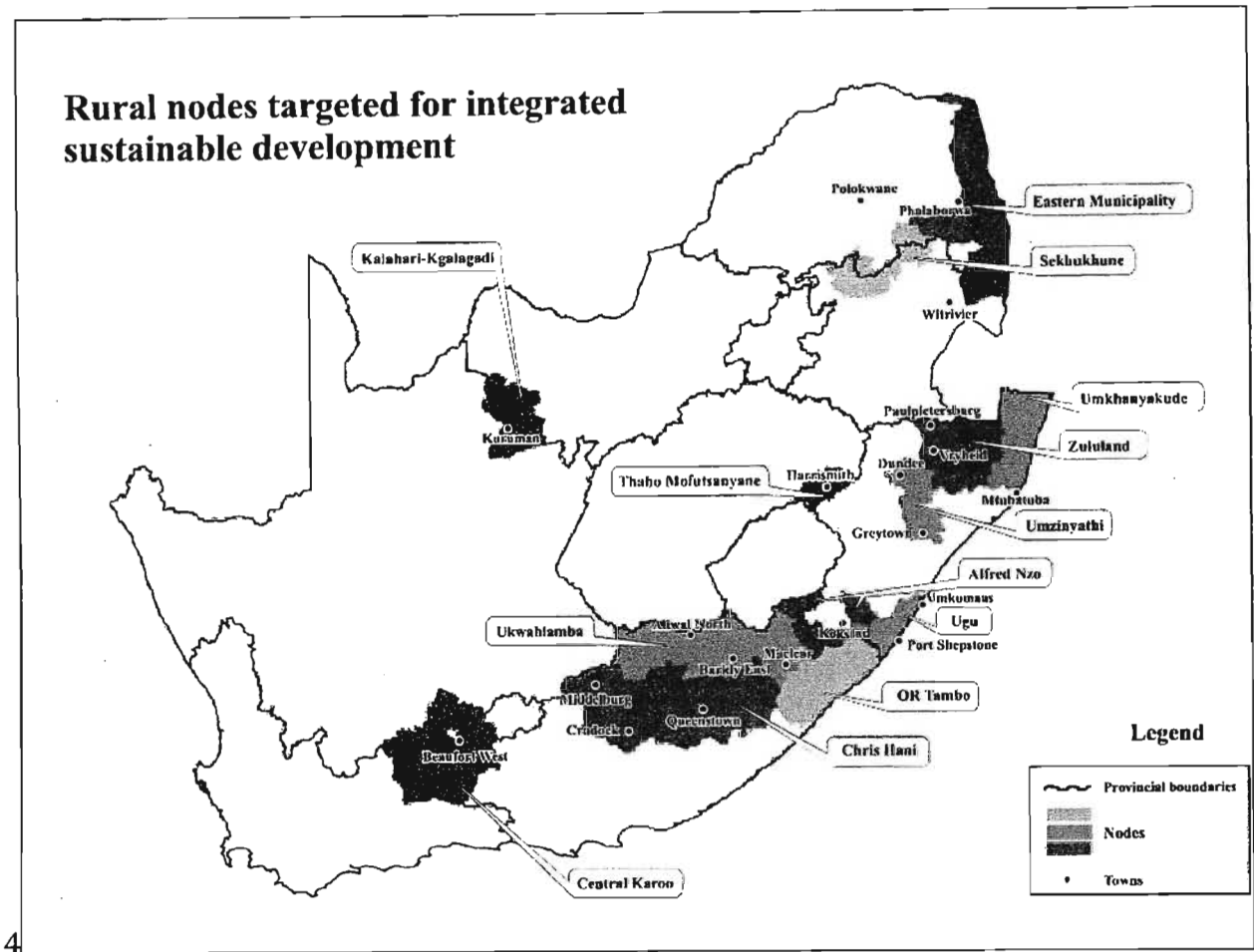


Figure 2.1: Rural nodes targeted by the government for sustainable development (Statistics South Africa 2002)

Access to emergency care and ambulance services in rural and peri-urban areas is not always available which leads to unnecessary deaths and disabilities of individuals living in rural and underserved areas (ANC 1994, p33; Department of Health 1997, p122). As discussed in the previous section, the chronic lack of services in rural and underserved urban areas was actively disregarded and under-funded by the previous Nationalist Government resulting in under-development and scant resources. Considering the overall wealth in South Africa, the general infant mortality rates (rural and urban combined) were unacceptably high amongst Africans<sup>8</sup>.

<sup>8</sup> The ANC (1994, p29) estimated that in 1991 the infant mortality rates (IMR) of Africans was between 94 and 124 per 1000 live births, while the IMR was 56 for the whole population. This was reduced to the whole-population figure of 45 in 1998 but increased again to 59 (30% due to AIDS) in 2000 (Bradshaw *et al* 2003, pp ii-v).

The rate of immunisation was lower in rural areas (60%) compared to urban areas (67%) (Department of Health 2000, p7). In addition to this, HIV, TB, parasitic infections, and nutritional deficiencies add to the health problems in South Africa and are especially problematic in rural areas (Giddy & Reid 2003). The distribution of health professionals between urban and rural areas also shows a gross distortion. While urban areas have 7,3 doctors per 10 000 (ratio 1:1 370) of the population the figure for rural areas in 1997 was 0,5 (ratio 1:20 000) (Sankar *et al* 1997).

### *Problems experienced by health professionals working in rural areas*

Health professionals who practise in rural areas have their own specific problems. Internationally, it has been found that rural areas have poorer medical facilities and problems with communication (Cavender & Albán 1998). This was very similar to those views expressed by doctors working in rural areas in South Africa (Jaques 1994), community service doctors (Petzer 2003; Reid 2001) as well as permanently employed doctors resigning from employment in a rural area (Gyi 2001, pp105-106). Gyi's (2001, p105) report on interviews with seven doctors resigning from rural hospitals in KZN, identified further reasons for these resignations. Some of the reasons given were the need for additional training, professional isolation, family concerns (schooling of children and occupation or employment for the spouse), staff shortages and heavy workloads, problems with referrals of patients to higher level hospitals, transport of patients, poor attitude of nursing staff, indifferent attitudes of the authorities, poor accommodation (housing) and difficulties accessing medical and other supplies. He also identified positive reasons for remaining in rural area service. These included belonging to the community, rural practice experience and giving support to rural communities<sup>9</sup>. Gyi (2001,

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<sup>9</sup> The "doctors' recommendations" referred to in Figure 2.1 which if implemented would lead to doctors being "pulled" to rural areas include: innovative incentive schemes (payback of student loans), improving the mutual

p105) referred to these reasons for leaving and those for staying as the push-pull effect ( Figure 2.2). De Vries and Marincowitz (2004) listed the additional problems of working in rural areas as the poor road networks, obsolete equipment, inaccessible laboratory facilities, personal safety (in some instances) and social isolation. Problems with accommodation were also raised by Couper (1999) and Reid (2001). Sankar, Jinabhai & Munro (1997) listed six main problems for the rural health practitioner. These were the lack of utilities, poor housing, poor clinical facilities, violence, lack of recreational facilities and inadequate pay.

One of the aspects of the new health policy in South Africa is to devolve power down to regional and district level, but it appeared from Gyi's research (2001, pp105-106) that by 2001 very little devolution of authority and responsibility is taking place. He also mentioned the discourteous attitude of nursing staff in South Africa and this is mentioned elsewhere in the literature (Budlender 2000, p112; Maseka 2001, p104) despite the charter on patient rights which promotes an ethos of a caring attitude (Department of Health 1997, p31).

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understanding between urban and rural colleagues, improving the negative image of rural practice, providing distance learning facilities for rural health professionals, devolving authority to a local level, improving housing and conditions of service, garnering support from authorities, universities and colleagues, planning long term solutions for attracting health workers to rural areas and using money spent on recruiting Cuban doctors on improving service conditions for South African doctors (Gyi 2001, p123).

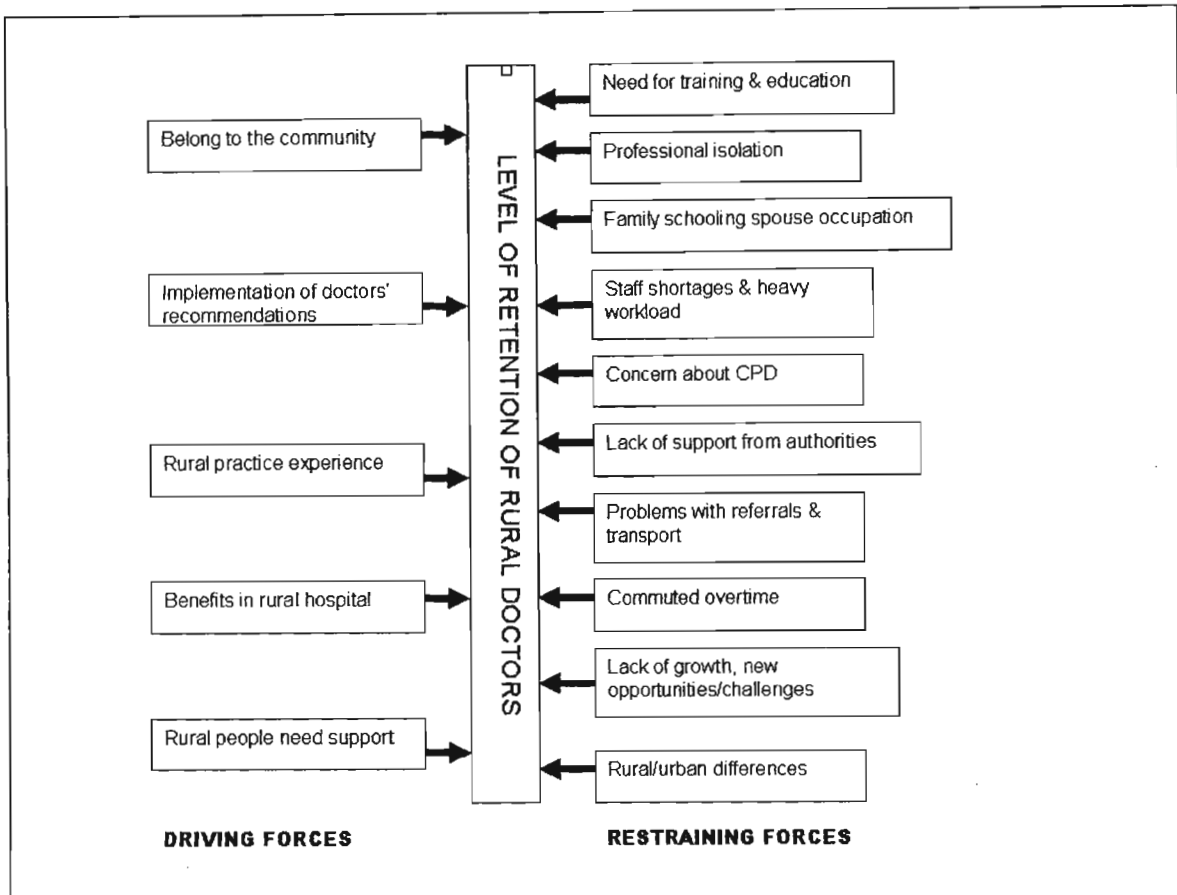


Figure 2.2: Model of push - pull effects on rural doctors (After Gyi 2001, p107)

### *Comments on problems experienced by the rural health practitioner*

The problems that rural health practitioners experienced could affect their levels of job satisfaction. This is because the determinants of voluntary resignations and by implication job satisfaction, identified by Price (2001) are similar to some of the factors mentioned by other authors (Sankar *et al* 1997). These factors consisted of concern for family (kinship), work stress which encompasses inadequate resources, role ambiguity<sup>10</sup>, role conflict<sup>11</sup> and work overload (Gyi 2001, pp105-106), lack of recognition, lack of access to training facilities (Gyi 2001, p114) and personal attitude<sup>12</sup>. Most of these determinants can be considered as exogenous factors i.e.

<sup>10</sup> Role ambiguity is a result of unclear job obligations (Kim *et al* 1996).

<sup>11</sup> Role conflict results from inconsistent job obligations (Kim *et al* 1996).

<sup>12</sup> Attitude is also known as disposition and is the natural tendency or temperament of an individual which implies that it makes up part of the personality of the individual (Sykes 1978).

not linked to personality. One determinant which can be classified as endogenous is the attitude of the person and Price (2001) states that attitude, be it positive or negative, may taint the other exogenous variables affecting job satisfaction. In other words the disposition of the individual affects how they feel about the work they are doing and depending on their attitude may or may not experience positive job satisfaction. Job satisfaction and the factors affecting it will be discussed more fully elsewhere in this review.

In the next section the current health policy in South Africa is discussed. The reasoning for implementing compulsory community service for health workers in South Africa is also presented.

## **2.4 Health policy in South Africa**

### **2.4.1 Background to the 1994 National Health Plan for South Africa**

The African National Congress (ANC) assumed leadership of South Africa on 27 April 1994 and members of the party were in the process of compiling a National Health Plan for South Africa. This document was published in May 1994 and served as the basis for the White Paper which was presented to parliament early in 1997 and finally signed into law by President Mandela in November 1997. Many of the inequalities of the past were addressed in this National Health Plan. The National Health Plan sought equity in terms of social and economic development. It included the provision of housing, clean water, sanitation and electricity because these would have a greater impact on health than the provision of health services *per se* (ANC 1994, p9). Amongst other priorities were that the National Health Plan should particularly serve women and children, being regarded as vulnerable groups. A further priority listed was the improvement of health services in rural areas (ANC 1994, p20) which was part of the reasoning behind the introduction of compulsory community service for health professionals.

The DOH resolved that Primary Health Care (PHC) would be the method of promoting health, by embracing community participation, and supporting access to services in rural and under-served populations. The ANC also envisaged the creation of a “comprehensive, equitable and integrated national health system” and thereby eliminating all discrimination. The private and public sectors will be encouraged to work together within a common structure. The coordination of health should begin at local level progressing through district, provincial and national authority. It was also planned that “responsibility for and control over funds will be decentralised to the lowest possible level” while maintaining quality care. Improvement of transport would be given particular emphasis. Priorities in the vision of the National Health Plan were optimising the use of resources. The focus was on the prevention and control of major diseases such as HIV, TB and measles and health risks such as malnutrition, motor vehicle accidents and trauma. Health promotion with an emphasis on sex education also formed part of the vision. Patients would be treated with respect. Health statistics would be collected and used in the planning of the national health system (ANC 1994, pp20-21).

The White Paper introduced in 1997, again highlighted the disparity in health care between rich and poor (Department of Health 1997, p4). The infant mortality rate of African children in 1991 was between 94 and 124 per 1000. The White Paper focused on the fragmented health services and that by decentralising and improving health at the district level these inequalities could be reduced (Department of Health 1997, p5). The DOH sought to redistribute health personnel throughout the country to pursue the goal of reducing inequalities (Department of Health 1997, p6) and that resources would be diverted from the provinces with better resources to those provinces that were poorly resourced (Department of Health 1997, p19). Municipalities (local government) would service adjacent rural areas (Department of Health 1997, p14) and eventually District Health Authorities would be accountable to municipalities for service delivery rather than to the province (Budlender 2000, p109).

The National Health Plan placed emphasis on good nutrition and the reduction of malnutrition (ANC 1994, pp48-49). Importantly for dietitians, it was decided that they should be involved in the nutritional aspects of PHC. The White Paper also determined that all health professionals should spend at least two years in the public sector employed in primary or secondary level health care institutions<sup>13</sup> before acquiring full registration. In addition to this before allowing medical practitioners to study to become specialists, it was determined that they should spend a year working in an under-served area as well (Department of Health 1997, p29). In reality, there was such great opposition by the medical fraternity to the proposal regarding the length of community service (Budlender 2000, p112; Wadee 1999, pp41-43) that in the enactment of compulsory community service, the period of community service was reduced from two years to one year (Section 24A(1) of Act No 98 1997) Section 24A(1) of Act No 98 1997). No further mention was made regarding community service requirements for specialisation and this no longer appears to be a requirement for specialisation.

To support the effective development of PHC, the White Paper reiterated that health science curricula in training institutions should focus on community needs (Department of Health 1997, p31). Management authority should be decentralised to allow greater autonomy and managers of health facilities should be trained in the management of a decentralised service, implementing democratic management styles and improving efficiency (Department of Health 1997, p32).

#### 2.4.2 National Health Plan for South Africa

The ANC determined that there should be universally accessible health care (ANC 1994, p19). However, as a result of the policies of the previous apartheid government, health care services were fragmented and in decline when taken over by the ANC Government (Savage & Benatar

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<sup>13</sup> These would be primary health clinics and district hospitals

1990, p164; Savage & Shisana 1994, pp96-97). Statistics listed in the White Paper (Department of Health 1997, p4)<sup>14</sup>, indicated that in 1994, 35 – 55 percent of the population was living in poverty and of those impoverished people, 75 percent lived in rural areas. In an effort to create affordable health care in the under-served rural areas, the Department of Health's (DOH) first priority was to develop district health systems (Department of Health 1997, p19).

#### 2.4.3 Strategies employed to overcome the problems encountered in rural health in South Africa

Since 1995, the Government used a number of interventions to improve the situation in rural and under-served areas. Some interventions included the upgrading and building of new clinics, improved salaries for public sector doctors, incentive payments of rural allowances to health professionals and the deployment of Cuban doctors (Reid 2001). In July 1998 the one-year compulsory community service was implemented for doctors, dentists and pharmacists by amending the Medical, Dental and Supplementary Health Service Professions Act, 1974 (Section 24A(1) of Act No 98 1997) which was enacted by parliament in 1997 (Reid 2001). In 2003 the first CSDs were placed in community service alongside radiographers, physiotherapists, speech and hearing therapists, occupational therapists, clinical psychologists and environmental health workers in a variety of hospitals and hospital complexes to deliver their specialised services to the population (Department of Health 2002; Reid 2002).

#### 2.4.4 Compulsory community service from the medical and physiotherapy perspective

Information on compulsory community service in South Africa is restricted mainly to the medical fraternity (except for two very recent articles on community service for dietitians) (Gericke & Labadarios 2006; Visser *et al* 2006) with additional though limited information on

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<sup>14</sup> The newer statistics released by Statistics South Africa do not give similar analyses of the rural poor therefore the reason for this older reference.

the physiotherapists. Compulsory community service for dietitians will be dealt with elsewhere in this review of the literature.

Two dissertations (Maseka 2001; Wadee 1999) and a number of journal articles (Cameron *et al* 2002; Nemutandani *et al* 2006; Reid 2001) dealt with compulsory community service of the medical practitioners in South Africa. See Table 2.3 for detailed analyses and evaluations of studies relevant to South Africa.

Table 2.3: Summary, analysis and evaluation of literature regarding community and rural service in South Africa

Authors and area in South Africa	Purpose of the study	Type of study	Study subjects (sample size) Validity of study	Findings
(Cameron <i>et al</i> 2002) North West province.	To evaluate the transformation in experience and confidence over a one year period in 2000.	Questionnaire administered at entry and exit of internship/ community service.	Community service doctors and medical interns (n=15) Sample size small. No complex statistical analysis performed. Although significance mentioned, no p values given.	Improved in experience and confidence. Learning opportunities limited because of non-functional equipment and lack of sterilising steam. Introduction of community service has helped to alleviate some of the problems experienced in rural areas. Junior doctors require guidance from experienced doctors. Academic training needs to be adapted to include primary health care delivery.
(De Vries 2002) Country wide	To investigate career choices of medical graduates of rural origin in 2001.	Retrospective descriptive study.	Doctors graduating in 1991-1992 of rural origin compared with control from urban origin. (n=82, 37 rural and 45 urban) Low response rate (29.5%). Small sample size and bias to male Afrikaans doctors.	15.5% of original cohort of rural origin – can be due to lack of recruitment from rural areas. Rural origin doctor more likely to return to rural practice (p=0.001). Very few doctors working in public service.
(De Vries & Marincowitz 2004) Country wide.	To gauge the perceptions of women doctors working in rural hospitals.	Qualitative – Taped “free attitude interview”	Rural female doctors in public service. (n=14) Sample size small but in keeping with type of study. Primary researcher female doctor in rural area - can introduce bias.	Very few of these subjects choose to work in rural areas usually as a result of a “calling” or spouse working in a rural area. Women have special needs in rural areas: jobs for partners, schooling for children and better roads. Most have a positive attitude to rural practice (n=13). Accommodation close to work an advantage.
(Gyi 2001) Rural doctors in KwaZulu-Natal.	To ascertain why doctors are resigning from rural hospitals.	Qualitative- Taped interviews. Masters dissertation.	Rural doctors. (n=7) Sample size small but in keeping with type of study.	A number of reasons for resigning are highlighted and the findings summarised in the “push-pull”; Figure 2.2.

Authors and area in South Africa	Purpose of the study	Type of study	Study subjects (sample size) Validity of study	Findings
(Jaques 1994) No study conducted.	To attempt to identify factors affecting doctors' decision regarding rural practice.	No study conducted.	None. Information relatively "old" but newer studies reveal similar findings.	Lack of career structure: poor remuneration, no fringe benefits, additional qualification not recognised. Inappropriate training: no or little rural practise. Spouse satisfaction – availability of jobs. Schooling for children. Academic isolation. Bureaucratic problems. Poor working conditions. Positives include: doing something useful, country living (no "rat race"), working with people and a wide spectrum of clinical conditions and community problems.
(Maseka 2001) Mpumalanga.	To establish the perceptions and experiences of community service doctors at one hospital.	Qualitative – Taped "free attitude interview". Masters dissertation.	Community service doctors (n=6) Sample size small but in keeping with type of study.	Most are positive towards community service (n=5). System of community service (placement process) poorly implemented. Hospital in remote area therefore limited social life. Learn a great deal and gain confidence. Academically isolated. Hospital management poor (bureaucratic problems). Problems with referrals. Lack of medication, equipment and laboratory facilities and poor nursing.
(Nemutandani <i>et al</i> 2006) Limpopo province.	To assess the work experience of community service doctors in 2003.	Cross sectional descriptive study. Structured telephonic interview.	Community service doctors (n=70) 70% response rate. Although cross sectional study no retrospective questions asked. P values not always included.	Satisfied with accommodation. Staff shortages cited for working overtime. Negative correlation between number of acute admissions and lack of equipment and referral problems (this point is not clearly made and can be misinterpreted – no correlation or p values are included here either). 58% reported death of patient due to system failure. Only 31% reported receiving adequate and helpful feedback.

Authors and area in South Africa	Purpose of the study	Type of study	Study subjects (sample size) Validity of study	Findings
(Reid 2001) Country wide.	To evaluate the effect and impact of community service intervention on DOH objectives <sup>15</sup> in 1999.	Two phased study 1st phase: Qualitative and descriptive focus groups at entry.  2nd phase: Cross sectional analytical study at exit.	1 <sup>st</sup> phase: Hospital managers, senior nurses and (n not given) community service doctors (n=60) at 10 hospitals interviewed in 1st phase.  2 <sup>nd</sup> phase: Community service doctors (n=292) Low response rate (26.8%) Reduces the generalisability of the study. Quantitative results confirm qualitative findings.	This article is often cited in literature related to community service in SA. 55% reported no change in attitude which is generally positive. Those receiving a rural allowance are significantly more negative (p<0.05). No difference in attitude whether placed in first choice or other placement. Some are unhappy about accommodation and conditions of service. Some unhappiness regarding unfair community service placement process. Community service alone cannot address the problems of rural health. Community service doctors need support in workplace, graduates need appropriate training. Provincial health departments need to manage human resources properly and not rely only on community service doctors to address problems in under-served areas. Many recommendations made – most relevant is that community service doctors are adequately supervised.
(Reid <i>et al</i> 1999) KwaZulu-Natal and Northern Province (now Limpopo).	To establish the spectrum of procedures performed and the attitude towards these by doctors in rural hospitals.	Descriptive study combining methods: quantitative and qualitative (free attitude focus group interview).	Rural doctors (Focus groups n=4). Records at hospitals examined (n=7209) Number of doctors participating in discussions not given therefore difficult to gauge	Doctors cope better if a senior doctor is available (supervision). Inadequate staffing in rural areas. Suggestion that nursing staff be trained to take over some of the doctors' role where there are not enough doctors.

<sup>15</sup> DOH objectives included: Providing health services to all and providing opportunity to young graduates to improve skills, acquire knowledge, change attitudes to rural practice and develop critical thinking skills.

Authors and area in South Africa	Purpose of the study	Type of study	Study subjects (sample size) Validity of study	Findings
			validity of focus group discussions.	
(Reid & Conco 1999)	Information the same as for the first phase of the Reid (2001) study.		As above.	As above.
(Visser <i>et al</i> 2006) Country wide.	To gauge experience, attitude, their perception of success and improvement of skills and knowledge of CSDs.	Cross sectional descriptive study.	CSDs (n=90). Response rate of 71%. Question on attitude asked retrospectively which can lead to bias.	The only study to date on CSDs in South Africa. Positive attitude improves over the year (55-57%), as does knowledge and skills. Certain amount of unhappiness about the placement process. 57% supervised by dietitian but 20% reported they are supervised by either uninformed (of profession) or indifferent supervisors. 96% feel they make a difference and 88% felt secure. Recommends that some supervision and support is needed by inexperienced CSDs. Universities should prepare their students for community service.

One of the points raised is whether undergraduate training adequately prepares community service doctors for community service especially in the rural areas (Gyi 2001, p124; Reid *et al* 1999). In addition to this Reid (1999), presented an extensive vocational<sup>16</sup> training programme undertaken by doctors who wish to practice in rural areas. This programme lists the additional skills required of doctors working in remote rural areas. These skills include obstetrics, primary health care, surgery and anaesthetics. Community service doctors are sent to rural areas directly after completing their qualification, and a substantial number of doctors could lack these additional skills (Reid 1999; Reid *et al* 1999). This under preparedness could result in some community service doctors being unwilling to continue in rural service after the period of compulsory community service. The lack of direct supervision by senior doctors was also seen as a constraint in the professional development of the community service doctors (Cameron *et al* 2002; Reid 2001)

The physiotherapists in Gauteng showed a generally positive attitude towards community service with 66 percent being positive at the end of their community service (Tabjhai & Mahabeer 2004). The physiotherapists used a buddy system as a support mechanism but 56 percent found that it did not provide enough support, 70 percent were unhappy with the amount they earned, and 92 percent felt that they should be allowed work as locums<sup>17</sup> during their community service. Individual physiotherapists were approached to comment on their community service by the journal, Physio Forum (2004). One mentions that that she did not learn much about physiotherapy but more about administrative and life skills (Gornall 2004). Gounden (2002) in an editorial also addressed the issue of salaries for physiotherapists and also stated that curricula should be scrutinised to ascertain whether they prepare the physiotherapists for working without

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<sup>16</sup> Vocational training: is termed here as a “calling” and in this instance the stated aim of the programme is to equip doctors to ‘serve the under-served according to the example of Christ’.

<sup>17</sup> Presumably this is because working as a part-time locum would enable them to improve their earnings.

direct supervision once they qualify.

### *Summary*

A number of strategies have been implemented in South Africa to overcome the problems in rural health. The particular focus in this dissertation is that of compulsory community service for dietitians and some issues raised by doctors and physiotherapists can well be in keeping with those of dietitians. In the next section the role of nutrition in the health policy in South Africa is addressed.

## **2.5 The Integrated Nutrition Programme in the current health policy of South Africa**

### **2.5.1 Introduction**

The White Paper highlights the importance of nutrition in the health plan for South Africa and creates a place for dietitians and nutritionists in the health care system in South Africa (Department of Health 1997). Nutrition as a basic human right should be integrated into the country's health plan. The underlying determinants of a well-nourished nation which include household food security, well nourished children and caring capacity of families, are addressed in the Integrated Nutrition Programme (Department of Health 1997, p42). Particular nutritional problems facing South Africa are stunting, underweight for age and micronutrient deficiencies (vitamin A, vitamin C, riboflavin, niacin, vitamin B6, folate, calcium, iron and zinc) amongst children. Diseases such as HIV/AIDS, TB, and diarrhoea and in some areas malaria add to the nutritional stress of all sectors of the population. South Africans are also exposed to the diseases of lifestyle where obesity is problematic as well (Department of Health 2004a).

### **2.5.2 Approach and focus of the Integrated Nutrition Programme**

The Integrated Nutrition Programme (INP) in South Africa is adopting an inter-sectoral approach

to overcome the nutritional problems which exist in this country (Department of Health 2004a). The INP replaces the mainly food-based approach<sup>18</sup> and fragmented programmes of the previous government. The identified priorities of the INP include the avoidance of the creation of dependency on food hand-outs. The UNICEF conceptual framework (Appendix A, pA1) forms the basis of the INP. The focus areas adopted by the INP to overcome the nutritional problems such as growth failure, micronutrient deficiencies, over and under nutrition and food insecurity are listed in Table 2.4.

Table 2.4: Focus areas of the Integrated Nutrition Programme

Disease specific nutrition support, treatment and counselling
Growth monitoring and promotion
Nutrition promotion, education and advocacy
Micronutrient malnutrition control
Food service management
Promotion, protection and support of breastfeeding combined with infant-toddler nutrition
Contribution to household food security

The systems employed to support these focus areas are nutrition information services, human resources planning and financial and administrative systems. The nutritionally vulnerable groups identified by the INP are: children under 5 and specifically those under 2, at-risk pregnant and breastfeeding women, those suffering from malnutrition, diseases of lifestyle, infectious diseases and debilitating conditions. Also included in this list are residents of public institutions, and people from poor households (Department of Health 2004a).

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<sup>18</sup> The food-based approach consisted mainly of the Protein-Energy Malnutrition (PEM) scheme, which distributed food hand-outs to all individuals in the community who showed signs of malnutrition. Although still retained in the INP, it now has a more stringent protocol for access.

## 2.6 Position of dietitians in the public service in South Africa and specifically KwaZulu-Natal

### 2.6.1 The traditional role and employment of dietitians in KwaZulu-Natal before the introduction of community service in 2003

In the late 1980's there were a total of 14 posts for dietitians in provincial hospitals in KZN and these were divided between Durban and Pietermaritzburg provincial hospitals with no posts in any of the other hospitals in the province. At the time, the National Department of Health was fragmented and there were single posts for community dietitians for each of the population groups to service the entire province, four in total (personal experience of this researcher). In a study of 145 registered dietitians in South Africa, 6 percent were employed in community nutrition and a further 6 percent in food service, 31 percent in therapeutic nutrition (clinical dietetics), and 35 percent were employed in various combinations of therapy, community and food service, 14 percent worked in education, research or outside the profession and 8 percent were not working at all (Paterson 2000, p70). When looking at those employed in *one* specific practice area of dietetics (such as a clinical dietitian) there was also a bias towards curative rather than preventative care amongst dietitians as well.

### 2.6.2 Current position of dietetics in KwaZulu-Natal

The number of dietitians in the employ of the DOH in KZN is on the increase in recent years. Twenty-two permanently appointed dietitians were employed in 2002 the year prior to the implementation of community service for dietitians. By 2005 this figure had risen to 27 (Table 2.5). During this period a limited number of permanently employed dietitians worked in rural areas (1 in 2003 and 3 in 2005). Since the inception of community service, the total number of CSDs<sup>19</sup> ranged between 21 in 2003 and 14 in 2005, some being placed in urban health facilities

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<sup>19</sup> Community service Dietitians are employed for a period of one year and their employment is seen as temporary in nature

and others in rural areas. The appointment of CSDs boosts the number of dietitians employed in rural areas considerably with the numbers varying between 15 in 2003 and 8 in 2004. Note that there was a decrease in the number of available dietetic graduates at the end of 2004 which resulted in an overall decrease in the numbers of CSDs in 2005. From Table 2.5 it can be deduced that compulsory community service has not had a dramatic effect on the number of permanently appointed dietitians in rural hospitals in KZN (from 2 in 2002 to 3 in 2004).

Table 2.5: Number of dietitians and Community service dietitians employed in KwaZulu-Natal hospitals<sup>20</sup>

Year	Number of permanently appointed dietitians (PAD)			Number of community service dietitians (CSDs)			Grand total PAD & CSD
	Urban	Rural	Total	Urban	Rural	Total	
2002	19 (+1 in head office)	2	22	Before community service			22
2003	20 (+2 in head office)	1	23	6	15	21	44
2004	21 (+3 in head office)	2	26	8	8	16	42
2005	21(+3 in head office)	3	27	4	10	14	41

### 2.6.3 Dietitians in rural areas prior to implementation of community service

Rural areas are under-served (ANC 1994, p6; Reid 2002). As mentioned in chapter one, dietitians were not previously encouraged to practice in rural and under-served areas because there were virtually no posts for dietitians at rural hospitals or other rural health facilities before the advent of community service.

### 2.6.4 Effect of HIV/AIDS on the importance of dietitians and nutritionists in health care

The DOH's operational plan for comprehensive HIV and AIDS care, management and treatment for South Africa, known as the AIDS Plan, highlights the necessity for nutritional support of

<sup>20</sup> Obtained from an analysis of the KZN hospital telephone lists

patients undergoing anti-retroviral (ARV) treatment for AIDS (Department of Health 2003, pp22, 33). The DOH identifies the need for nutritionists<sup>21</sup> to be available at service points to assess the patients' nutritional status, their nutritional needs and where necessary refer patients to the National Emergency Food Programme. The AIDS Plan refers to dietitians being employed at a district level where their role will be to implement nutritional supplementation, be in contact with community liaison officers and community health workers and train nurses and community liaison officers in assessing the nutritional status of patients (Department of Health 2003, p85). Health facilities can only be accredited for dispensing ARVs if they employ a dietitian. In discussions with dietitians, it is apparent that the additional expectation of them due to the implementation of the AIDS Plan, means that other tasks normally undertaken by them (dietitians), have to take second place (Lachman 2004). Despite the efforts of the DOH to overcome the problem of staff shortages in remote rural areas, it is noted in the Progress Report on the Implementation of the AIDS Treatment Plan that there is a lack of dietitians and nutritionists (Department of Health 2004b, p5). Dietitians are now considered to be in short supply, whereas in the years prior to the implementation of community service and the AIDS Plan, a number of recently qualified dietitians found it difficult to obtain employment in the public sector ((Maunder 2005).

## **2.7 Community service for dietitians**

### **2.7.1 Background information**

A general, extensive internet search, as well as specific searches in the medical spheres yielded

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<sup>21</sup> It is assumed that the DOH is referring to dietitians in this instance, as there are very limited numbers of positions for nutritionists and very few employed in the Department of Health (Campbell 2002). KZN had one nutritionist employed in 2002. The HPCSA will be compiling a register for nutritionists in the near future (Professional Board for Dietetics 2005).

very little sign of other health therapists<sup>22</sup> having to complete compulsory community service in other countries. The only country to mention other health therapists is Ecuador who reports that dentists and nurses perform compulsory community service (Cavender & Albán 1998). It appears that South Africa is the only country to have implemented the services of ten groups of health professions to address the problem of the lack of services in rural areas. As compulsory community service for dietitians is a new strategy for dealing with rural health in South Africa, there were no studies on the various aspects of community service on dietitians until 2006 (Gericke & Labadarios 2006; Visser *et al* 2006). For this reason, this researcher relies quite extensively on the information that is written about medical practitioners locally and abroad and applies it to dietitians where appropriate.

#### 2.7.2 The objectives of community service

The objectives of community service are to redress the imbalances of the past and “improve the provision of health services” (Department of Health 2002). This will be in terms of the allocation of community service health personnel amongst provinces, within provinces and within health facilities and depends on where there is a service need so that resources are fairly and equitably allocated (Department of Health 1997, p26). Health professional skills and expertise should be optimised to ensure best coverage and cost-effectiveness (Department of Health 1997, p 26). Bursary holders are accommodated in the province which awards the bursary (Department of Health 2005). Education and training of health professionals should be geared so that those recruited and trained are able to deliver services in an appropriate manner (Department of Health 1997, p29). It is hoped that this policy will result in improvement of the current problems such as the emigration of doctors and by inference other health professionals, improvement in the numbers of health professionals working in rural hospitals, the reduction of

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<sup>22</sup> Other health therapists refer to health professional registered with the HPCSA and exclude medical doctors.

the discrepancy between rural and urban health, the improvement of training yielding better prepared health workers for working in rural areas and the encouragement of health professionals to work in the public rather than in the private sector (Reid & Conco 1999, p234).

### 2.7.3 Compulsory community service for dietitians in South Africa

At the culmination of this research two articles appeared in the literature, which present information on community service for dietitians in South Africa. One is an editorial which deals with the supervision of the CSDs (Gericke & Labadarios 2006) and the other presents information on the experience and attitudes of the CSDs during the first community service year, 2003, in a cross sectional, descriptive study of all provinces (Visser *et al* 2006). In reality, to date, this latter study is the only article to give a perspective of community service for dietitians in South Africa. Of the 126 subjects in the target population in the Visser *et al* (2006) study, there were 90 replies (response rate of 71%). See Table 2.3 for details. Attitudes of the CSDs improved over the year with a positive attitude of 55 percent at entry increasing to 67 percent at exit; however attitude at entry were solicited retrospectively and could be subjective. Similarly subjects were requested to rate the change in the level of knowledge and skills over the year and they stated that this improved during the year. Of this group, 59 percent were supervised by dietitians but some 20 percent of the CSDs reported to individuals who had no understanding of dietetics or were simply not interested. It was also reported that most (88%) feel safe in their working environment. Problems encountered are the poorly organised placement process, communication difficulties, lack of basic equipment and some health facility managers that are not aware that CSDs are to be posted at their institutions. Positive aspects included the perceived positive effect that the CSDs had on the communities, affordable and acceptable accommodation and reasonable distances to the place of work. Recommendations are made that the universities should better prepare graduates for community service. As a critique of this study; it is what it purports to be, that is a cross sectional study and subsequently has the disadvantage in not

allowing for the direct measurement in changes of attitude, knowledge or skills over the year.

2.7.4 Minimum outcome levels of community service dietitians at completion of university qualification

The structure of the dietetics programmes at South African universities is presented in Table 2.6.

Table 2.6: Structures of programmes to qualify as a dietitian in South Africa (Maunder 2005)

Structure of programme	Name of programme	University offering the programme
4 Year integrated programme of which the 4 <sup>th</sup> year is focused on practice placement	BSc Diet	Universities of Free State. North West, Pretoria, Western Cape, Stellenbosch
3 Basic degree + 1 Year postgraduate study = internship	BSc Diet, PG Dip Diet	University of KwaZulu-Natal
2 Years postgraduate Honours degree after a BSc in biological sciences	BSc Med Hon - Diet	University of Cape Town

The newest minimum exit outcome levels are registered with the South African Qualifications Authority (SAQA) by the standards generating body (SGB) of the Professional Board for Dietetics (Professional Board for Dietetics 2006). The full SGB document can be found in the appendices (Appendix B, pA2). A short extract from the SGB document lists amongst other skills, those that a CSD should be able to perform at entry level employment. These include the ability to assess the nutrition service needs and the training needs of those people involved in nutrition service delivery. CSDs should also be able to plan, implement, evaluate and document nutrition service delivery. This will also involve intervention strategies to address nutritional problems of individuals and communities and the ability to collaborate with the relevant communities regarding the implementation of intervention strategies. Other abilities a CSD should possess are to implement and manage appropriate nutrition care plans of individual patients or groups of clients and continuously monitor the quality of the nutrition service delivery. The CSD should also be able to communicate effectively, demonstrate cultural

sensitivities and deal with situations in an ethical manner (Professional Board for Dietetics 2006).

#### 2.7.5 Job description of community service dietitians in 2003 – KwaZulu-Natal

Job descriptions were compiled for the first group of KZN CSDs in 2003 (Department of Health - KZN 2002b). The key responsibilities of the CSDs are the implementation and management of all nutrition related duties within the framework of the national legislation and provincial policies. Within the sphere of service delivery, CSDs are expected to provide and manage preventive, promotive and curative nutrition services within the facility where they are placed and those hospitals, clinics and community health centres that are linked to that facility. They are to provide a consultative nutrition service to health professionals and patients. Their role in the INP is to provide advice on procedures and policy matters in the implementation and development of the INP. CSDs are to monitor and evaluate the nutrition services to ensure that they comply with the accepted standards and indicators. Within the ambit of food service their role is of an advisory nature ensuring the provision of quality food. CSDs are required to facilitate the implementation of nutrition interventions such as the vitamin A supplementation programme, the protein energy malnutrition (PEM) scheme and the management of children with acute severe malnutrition.

The aspects of education and training to be conducted by the CSDs include the identification and training of other health professionals, communities and other interested persons on the essentials of the INP. As far as communication is concerned, CSDs are to establish and maintain internal control and reporting systems for timeous submission to the appropriate authorities. CSDs also communicate and interact with other departments and service providers to ensure quality service to clients, facilities and the province. CSDs input into and motivate for items within the budget (Department of Health - KZN 2002b). Not listed in the original job description but added in at a

later stage is the input of CSDs in the AIDS Plan (Department of Health 2003).

#### 2.7.6 Posts and hierarchical position of community service dietitians

Community service posts are fixed term appointments for a period of one year. At the end of this time, the community service dietitians have to apply for transfer to other dietetic posts or resign from their positions (Campbell 2002). They may not remain in community service posts once the community service is complete (Spies 2006). Problems with rotations (Cavender & Albán 1998) such as the continuity of service is questionable with each new group of community service dietitians having to begin each year without the advantage of a handover period or continuity of service. This is compounded by an intermittent service in some facilities where a periodic shortage of CSDs results in some placements not being filled every year and the loss of previously established structures and networks. This undermines the DOH objective of the development of institutional capacity (Department of Health 1997, p33).

The position of the CSD in the hierarchy of the community service placement differs according to the type of facility in which the CSD is placed. With the implementation of community service, a number of new posts are created specifically for the purpose of community service in underserved areas. The majority of new CSDs are therefore placed in new positions where no directives for dietetic services previously exist. They usually report directly to the manager of the health facility in which they are placed, rather than to another qualified dietitian (Department of Health - KZN 2002a). It can be argued that the skills and competence of the CSDs will need further development to ensure optimal service delivery in this instance. Inexperienced CSDs requiring advice specifically in community nutrition practice have to contact the District office and if there is no dietitian there, will have to work directly with the Deputy Director of Community Nutrition in Head Office. (Information on therapeutic nutrition can be obtained from the mentoring dietitians – see later discussion). A diagram of the lines of communication within

the nutrition directorate regarding community service in KZN is presented in Figure 2.3.

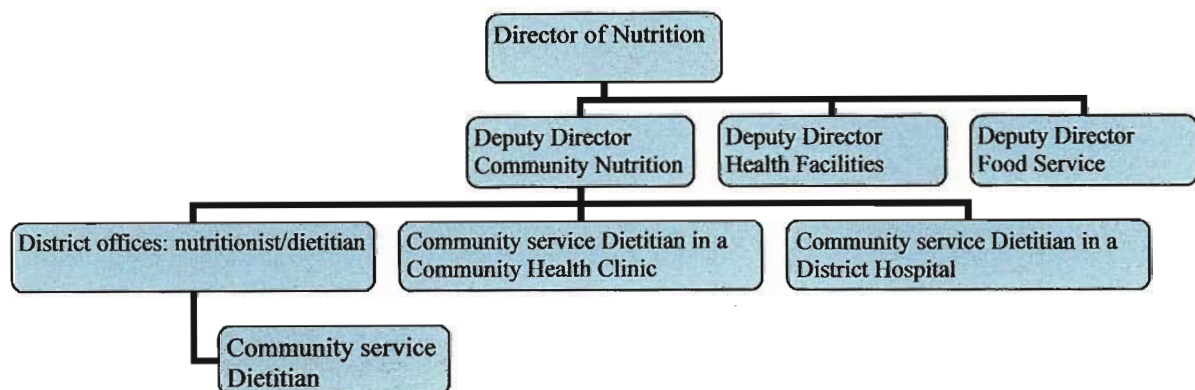


Figure 2.3 Lines of communication in the nutrition directorate KwaZulu-Natal (Campbell 2002)

#### 2.7.7 Professional isolation and mentorship

Prequalification learning focuses on the acquisition of knowledge rather than skills and often places knowledge first especially when assessment requires a reproduction of knowledge rather than application (Prince & Boshuizen 2004, pp135-136). It therefore followed that in the first year of independent practice that CSDs will be implementing skills and applying knowledge. Without professional supervision this process can be rather haphazard especially in the weaker university graduates. Reid & Conco (1999, pp239-240) emphasise the problem of the lack of supervision and support of community service doctors especially in the remote rural hospitals and mention that the community service doctors would phone their training university for support. Cameron *et al* (2002) are also concerned about the lack of supervision of community service doctors. CSDs in rural areas are somewhat isolated from the rest of their profession as well. Although in the course of training, dietitians are exposed to practice placements in their last year of study, Corey, Corey & Callanan (1998, p267) emphasised that, “a degree alone does not guarantee competence”. The DOH in KwaZulu-Natal seeks to overcome the problem of

professional isolation by appointing mentors<sup>23</sup> (Campbell 2002). Gericke & Labadarios (2006) deal extensively with the monitoring (supervision) and mentoring of dietitians during community service and see these as being two distinct approaches of managing the progress of the CSD.

### *Successful mentoring programmes*

One way of giving support to CSDs in remote areas is to utilize a mentorship programme. The general literature on mentorship suggests that whether a mentorship programme is successful or not depends on how the programme is organised, who participates in the programme (Johnson & Sullivan 1995, p47) and whether mentors and protégés meet regularly (Lloyd-Jones *et al* 2001). Important aspects of the success of mentoring programmes depends on the matching of mentors and protégés and the continued support of the protégés by the mentors (Eby & Lockwood 2005; Johnson & Sullivan 1995, p47). Positive outcomes of mentoring include the increased opportunity of the protégé to acquire new skills (Eby & Lockwood 2005).

### *Unsuccessful mentoring programmes, cause and effect*

Mismatching of mentors and protégés is more likely to lead to dysfunctional relationships and unsuccessful mentoring. Mismatching is more likely to occur in formal mentorship programmes than in informal mentoring. In addition to this, geographical distance gives rise to problems associated with scheduling meetings which will also have an adverse effect on the relationship (Eby & Lockwood 2005). Eby & McManus (2004) also list sabotage<sup>24</sup> and harassment<sup>25</sup> as contributors to dysfunctional relationships between the mentor and protégé. Onerous work loads of mentors can also lead to problems in scheduling meetings and consequently affect the

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<sup>23</sup> Mentor: A specifically designated registered dietitian employed at one of the urban hospitals in KwaZulu-Natal who could be phoned or emailed for advice and guidance.

<sup>24</sup> Sabotage could be an act of revenge or the deliberate undermining of either the protégé or the mentor

<sup>25</sup> Harassment could be either racial or gender

relationship (Lloyd-Jones *et al* 2001). The absence of the mentor or a dysfunctional relationship results in protégés feeling that they are not able to work consistently or improve their knowledge or skills.

## **2.8 Factors affecting service delivery by community service dietitians**

In this section the theoretical details regarding the factors that affect the service delivery are presented. One of the aims of community service is to improve the delivery of service in underserved areas and the following factors can affect the quality of service delivery. These are the attitude of the CSD to community service as Reid (2001) found in his study on community service doctors. Apart from the lack of supervision which is more marked in those hospitals where rural allowances are payable. Professional development is another aspect that would be associated with service delivery and the Dreyfus model<sup>26</sup> will be discussed. Other factors associated with service delivery are the individual and institutional factors and includes the quality of mentorship and professional isolation. Also to be addressed in this section is the concept of job satisfaction and knowledge.

### **2.8.1 Individual factors**

Logically, individual factors that may affect the attitudes and therefore the quality of dietetic services could be the age of the community service dietitians, sex, population group, home language and university attended. It could be argued that the age of the dietitian could be a factor in maturity and confidence to work satisfactorily without supervision and therefore deliver a better service. De Vries & Marincowitz (2004) stated that the sex of the individual may be related to attitude and therefore the quality of delivery of service. However, in dietetics there are very few males practicing the profession. The population group and the home language could

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<sup>26</sup> Unfortunately the Dreyfus model was only discovered towards the end of the three year survey of this project and is therefore only included in the focus group discussions in 2005.

also impact on the quality of service where those who speak the language and understand the culture of those residing in rural areas could result in improved attitude and better service delivery (Reid 2001). The university attended can have an impact where some universities may have better prepared their graduates for community service than others.

### 2.8.2 Institutional/situational factors

Institutional/situational factors that could affect the attitude of other health professionals towards community service could also have an effect the quality of service provided by the CSDs. Naude (2001) notes that if a community service doctor is awarded their choice of placement they will have a better attitude towards community service but Reid (2001) finds this was not the case. Contrary to this latter finding, the positive attitude of CSDs is directly linked to the placement process<sup>27</sup>; those who were placed in the first round being more positive towards community service (Visser *et al* 2006). The locality of placement (proximity to urban areas) (Gyi 2001, p105; Maseka 2001; Reid 2001), the positive attitude of the health facility manager (Reid 2001), the better quality of residential accommodation (Couper 1999) are all positively associated with a positive attitude to a rural placement. It could be theorised that the distance from home (closer to home more positive), whether there are job descriptions/key performance areas specified, reasonable office accommodation, office furniture and equipment (eg computer facilities), tools-of-trade (anthropometric equipment) and these would all be associated with a more positive attitude. It can be argued that the level of support for the CSDs by the appointed mentors will have a positive association with a positive attitude. The health facility manager's knowledge (Reid 2001) of the services that the community service doctors can provide is also related to the quality of service. Consequently ignorance of dietetic services by the health facility manager

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<sup>27</sup> The placement process refers to the system of allocation of the community service workers to their placements. In 2003, being the inaugural year of community service for dietitians, 83% of CSDs in the study by Visser *et al* (2006) regard the process as unorganised.

will logically result in time and skill wastage and be detrimental to the attitude of the CSD.

The next section contains the concept of job satisfaction and the factors that affect it.

### 2.8.3 Job satisfaction

Smith, Kendall & Hulin (1969, p6) define job satisfaction as the feelings an employee has about the work he does. Similarly, Price (2001) quantifies job satisfaction as the extent to which an employee enjoys his work. Job satisfaction is neither the result of acceptable “good” working conditions nor does it lead to improved productivity. Job satisfaction is a complex interaction between what employees feel is fair treatment and remuneration for services rendered and the employees’ behaviour in achieving their own goals. Job satisfaction is also one of the predictors of job turnover (Price 2001). One of the objectives of the DOH is to retain health professionals in rural and under-served areas. It stands to reason that greater levels of job satisfaction will lead to a reduced turnover of health professionals in rural and under-served areas. By measuring job satisfaction and identifying factors related to job satisfaction one would be able to implement strategies to improve the situation (Smith *et al* 1969).

#### *The concept of job satisfaction*

A positive attitude improved job satisfaction (Chu *et al* 2003) and job satisfaction is affected by many factors that are listed in the model Figure 2.4 (Price 2001). This model was adapted from the findings regarding the causes of voluntary resignations extracted from 33 studies investigated by Price (2001) which were also linked to job satisfaction.



“+” means a positive relationship to job satisfaction, “-” means a negative relationship

Figure 2.4 A model of job satisfaction (after Price 2001)

*Explanation of Figure 2.4*

Job involvement reflects the degree of commitment an individual has to the job. The attitude of

the individual can be either positive or negative and is also related to job satisfaction. The degree of autonomy is explained as the freedom to make and implement decisions without deferring to higher authority and this will have had a positive influence on job satisfaction. Where an employee is treated fairly within an organisation will also have a positive influence on job satisfaction. Job stress, a subset of job satisfaction has four components consisting of inadequate resources; unclear role definition; conflict of role delineation and work overload. All of these factors will have a negative influence on job satisfaction. Adequate remuneration had a positive influence on job satisfaction, as did the opportunity for promotion within the organisation. Where tasks undertaken were repetitive and without challenge and where individuals felt isolated and without social support, job satisfaction was adversely affected (Price 2001).

#### *Other variables affecting job satisfaction*

Other variables that could contribute to job satisfaction are age, level of education, rank and job security referred to as control variables<sup>28</sup> (Chu *et al* 2003; Kim *et al* 1996). In this research, aspects investigated are attitude, age, level of community nutrition knowledge, working and living conditions.

#### *Job satisfaction and doctors serving in rural and under-served areas - discussion*

Doctors serving in the rural and under-served areas faced problems such as insufficient training in various areas of expertise which will decrease their ability to practice with confidence. Staff shortages, excessive workloads, lack of support and understanding from head office and referring hospitals, problems with transport, poor referral systems, remoteness and isolation, lack

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<sup>28</sup> Control variables such as age and education level are related to job satisfaction levels and are not shown in the level because they are used to “control the confounding and enhance precision” (Chu *et al* 2003, p178).

of facilities and no clear cut career path, concern for the family's isolation and distantly placed training opportunities were all problems that faced the doctor working in a rural area (Gyi 2001, pp105-106). Examining Figure 2.4, one can appreciate that the job satisfaction of doctors completing community service or working in rural areas and under-served areas will be adversely affected by these problems. By implication the CSD can have faced similar problems.

### *Job satisfaction of registered dietitians in South Africa.*

In a survey on a sample of South African registered dietitians in 1999 using the Kaldenberg and Becker job satisfaction scale<sup>29</sup> (Kaldenberg & Becker 1991) it was found that the dietitians scored a total of 12.63 out of a possible 20 (Paterson 2000, p79). This score is significantly lower than the test score (14.17) obtained by Kaldenberg & Becker (1991) with a sample of dentists. Factors that are related to levels of job satisfaction in the survey on the dietitians were the degree of difficulty with assertive behaviour (negative correlation), sex (males are less satisfied with dietetics than females), home language (English speakers more satisfied than other language speakers) and levels of self-efficacy<sup>30</sup> (positive correlation) (Paterson 2000, p114). These and other listed factors will be studied in this research. In the next section, the components of professional development are discussed.

#### 2.8.4 Professional development: knowledge, attitude, practice and skill

##### *Introduction*

One must be able to describe a profession in order to identify a professional (Simons & Ruijters

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<sup>29</sup> The scale is amended to make it suitable for testing dietitians' job satisfaction rating.

<sup>30</sup> Self efficacy is the ability and belief to achieve success with a specific task. Therefore individuals must have the skills to perform the task and the enough confidence that they will be successful in performing the task (Niedinger 1997).

2004, pp207-208). These authors define professions as "...fields of work that have an explicit body of knowledge ...have standards of quality and professional associations" (p207). They also hold the view that a professional should have a clear view or vision of their profession and the role of their profession in society (knowledge and attitude). Professionals should have acquired specific techniques and work methods particular to their profession (practice). They should also be accomplished in their management of "tool in trade" (skills) and be able to bring these elements together to deliver a professional service (Simons & Ruijters 2004, pp207-208). It therefore stands to reason that a combination of knowledge (and application thereof), attitude, practice and skills are the fundamental elements of professionalism. These elements formed the basis of professional expertise and determined the quality of professional service. Badrun (1995, pp8-9), defined knowledge, attitude and practice as "the capacity to acquire, retain and use information; a mixture of experience discernment and skill, attitude is the inclination to react in a certain way in certain situations and practice is the application of rules and knowledge that leads to action". Practice and knowledge are needed to be maintained for the professional to retain their expertise (Dreyfus & Dreyfus 1986, p 17). Eller, Kleber and Wang (2003) found that a combination of knowledge and attitude were the strongest predictor of a nurse's ability – in this case to conduct research – and that where attitude is good, knowledge will help to improve the willingness of nurses to undertake research. Similarly one could theorise that where knowledge and attitude are good that it could be a predictor for improved practice and skill.

### *Knowledge*

Knowledge will be acquired through active studying and in the case of the CSD most of their knowledge will be that which is recently acquired at university during formal training. It is assumed that as the year of community service progressed, CSDs will have acquired knowledge through formal means of training provided by the Department of Health as well as knowledge

acquired through practical experience in the workplace. The transition between theory (knowledge per se) to actually applying it in the workplace is difficult and stressful and has led to graduates having feelings of inadequacy and confusion regarding knowledge and assumption of responsibility (Prince & Boshuizen 2004, p122). Part of the problem of translating knowledge into skills and practice is that during training, students are driven by having to pass examinations based on recall and facts. They often do not learn to apply solutions learned in one section to other areas of practice although in the case of dietitians there is considerable exposure to skills and practice during practice exposure during the 4<sup>th</sup> or internship year.

### *Attitude*

Attitude is the tendency to operate in a certain manner (Badran 1995). Attitude is related to the disposition of the individual and they can be classed as being either negative<sup>31</sup> or positive<sup>32</sup>. Attitude is classed as either a personality trait or an emotional state. In one study on a group of 57 hospital employees, it is found that negative individuals are less likely to be influenced by a “positive mood-induced event” in this case specially prepared biscuits, into changing their attitude than those with a positive attitude (Brief *et al* 1995). These authors concluded that although individuals with negative attitude might appreciate positive aspects of their work that it will not necessarily lead to improved job satisfaction.

### *Practice and the Dreyfus & Dreyfus model of skill acquisition*

Benner (2001, p vi) defined practice as “a socially organised and embedded form of knowledge and ethics” and stated that *any* practice is subject to the “challenges of development or decline”. Skill and practice have been interlinked where Patricia Benner (2001, p x) in her book on “From

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<sup>31</sup> Negative attitude: prone to an aversive emotional state, unenthusiastic (Brief *et al* 1995).

<sup>32</sup> Positive attitude: reflects high energy, resolve and enthusiasm (Fogarty *et al* 1999).

Novice to Expert”, referred to the Dreyfus & Dreyfus model of skill acquisition. Hubert and Stuart Dreyfus (1986), proposed the five-stage model for the development of the professional from a novice to that of an expert.

The Department of Health (DOH) has stated that professional development is one of the goals of community service. In order to assess this, the Dreyfus & Dreyfus five-stage model of professional development is presented here (Dreyfus & Dreyfus 1986, pp19-36; Dreyfus 2004). The model portrays the development of the professional from that of a “Novice” through the levels of an “Advanced beginner”, proceeding to being “Competent”, developing to being “Proficient” to finally becoming an “Expert”. Details of the development at the various levels are presented in Figure 2.5.

<p><b>Novice</b> Aware of elemental rules and performance is adjudged according to adherence to these rules. For example that of driving a car; each action needs to follow a specific sequence and the beginner needs to consciously and laboriously follow these sequences</p> <p><b>Advanced beginner</b> - Marginally acceptable level of coping through real life situations and can incorporate more sophisticated rules</p> <p><b>Competent</b> - Has learned to make hierarchical decisions and is aware of situational elements but would still waste time on irrelevant options</p> <p><b>Proficient</b> - Has an in-built (intuitive) ability to recognise situations and apply solutions – not dependent on elemental rules (not guessing)</p> <p><b>Expert</b> An expert can do the job based on mature practiced understanding (eg becomes one with the car) “we have built up a library of distinguishable situations” (Chess master recognises 50,000 situations)</p>
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Figure 2.5: Novice to expert - The five stage model (Dreyfus 2004)

Not only is practice important in progressing through the Dreyfus & Dreyfus levels but for an individual to develop beyond the stage of the advanced beginner they need to become emotionally involved in their tasks; where success or failure become important (van der Wiel *et al* 2004). Dreyfus (2004) stated that it is natural for an individual to experience a range of emotions from fear and disappointment to elation and joy while they became competent (level

3). Benner (2001) found that nurses are more likely to suffer from “burn out” if they are emotionally detached from their work. It followed therefore that dietitians too needed to become emotionally involved with their work so that they too can develop professionally to the level of competence<sup>33</sup>. This model is further adapted for the development of competency based education and job competency levels of dietitians (Chambers *et al* 1996; Gilmore *et al* 1997). A schematic diagram depicting the professional growth of the dietitian is presented (Figure 2.6). Progress from an (advanced) beginner to being competent occurs during supervised practice which includes internship and supervision at entry to the profession and in the case of South Africa, supervision during community service (Gericke & Labadarios 2006; Gilmore *et al* 1997; Visser *et al* 2006). It should be noted that it takes about 5 years to become competent (Figure 2.6) and that one rapidly becomes proficient thereafter but progress to become an expert is slower.

### *Supervision and professional development*

Direct support and supervision from a qualified dietitian enhances the chances of professional development because practice on its own, without input to identify and improve weaknesses will result in failure to perform maximally (van der Wiel *et al* 2004). Direct supervision of entry grade professionals is also in line with other recommendations in the literature (Cameron *et al* 2002; Gericke & Labadarios 2006; Gilmore *et al* 1997; Nemutandani *et al* 2006; Visser *et al* 2006). Ongoing professional development (Continuing Professional Development) is also a

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<sup>33</sup> The term “Competence” as used in the Dreyfus model and in Benner’s opinion is the third level of practice and is only reached after being “on the job in the same or similar situation after two to three years” (2001, p 25). The Professional Board of Dietetics of the HPCSA and the universities training dietitians used to refer to “competencies” dietitians should have attained at exit level of university. These “competencies” obviously do not coincide with the Benner definition because newly qualified dietitians have limited practice exposure during their training. The SGB of the Professional Board (Appendix B) in their latest document referred to “Exit outcome level” which was more appropriate and in keeping with the Dreyfus & Dreyfus model (Professional Board for Dietetics 2006).

prerequisite for maintenance of professional registration with the HPCSA (Health Professions Council of South Africa 2006), and professionals need to provide annual proof of self development.

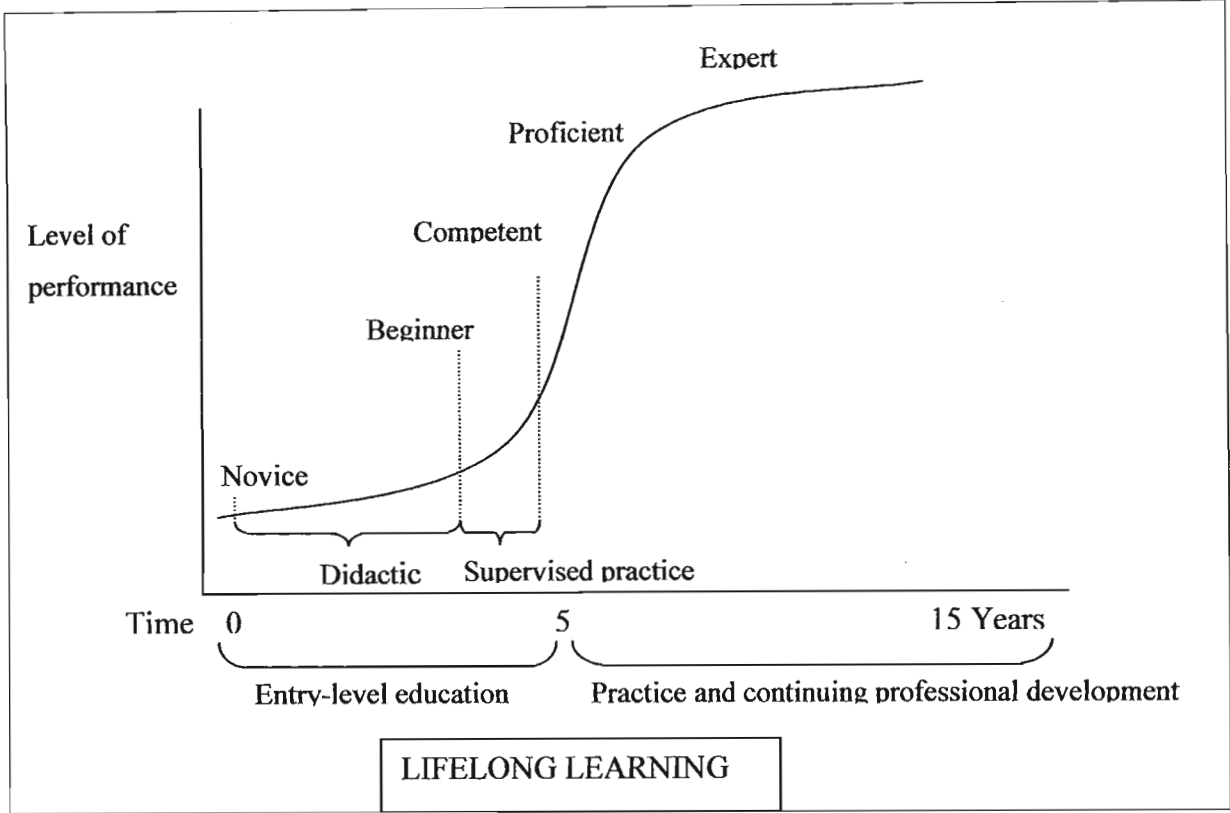


Figure 2.6: Stages of professional growth: mastery of a discipline from novice to expert (Gilmore *et al* 1997)

**2.9 Theoretical model of professional development of a dietitian**

A proposed theoretical model of the professional development of CSDs based on literature discussed earlier is presented in Figure 2.7. New knowledge will be acquired through experience and exposure to a variety of different circumstances while some (previously acquired academic) knowledge may be lost through isolation, lack of support and lack of opportunities to apply certain knowledge in isolated and/or rural placements. The attitude and job satisfaction of the CSD may have been enhanced through new and challenging experiences and by the appreciation of the community they serve (Dawis 1992, p78). Attitude can be negatively affected by being placed in a location that is not a primary choice, by poor facilities and poor management

structures, lack of support (Reid 2001; Visser *et al* 2006). Attitude is also part of one’s personal disposition (ie one’s nature or personality) (Burke *et al* 1989). Positive effects on attitude may be due to recognition of the profession by other community service health professionals.

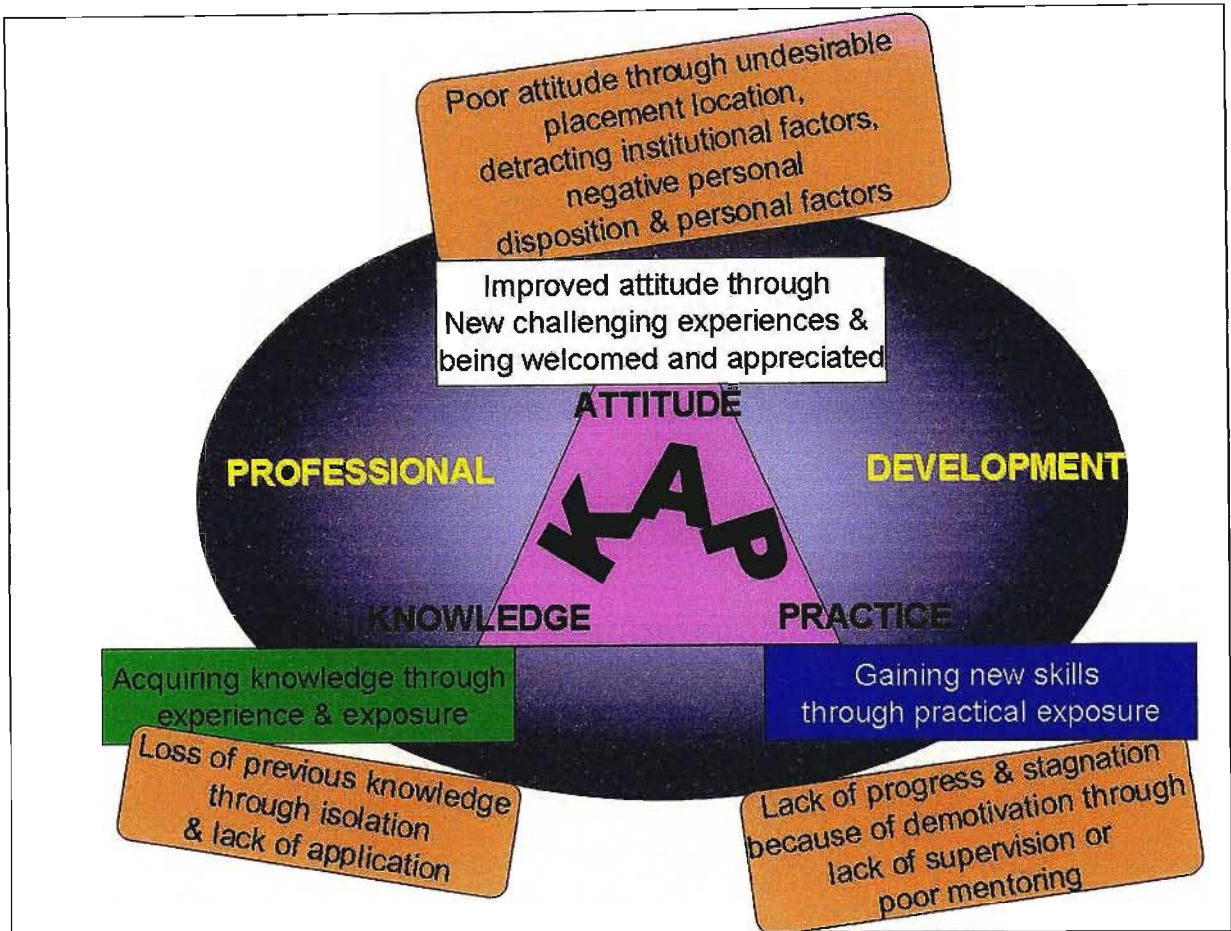


Figure 2.7 Suggested theoretical framework of professional development during community service

Demographic factors such as age, sex, population group, home language may also impact on attitude. Other institutional factors such as the organisation of community service has been shown to affect attitude (Reid 2001; Visser *et al* 2006). Practice can be enhanced through the exposure to new experiences but there can be a lack of progress because of a negative attitude, demotivation, lack of supervision and poor mentoring (Gericke & Labadarios 2006). Similarly community nutrition knowledge and job satisfaction could also be affected by demographic and institutional factors. It is theorised that attitude, knowledge, practice and skills are interdependent and by improving any one of these aspects, the others may be improved as well

and that by addressing all three of these aspects it would lead to the optimal professional development of the CSD.

## **2.10 Summary**

Poor service delivery in rural areas is a global problem in both the developed and developing countries. In South Africa the fragmented, unjust and inefficient health services in general and particularly in the rural and under-served communities is a problem inherited from the previous apartheid government by the ANC. The authorities in South Africa realised that there were serious shortcomings in the provision of health in these areas and instituted a number of strategies in an effort to address these problems. Strategies include amongst others the compulsory community service of a number of health professionals including dietitians which is the focus of this research. It appears that South Africa is the first country in the world to implement an extensive programme which has involved so many health professionals apart from doctors in compulsory community service. While this system has provided a number of dietitians with work opportunities, the advantages and disadvantages need to be investigated so that useful and practical recommendations can be made to obtain optimum results from this investment of time, human resources and money.

Other areas discussed in this review of the literature include attitude and what affects it, the acquisition of knowledge and skills, the various aspects of job satisfaction and most importantly the professional development and models particularly the Dreyfus and Dreyfus model and that of Gilmore *et al* (1997). The theoretical framework of professional development may be a useful starting point in establishing the relationship of community service to the professional development of the CSD.

## CHAPTER 3 METHODOLOGY

### 3.1 Introduction

The purpose of the study was firstly to determine the attitude of CSDs towards community service and how this was related to the listed factors; secondly to investigate levels of community nutrition knowledge and the effect of the listed factors and attitude of the CSD on this knowledge; thirdly to determine levels of job satisfaction, compare this to the job satisfaction of South African Registered dietitians and determine the factors related to this. Fourthly the study determined the self-rated professional development (single statement) and the professional practitioner ranking (multiple statements) and the factors related to this<sup>1</sup>; fifthly to determine perceived levels of dietetic service to the community by the CSDs and how the factors were related to these levels; and finally to evaluate the outcome of community service on the acquisition of new skills, areas of new and lost knowledge, access to training, support and constraints to achieving objectives as well as helpful and obstructionist networks.

The listed factors were divided into individual and institutional factors. The individual or demographic factors included age, sex, population group, home language and the university attended. The institutional factors that were investigated were the organisation of community service in the hospital, mentorship rating, hospital manager support rating, type of facility (hospital/community health centre or district office), eligibility for a rural allowance, hospital location (urban or rural), support for the CSDs, working conditions, living conditions, personal safety and resources available (see definitions in Chapter 1). Both quantitative and qualitative data were collected. Survey questionnaires were sent out collecting mainly quantitative data and some qualitative data. Focus group discussions were held with the 2005 CSDs to collect

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<sup>1</sup> Ideally the Dreyfus model of professional development should have been use here but this researcher only found this model towards the end of the third year of the survey and for this reason it was included in the focus group discussions and not in the survey itself (Dreyfus 2004).

qualitative data and triangulate this with quantitative findings. A follow up process after the study revisited the findings of this research and is referred to as the Epilogue.

### **3.2 Population selection, permission to conduct the study and ethical clearance**

The population comprised all the CSDs completing their community service in KZN in the years 2003, 2004 and 2005. In 2003 the first group of CSDs embarked on their community service. The size of the first group in KZN was 20 and it was decided to include the entire group in the study as the target group was too small to sample. This was also to be the pilot group. It was hoped to include all the provinces in the following two years. Permission was obtained from the national Department of Health to conduct the study in all provinces in 2004 (Appendix C, pA14). In 2005 the National Department of Health decided that the provincial Departments of Health themselves should grant permission individually for their own provinces. Although all nine Provincial Departments of Health and the South African Military Health Service (SAMHS) were approached for permission to conduct the study in 2005, only two provinces and SAMHS acknowledged receipt of the request and granted permission to conduct this research. KZN Department of Health was the only one of these three to grant permission timeously (Appendix C, pA15). Through circumstances beyond the researcher's control it was therefore decided to focus the study exclusively on KZN and in addition utilise the pilot data that were gathered in 2003 as well. All dietitians who undertook community service in KZN between 2003 and 2005 were selected for the study and requested to participate. Ethical clearance was obtained from the University of KwaZulu-Natal (UKZN) to conduct this research (Appendix D, pA16). The covering letter to the CSDs with the informed consent was included with questionnaire (Appendix E, pA17). The sample characteristics for the derivation of the cohort composition for the three years are given in Chapter 4. Focus group discussions were conducted with the 2005 cohort towards the end of the community service year to provide in-depth information in support

of the findings of the surveys conducted over the three year. All but one<sup>2</sup> the 2005 KZN CSD cohort was invited to participate in the focus group discussions. One CSD failed to attend the discussions for unknown reasons. It transpired that this entire group comprised mainly of white females with a few Indian CSDs – a feature of the CSD intake in KZN for 2005.

### **3.3 Research design**

#### **3.3.1 Conducting surveys - methods from the literature**

When a target population is spread over a large area and where time allows, the most effective method of reaching the target population is via a postal survey (Dillman 1978, pp39-40). Some differences in responses can be expected when using the telephone as opposed to using mail surveys (Dillman 1978, p17). This author states that interviewees have little time to make a decision whether to participate or not and are less likely to consider the telephone interview as authentic. Interviewees who receive mailed surveys with an official letterhead are more likely to consider the study authentic but would still be less likely to respond in a once off contact. They would therefore be less likely to respond to a mailed survey than to a telephone interview (Dillman 1978, p17). Dillman (2000, pp5-6) states that mixed mode surveys (using different methods of disseminating surveys) work better for improving response rate rather than using a single survey method.

#### **3.3.2 Survey method**

The survey design was a survey questionnaire administered over 3 years at entry and exit of 3 distinct annual groups of CSDs. Some variables were measured at both entry and exit to measure possible change over the year.

The method used to obtain information from the CSDs was a combination of postal, faxing or emailing survey questionnaires to the target population. Other methods used in this research

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<sup>2</sup> One CSD was appointed in a difficult placement and was interviewed separately at a later stage. The data was excluded because of the exceptional circumstances.

included conducting a face-to-face survey by this researcher on a group of CSDs during their orientation period (2003 cohort, entry survey), using the telephone interviews to obtain answers to the questionnaire (2003 cohort, exit survey). The 2003 exit cohort had previously been involved in the study and all 20 who had participated at entry agreed to participate at exit.

In 2004 and 2005 all subjects were initially contacted via the telephone and questionnaires were posted, faxed or emailed to the subjects depending on which method was most convenient for the subjects. The different methods of disseminating the questionnaires in 2004 and 2005 were used because not all the CSDs had access to faxes, the internet or mail (CSDs in some of the Community health clinics did not always receive their mail). The questionnaires had the same format so it was assumed that the method of dissemination would not have substantially affected the validity and reliability of the data collected. All posted questionnaires contained a stamped return envelope to encourage a response. Subjects were offered a copy of an information booklet used by the undergraduate students and postgraduate dietetic interns in the Discipline of Dietetics and Human Nutrition of UKZN as an incentive to complete and return the questionnaires. The questionnaires for 2003 differed from 2004 and 2005 because 2003 was originally intended to be the pilot study due to anticipated start-up problems of a newly instituted service, however the interesting outcomes of the pilot study resulted in this information being included in the project. Significant similarities between 2004 and 2005 allowed for the combination of these two years into one cohort (2004-2005). There were also significant differences in the results between the 2003 and the 2004-2005 cohort and for these reasons the two cohorts (2003 & 2004-2005) were analysed separately. A few additions were made to the questionnaire over the years because as time progressed, comments made by the participants alerted this researcher to areas that needed further investigation.

### 3.3.3 Pilot study

A pilot study was conducted on the first group of CSDs completing community service in KwaZulu-Natal to evaluate the community nutrition multiple choice questionnaire. Towards the end of 2003 the survey questionnaire was modified, requesting additional information. However, much useful data were gathered in 2003 and it was decided to retain this information for inclusion in the main study. Further additions were made to the questionnaire as the study progressed.

## 3.4 Survey materials and approaches

### 3.4.1 Explanation of the questionnaires

As mentioned in the previous section, additions were made to the questionnaires over the years and there were also variations between entry and exit questionnaires to avoid repeating the collection of the same data for example, age and sex (Appendices F - K, ppA19-A7).

### 3.4.2 Details of amendments made to questionnaires

As mentioned previously (Section 3.3.2) the method of data collection for 2003 and 2004-2005 differed as did the variance of the two sets. These two cohorts were therefore analysed separately. The details of when variables were collected have been summarised in Table 3.1.

#### *Details of the survey questionnaires in 2003*

A pilot questionnaire was set up in 2003 and administered on the first group of CSDs (Appendix F: Questionnaire 2003 at entry, pA19). The questionnaire was divided into two sections. The first section dealt with the individual demographics such as age, sex, population group, home language and university attended. The second section contained a multiple choice questionnaire on community nutrition knowledge.

Table 3.1: Survey questionnaire summary of variables (Appendices D-K)

	<b>Dependent variables (DV) in order of subproblems (SP)</b>	<b>SURVEY QUESTIONNAIRES</b>					
		2003		2004		2005	
		Entry	Exit	Entry	Exit	Entry	Exit
SP1	Attitude to community service	✓ <sup>1</sup>	✓	✓	✓	✓	✓
SP2	Community nutrition knowledge– (Number of questions)	✓ (50)	✓ (34)	✓ (31)	✓ (31)	✓ (31)	✓ (31)
SP3	Job satisfaction	✗	✓	✓	✓	✓	✓
SP4 <sup>2</sup>	Self-rated professional development	✗	✓	✓	✓	✓	✓
	Professional practitioner rating (multiple statements)	✗	✗	✓	✓	✓	✓
SP5	Perceived level of dietetic services	✗	✗	✗	✓	✗	✓
	<b>Independent variables (IV)</b>						
	Age/age category	✓	✓	✓	✗	✓	✗
	Sex	✓	✓	✓	✗	✓	✗
	Population group	✓	✓	✓	✗	✓	✗
	Home language	✓	✓	✓	✗	✓	✗
	University attended	✓	✓	✓	✗	✓	✗
	Organisation of community service	✗	✓	✓ <sup>3</sup>	✓	✓ <sup>3</sup>	✓
	Mentorship rating	✗	✓	✓ <sup>3</sup>	✓	✓ <sup>3</sup>	✓
	Health facility manager support	✗	✓	✗	✓	✗	✓
	Type of facility	✗	✓	✓	✗	✓	✗
	Rural allowance	✗	✓ <sup>4</sup>	✓	✗	✓	✗
	Hospital location	✓	✗	✓	✗	✓	✗
	Working conditions	✗	✗	✓	✗ <sup>5</sup>	✓	✗ <sup>5</sup>
	Living conditions	✗	✗	✓	✗ <sup>5</sup>	✓	✗ <sup>5</sup>
	Personal safety	✗	✗	✓	✗ <sup>5</sup>	✓	✗ <sup>5</sup>
	Access to resources	✗	✗	✗	✗	✓	✗

<sup>1</sup> This question was asked retrospectively at end of the year<sup>2</sup> Both measuring professional development in subproblem 4<sup>3</sup> The variables “organisation of community service” and “Mentorship rating” only considered in analysis at exit.<sup>4</sup> Rural allowance variable deduced from the address lists of CSDs in 2003.<sup>5</sup> Although these items appear in the exit questionnaire were only considered for analysis at entry

At the exit of 2003, the survey questionnaire was amended using the findings of the questionnaire at entry. Additional questions were asked regarding retrospective and current attitudes to community service. CSDs were requested to list three positive and three negative aspects of the community service year (open-ended statements) and to rate the organisation of the community service at their facility, to rate their mentors, the support of the hospital manager and their professional development (single statement) (Appendix G: Questionnaire 2003 at exit, pA30). The Kaldenberg and Becker job satisfaction scale was included as well.

#### *Details of the survey questionnaires in 2004*

The questionnaire at entry of 2004 was similar to the questionnaire at exit of 2003 but included scales on living and working conditions (Appendix H: Questionnaire 2004 at entry, pA40). Also included in this questionnaire were open ended questions on how living and working conditions impacted on attitude and job satisfaction. The questionnaire for 2004 at exit excluded the demographic details (Appendix I: Questionnaire 2004 at exit, pA50). Although living and working conditions scales could still be found in the exit questionnaire they were only to be completed where there were no changes, which was generally universal. Statements on attitude, professional development and contribution to the dietetic services were requested as ratings in a range of “Poor to excellent”, for example, “Rate your own professional contribution to your health based facility” (Appendix I, pA57).

#### *Details of the survey questionnaires in 2005*

The questionnaire used in 2005 at entry was similar to that used at entry in 2004, (Appendix J: Questionnaire 2005 at entry, pA60), but included a specific ratings on access to resources (1.7 in Working Conditions, Appendix J: Questionnaire 2005 at entry, pA68). The questionnaire used at exit in 2005 was also similar to that used at exit in 2004 (Appendix K: Questionnaire at exit, pA71).

### 3.4.3 Format, reliability and validation of scales measuring variables

#### *Questionnaire on community nutrition knowledge:*

The questionnaire used to evaluate community nutrition knowledge was developed by Ross (2002) for the postgraduate dietetic interns. The reason for using this questionnaire was because nutrition knowledge questionnaires generally available usually test the nutrition knowledge of non-dietitians (Schaller & James 2005) whereas this questionnaire was specific in testing knowledge of dietetic students in their last year of training. The content of this questionnaire was discussed with other members of the Discipline of Dietetics and Human Nutrition and with the dietitians involved in training interns in KZN. This resulted in amending the construction of some questions to avoid ambiguity and improvement in face validity (Bowers *et al* 2006, p97). One other university in RSA was approached with the view to collaboration, but no interest was shown by them.

The questionnaire consisted of a total of 50 questions and was asked in 2003 for the 1<sup>st</sup> round of questions. Upon analysis it was also found that the original questionnaire had repetitive questions on breastfeeding which made up 50 percent of the questionnaire, (Figure 3.1). The questionnaire was revised and a better distribution achieved (Figure 3.2). The number of *original* questions was reduced to 31 and 3 new questions were included for the exit questionnaire of 2003 so that questions could be asked telephonically. When doing the analysis of results across and between years it was felt that it would be better for the purposes of comparison if all questions asked were the same for all cohorts at entry and exit. The final number of questions used in the community nutrition questionnaires was 31 (See Appendices H-K) for the questions used in the analyses. It was expected that dietitians at exit level of university should achieve a target of 75 percent in the questionnaire because this questionnaire examined the minimum basic “finger tip” knowledge required of a dietitian commencing their professional career. Clinical nutrition and food service management are also areas of practice for

CSDs, but for reasons of consolidation it was decided to limit the questionnaires to community nutrition only as this should be the main focus of CSDs during community service.

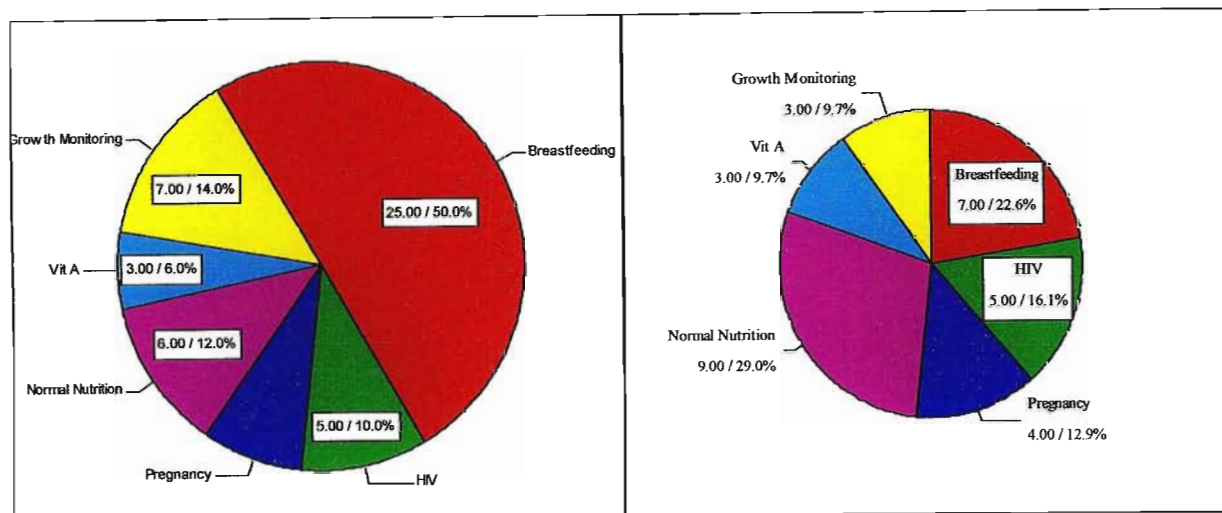


Figure 3.1: Distribution of questions in the original 2003, 50-item community nutrition questionnaire

Figure 3.2: Distribution of questions used in the analysis of data, 31-item community nutrition questionnaire

#### *Scale measuring working conditions:*

This scale was compiled by dietetic interns working on the project utilising the qualitative results of the 2003 cohort (Totman 2004). Although a series of nine questions were asked on working conditions using a 4-item Likert scale, the statements on the organisation of the community service in the hospital and the role of the mentor are dealt with elsewhere. Statements on adequate resources and the quality of management of the hospital were only asked to be rated in 2005 and dealt with separately. The final total number of statements used in the scale for working conditions was six. Scores have been reversed therefore the higher the score, the better the conditions. The internal reliability of a scale can be measured using the Cronbach alpha where the lowest acceptable score is 0.60. The internal reliability of this questionnaire was  $\alpha = 0.7122$  which means that this scale has internal reliability (Nunnally 1967, pp210-211). Examples of questions asked, included “I was adequately orientated towards my work” and “I receive adequate support from the hospital management and other hospital staff”. It was mentioned in the literature that borrowed scales do not differ significantly from developed scales in terms of reliability

(Churchill & Peter 1984). Face validity of these scales were obtained through discussion with the supervisors and amended accordingly (Bowers *et al* 2006, p97).

#### *Scale measuring living conditions*

The scale for measuring living conditions was compiled by dietetic interns working on the project using the findings of the 2003 results (Totman 2004). Seven questions were originally included in this scale. However because personal safety was considered not only to be part of living conditions but also of working conditions, this question was dealt with separately and was excluded in the total score for living conditions. This was therefore a 6 –item scale of yes/no replies and scores could be between 0 and 6. The Cronbach alpha internal reliability of this scale was 0.7492, scoring above 0.60 deeming it to be reliable. Face validity of these scales were obtained through discussion with the supervisors and amended accordingly (Bowers *et al* 2006, p97).

#### *Kaldenberg and Becker Job Satisfaction Scale*

This was used for measuring the level of job satisfaction. The reliability coefficients for job satisfaction was Alpha = 0.8205 making this scale reliable.

#### *Scale measuring the professional practitioner ranking (multiple statements)*

This ranking, a 4-item, 4-point Likert scale was compiled by dietetic interns working on the project using the findings of the 2003 results. The alpha score for this questionnaire is alpha = 0.7579 which means that this scale has internal reliability.

### 3.4.4 Measures taken to ensure good quality data collection and to reduce bias.

#### *Measures taken during the survey*

All non-responders were followed up and requested to submit completed questionnaires. The population size was small and for this reason all subjects in the population were approached to

participate in the study and therefore excluded sampling bias. Data capturing done by the fieldworkers was checked by this researcher and the data base scrutinised for errors.

### 3.5 Treatment and analysis of variables included in the survey

#### 3.5.1 Variables included for the determination of the attitude of community service dietitians towards community service at entry and exit and related factors

It was theorised that the attitude of CSDs towards community service could be influenced by both the individual and institutional factors. Attitude towards community service at entry and exit were used as the dependent variable and this was determined by requesting CSDs to rate their attitude towards community service as positive, negative or neutral. The individual factors thought to influence attitude were age (using two age categories), sex, population group, home language, and university attended. The institutional factors that were thought to affect attitude were all variables that had been rated by the CSDs themselves. They were the organisation of community service by the facility hosting the CSD, support given by the mentor dietitians, the quality of support given by the hospital managers, the type of facility (either hospital or community health clinics/district offices<sup>3</sup>), eligibility for a rural allowance<sup>4</sup>, location of the hospital (rural or urban), working conditions, living conditions personal safety and access to resources such as budgets, feeds and supplements. A summary of the subproblems, variables and analyses are presented in Table 3.2.

#### *Attitude*

The attitude of the CSDs was measured by requesting them to rate themselves on the following questions. Initially at exit 2003 they were asked to retrospectively rate their attitude at the beginning of the year and at the end of the year, “How would you describe your attitude regarding community service work this year: negative positive ?”. In 2004 and 2005 attitude was

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<sup>3</sup> The division of where the CSDs were placed was along the lines of whether they were placed in a hospital or non-hospital facility.

<sup>4</sup> Rural allowance is an additional payment made to a number of health professionals to encourage them to working in the rural or under-served areas. This variable was deduced from the address list in 2003 and not asked directly.

asked at entry and at exit, “What is your current attitude regarding your community service work this year? +Ve / -Ve / Neutral.”

#### *Treatment of variables – Individual factors*

Changes were made to some of the individual variables to conflate the range of the scales of the 2004-2005 cohort. This was done to facilitate the analysis and to yield some meaningful results. These adjusted variables were used in the analysis for all relevant subproblems. The following individual factors were converted or conflated and used in chi-square analyses<sup>5</sup>:

##### *Age*

Age was calculated as of the first of January of each year group to allow for comparison between individuals. It was thought that age and therefore maturity could influence the dependent variable. Age was converted into categories to facilitate statistical analysis that is cross tabulations and chi-square analyses and thereby obtain meaningful results. The study population was divided into two groups using the median as the splitting point as suggested by Joubert (1997, p109). The two age groups were “younger than 23” and “23 and older”.

##### *Population group*

The study population comprised of members from each of the four categories, African, coloured, Indian and white South African. The majority of the study population were white South African. To facilitate statistical analysis and obtain meaningful results, this variable was conflated into two groups, “white South African” and “other”.

##### *Home language*

Language was used to reflect culture. There were originally 12 categories for language that is IsiXhosa, SeSotho, Sepedi, SeTswana, TshiVenda, XiTsonga, SiSwati, IsiNdebele, Afrikaans, IsiZulu English and other (specified) language. English was the predominant language with very

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<sup>5</sup> To yield meaningful results because the sample size is small the Fisher's exact test was used to measure the significance between groups.

few languages listed in the other categories. This variable was conflated into two groups, “English” and “other”, to facilitate statistical analysis and obtain meaningful results.

#### *University attended*

It was also thought that the university attended may influence the attitude of the CSDs. There were ten categories listed for this variable. The majority of the subjects attended the University of KwaZulu-Natal (UKZN). This variable was conflated into two groups, “UKZN” and “other”, to facilitate statistical analysis and obtain meaningful results.

Table 3.2: Summary of subproblems, variables and the analysis thereof

	Subproblems (Source of data)	VARIABLES		ANALYSIS
		Dependent	Independent	
SP1	To determine the attitude of the CSDs towards community service at entry and at exit and whether this was related to the demographics (individual factors) and institutional/situational factors such as organisation of community service in the facility, mentorship rating, support by health facility manager of CSDs, the type of facility (hospital or community health centre/district office), eligibility for rural allowances, working conditions, living conditions, personal safety and access to resources.  (Questionnaire)	Attitude at entry and exit	Age category Sex Population group conflated Home language conflated University attended conflated CS organisation Mentorship rating Health facility manager support Type of facility Rural allowance Hospital location	Cross tabulation and chi-square test
			Working conditions Living conditions	Independent sample t-test
			Personal safety Access to resources	Cross tabulation and chi-square test

	<b>Subproblems</b> (Source of data)	<b>VARIABLES</b>		<b>ANALYSIS</b>
		<b>Dependent</b>	<b>Independent</b>	
<b>SP2</b>	To gauge the entry and exit levels of community nutrition knowledge using a multiple choice questionnaire to measure change over the year; and how entry and exit on the levels of community nutrition knowledge were related to individual and institutional factors and the attitude of CSDs. (Questionnaire)	Change in community nutrition knowledge at entry and exit		Linear model of repeated measures and paired sample t-test
		Community nutrition knowledge at entry and exit	Age category Sex Population group conflated Home language conflated University attended conflated CS organisation Mentorship rating Health facility manager support Type of facility Rural allowance Hospital location	Independent sample t-test
			Working conditions Living conditions	Pearson correlation
			Personal safety Access to resources Attitude to CS	Independent sample t-test

	Subproblems (Source of data)	VARIABLES		ANALYSIS
		Dependent	Independent	
SP3	To assess entry and exit levels of job satisfaction to measure the change over the year; compare this to the job satisfaction levels of South African registered dietitians and determine whether job satisfaction was related to individual factors, institutional/ situational factors, attitude to CS, community nutrition knowledge, self-rated professional development (single statement rating) at exit, and levels of professional practitioner ranking (multiple statement rating) at entry and exit.  (Questionnaire)	Changes in job satisfaction at entry and exit		Linear model of repeated measures and paired sample t-test
		Job satisfaction at entry and exit	Age category Sex Population group conflated Home language conflated University attended conflated CS organisation Mentorship rating Health facility manager support Type of facility Rural allowance Hospital location	Independent sample t-test
			Working conditions Living conditions Community nutrition knowledge Professional practitioner ranking (multiple statement)	Pearson correlation
			Personal safety Access to resources Attitude to CS Professional development (single statement)	Independent sample t- test

	Subproblems (Source of data)	VARIABLES		ANALYSIS
		Dependent	Independent	
SP4	Determine the self-rated professional development (single statement rating) at exit and the professional practitioner ranking (multiple statement rating) of CSDs at entry and exit of the community service year and whether these were related to individual and institutional/situational factors, attitude towards CS and community nutrition knowledge. (Questionnaire)	Self-rated professional development (single statement rating)	Age category Sex Population group Home language University attended CS organisation Mentorship rating Health facility manager support Type of facility Rural allowance Hospital location	Cross tabulation and chi-square test
			Working conditions Living conditions Community nutrition knowledge	Independent sample t-test
			Personal safety Access to resources Attitude to CS	Cross tabulation and chi-square test
		Professional practitioner rating (multiple statements)	Age category Sex Population group conflated Home language conflated University attended conflated CS organisation Mentorship rating Health facility manager support Type of facility Rural allowance Hospital location	Independent sample t-test
			Working conditions Living conditions Community nutrition knowledge	Pearson correlation
			Personal safety Access to resources Attitude to CS	Independent sample t-test

	Subproblems (Source of data)	VARIABLES		ANALYSIS
		Dependent	Independent	
SP5	To determine the perceived level of dietetic service to the community by the CSDs and how service delivery was related to individual factors, institutional/situational factors, attitude towards CS, community nutrition knowledge, job satisfaction, professional development (single statement rating) and professional practitioner ranking (multiple statement rating). (Questionnaire)	Perceived level of dietetic service	Age category Sex Population group conflated Home language conflated University attended conflated CS organisation Mentorship rating Health facility manager support Type of facility Rural allowance Hospital location	Cross tabulation and chi-square test
			Working conditions Living conditions Community nutrition knowledge Job satisfaction Professional practitioner ranking (multiple statement)	Kruskal Wallis and chi-square test
			Personal safety Access to resources Attitude to CS Professional development (single statement)	Cross tabulation and chi-square test
SP6	To evaluate the outcome of CS on CSDs such as new skills acquired through the year, areas of new and lost knowledge, access to training, support and constraints to achieving objectives as well as helpful or obstructionist networks. (Focus group discussion) Post hoc follow up to verify findings of focus group discussion- Epilogue			Qualitative analysis using QSR- nVivo

### *Treatment of variables – Institutional factors*

The institutional factors listed below were adjusted and used in the analysis for all the relevant subproblems:

CSDs were requested to award a score between 1 and 4 (1=strongly agree, 2=agree, 3=disagree, 4=strongly disagree) for various statements

- “Community service is well organised at my hospital”.
- “I receive adequate mentorship from my mentor dietitian”.
- “Rate the support from the hospital manager”.

These scores was reversed and conflated into two groups (1=disagree and 2=agree) to facilitate statistical analysis and obtain meaningful results (see Table 3.1).

### *Type of facility*

CSDs were requested either to list the type of facility (2003, 2004), or give the name of the facility in which they were based (2005). These were classified as community health clinics, regional, district hospitals or tertiary hospital, or the district office. This variable was conflated into two groups: Hospital or Community health Centre/district office (that is hospital vs non- hospital setting), to facilitate the statistical analysis.

### *Access to resources (2005 only)*

This question was asked only of the 2005 group because a number of unsolicited comments were made about the lack of resources in the 2004 data collection. Once again, to facilitate analysis the results of this question were conflated into two groups (1= poor, 2=good).

### *Analysis of variables in the attitude of the community service dietitians*

To test the influence of the individual factors on attitude at entry and exit, a cross tabulation and chi-square test was performed. An independent sample t-test was chosen over the paired sample t-

test and was used to test whether working or living conditions influenced attitude at entry and exit (Table 3.2). The reason for choosing the independent sample t-test was because not all subjects in the study were paired and this would have reduced the population size (some CSDs only completed one of the two questionnaires).

### 3.5.2 Variables included for gauging the community nutrition knowledge at entry and exit and related factors

Subproblem two assessed the level of community nutrition knowledge at entry and exit. It was theorised that the independent variables that could influence these levels were the individual and institutional factors (as described in Subproblem one) as well as the attitude of the CSDs at entry and exit. The percentages obtained from the multiple choice questionnaire at entry and exit on community nutrition knowledge were the dependent variables.

#### *Analysis of variables in community nutrition knowledge*

Change of level of knowledge over the year was measured using a linear model of repeated measures and a paired sample t-test. Independent sample t-tests were used to test the influence of discrete variables: age category, sex, population group conflated, home language conflated, university attended conflated, organisation of community service, mentorship rating, support of the hospital manager, type of facility, eligibility for the rural allowance, hospital location, access to resources, personal safety, attitude towards community service and professional development (single statement). The Pearson correlation was used to test for the significance of the influence of the variables: working and living conditions (Table 3.2).

### 3.5.3 Variables included for the assessment of job satisfaction levels at entry and exit and related factors

Subproblem three assessed the level of job satisfaction at entry and at exit. The Kaldenberg and Becker (Kaldenberg & Becker 1991) 4-item, 5-point Likert scale was used to assess this. The range of this scale was between 4 and 20. Both the individual and institutional factors were thought to influence job satisfaction scale and therefore used as independent variables. The score

of the Kaldenberg and Becker job satisfaction scale was the dependent variable. Attitude to community service at entry and exit and community nutrition knowledge at entry and exit were also used as independent variables.

#### *Analysis of variables in job satisfaction levels*

Change in job satisfaction levels over the year was measured using a linear model of repeated measures. Independent sample t-tests were used on the discrete variables as listed in 3.5.2. Pearson correlation was used on the variables: working and living conditions, community nutrition knowledge and professional practitioner rankings (multiple statements), (Table 3.2).

#### 3.5.4 Variables included for the determination of professional development (single statement), professional practitioner ranking (multiple statements) and related factors

Subproblem four assessed the self-rated professional development (single statement) at exit and the professional practitioner ranking (multiple statements) at entry and exit. The self-rated professional development at exit was a single statement which requested the CSDs to "Rate your professional development this year" on a scale 1 – 4 (1 = excellent, 2 = good, 3 = poor, 4 = very poor). This score was reversed and conflated into two groups (1 = poor and 2 = good) to facilitate statistical analysis and obtain meaningful results.

The professional practitioner ranking was a multiple statements rating that was obtained from 4-item, 4-point scale (1=strongly agree, 2=agree, 3=disagree, 4=strongly disagree). The scores were reversed making the higher the score the greater the professional practitioner ranking. The range of this scale was 4-16. These two variables, self-rated professional development (single statement) and professional practitioner ranking (multiple statements), were related variables. Individual and institutional factors were used as independent variables as were entry and exit community nutrition knowledge. The professional development (single statement) and professional practitioner ranking (multiple statements), were the dependent variables.

### *Analysis of variables in the determination of professional development*

Cross tabulations and chi-square analysis were used to test discrete variables. Pearson correlation was used to test the variables; working and living conditions and community nutrition knowledge (Table 3.2).

#### 3.5.5 Variables included for the determination of perceived level of dietetic service to the community and related factors

Subproblem five addressed the perceived level of the dietetic service to the community by the CSD. CSDs were asked “rate your own professional contribution to your health based facility”. Individual and institutional factors were used as independent variables. Entry and exit attitude to community service, entry and exit community nutrition knowledge job satisfaction scores, self-rated professional development (single statement) and professional practitioner ranking (multiple statements) were also used as independent variables. The perceived level of dietetic service to the community was the dependent variable.

### *Analysis of variables in the determination of perceived levels of dietetic services*

Factors influencing perceived level of dietetic services by the CSDs were both the individual and institutional factors. Kruskal-Wallis tests, cross tabulations and chi-square tests were used to test the discrete variables. Independent sample *t*-tests were used to test the variables as listed in 3.5.2 (Table 3.2).

#### 3.5.6 Variables included in the evaluation of the outcome of community service on community service dietitians in terms of acquisition of new skills and other qualitative information

Subproblem six addressed the outcome effect of community service in terms of new skills acquired through the year, areas of new and lost knowledge, access to training and support and constraints to achieving their goals and the identification of helpful and obstructionist networks. Focus group discussions were held towards the end of 2005 with the CSDs to consider the outcome of community service in terms of the listed areas in subproblem 6. Details of the focus

group methodology from the literature and how the focus groups discussions were conducted follow in the next section.

### **3.6 The setting of the focus group**

#### **3.6.1 Conducting focus group discussion, methods from the literature**

Focus groups or as originally named ‘The Focussed Interview’ is a useful tool for collecting comprehensive qualitative data from groups of people. The origin of the group interview dates back to the 1920’s (Merton *et al* 1990, p135). Robert Merton and associates refined the focussed interview in the 1940’s, where it was used to ascertain the morale of the military and civilians during the second world war (Merton *et al* 1990, pp ix - x; Patton 1990, p350). In the modern era, focus groups are still used in qualitative research but there is also much emphasis on focus groups in the marketing arena where consumers are targeted for new ideas and input (Greenbaum 2000, p5).

The group interview should consist of questions that are predetermined, open-ended and focussed on the topic and the focus group should be homogenous to ensure consistency according to Patton (1990, p173). Group members should be free to discuss the topics openly and thereby be productive (Merton *et al* 1990, p137). The literature suggests that the optimum size of the group is between 8-12 persons (Merton *et al* 1990, p137; Mullings 1985, pp 5-6).

Recommendations for the facilitator consist of the creation of a relaxed atmosphere (Merton *et al* 1990, p144) and include the attire of the facilitator and assistants being “business casual” (Greenbaum 2000, pp125-157). It is recommended that only one person speaks at a time (Kitzinger 1995). Each participant should be allowed to express views on the same topic in turn (Kitzinger 1995).

Cues to encourage discussion are:

“Why do you feel that way?”

“Tell me more.”

“In what way?”

“I don’t understand what you are saying.”

“Tell me more about your thoughts on.....” (Greenbaum 2000, p140).

The focus group report should be a reflection of what is said and ought to contain the actual discussion to make it valid (Kitzinger 1995). Bloor, Frankland, Thomas & Robson (2001, pp 51-52), maintain that anyone can manage a focus group discussion as long as they attend to the following: the composition of the group, the venue and a list of predetermined discussion topics.

### 3.6.2 Pilot and training programme

The interview team consisted of a facilitator, a tape recorder operator and a scribe. A pilot and training programme was undertaken because neither the facilitator nor the fieldworkers were familiar with the process of focus group discussions. The field workers participating in the focus groups were trained in a session using the dietetic students from the University of KwaZulu-Natal prior to the focus group discussions to ensure good quality data collection. Discussions were also held with the interview team to clarify their duties and roles during the focus group discussion.

### 3.6.3 Measures taken during the focus group discussions

The facilitator conducted the discussion in English and ensured that the discussion remained on track and that more in-depth information was obtained. A tape recorder equipped with a sensitive microphone was used to record the discussion. The tape recorder operator made certain that each participant spoke into the microphone and reminded the facilitator about topics that had not been covered. The scribe noted who was making the comments and made short summary notes of what was being said. The scribe also recorded the non-verbal responses regarding the attitude of the subjects (happy, sad, excited, enthusiastic, and/or depressed). The recommended guidelines regarding the role of the facilitator were followed. Amongst the recommendations that were implemented were to promote a relaxed atmosphere where inhibitions were released and CSDs

were encouraged to express their points of view freely. The facilitator and assistants were appropriately dressed, that is business casual. Permission to conduct the discussions was obtained from the participants and they were told that their identities would remain anonymous. Instructions were given at the start of the discussions regarding the process that was to be followed. Cell phones and beepers were switched off.

Only one person was allowed to speak at a time but where appropriate fuller discussions were held. Participants were encouraged to speak loudly and clearly so that the microphone could pick up what they were saying. The facilitator reminded the participants about the rules of the group interview and informed the participants at the beginning of the session that the focus group was being recorded. The facilitator made “active listening” a conscious effort and focussed on listening rather than talking.

To obtain more in-depth information the facilitator used the recommended cues, for example, “Why do you feel that way?”

The participants were arranged in a circle to obtain the best seating arrangement. The focus group was homogenous in terms of education, age and gender which was a necessary prerequisite for the group to be cohesive. Group members participated freely in the discussions and were productive. A PowerPoint presentation was used to present the topics for discussion compiled and each participant had an opportunity to address the same question. The group interview consisted of set, open-ended questions which focused on matters that affected the group. See Appendix L, pA81, for the topics used in the group discussion. The discussion was synergistic because participants heard what others had to say about the subject and they were able to give additional input beyond their original contribution.

#### 3.6.4 Process used in this focus group discussion

To evaluate the outcome of community service on CSDs such as new skills acquired through the year, areas of new and lost knowledge, access to training and support and constraints to achieving

objectives, thirteen of the fifteen CSDs from KZN participated in two focus group sessions in 2005. Although quantitative data had been collected from this group previously, additional and detailed information of a qualitative nature was sought to pinpoint problems and highlight the successes of community service. The CSDs were divided into two groups of nine and four. A more equitable division of the group could not be obtained because of circumstances beyond the researcher's control. This meant that the groups were not so large as to make the discussion unwieldy and difficult (embarrassing) for group members to participate. One group was smaller than anticipated with the optimum being between 8 and 12 participants. This however did not diminish the quality of this group's discussion as the participants discussed the topics freely and an equal time was spent in each group discussion with both sessions lasting about one and a half hours. Participants were required to give written comments on some of the topics before and during the discussions to determine if there were radical differences of opinion between verbal and written responses. The full recording was transcribed. The tape was transcribed into a word processing document and the transcripts of the tapes were checked against the recordings and errors corrected. The comments made by each person were identified and then copied into each individual's personal word processing file. Encoded initials replaced participant's names to maintain confidentiality. The focus group discussion was also used to validate and confirm the results obtained from the survey questionnaires.

### 3.6.5 Method of analysis of data from focus group discussions

The transcription files of each person taking part in the discussions were imported into the computer programme "*QSR N Vivo*" for qualitative analysis. In *QSR N Vivo*, one is able to highlight similar themes or "nodes" as they are termed in the programme. Similar nodes can be linked to each other via the "tree structure". The list of discussion topics that were used during the interview formed the basis of identifying similar themes (Appendix L, pA81) and used for "enoding" (highlighting) the themes. Common nodes (themes) were brought together under

broader common topics and assembled into trees as shown in one of the five trees constructed in *QSR N Vivo* (Figure 3.3).

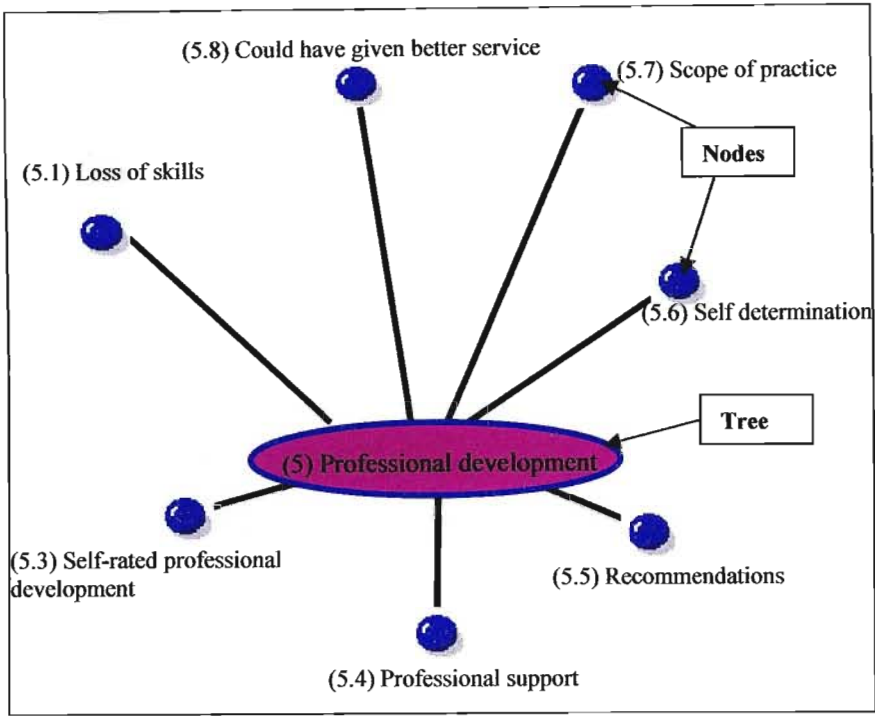


Figure 3.3: A “tree” of professional development showing the “nodes” from focus group discussions

The main trees (common threads) that were identified for further analysis were professional development, obstructions and constraints during community service, new skills acquired the role of the dietitian and recommendations by the CSDs. The “trees” were further developed into a model and the model is presented in Chapter 6.

Post hoc interviews were held in 2006 with previous CSDs, mentors, UKZN members of staff and the DOH-KZN to confirm the findings of the focus group discussions. Details discussed in the interviews was the role of the mentor from the mentors’ perspective, the professional development of past CSDs in retrospect, and the response of the DOH and the training university to the recommendations made in this research (Epilogue).

In this chapter the methods employed in this research were presented. The results which include the sample characteristics, descriptive statistics and the results of the statistical analyses will be presented in Chapter 4.

## **CHAPTER 4 RESULTS: POPULATION DEMOGRAPHICS, INSTITUTIONAL FACTORS AND STATISTICAL ANALYSES**

In this chapter the population characteristics are presented. These include the individual demographics of the CSDs (age, sex, population group, home language and university attended), the institutional factors (organisation of community service by the hosting facility, mentorship rating, support of the hospital managers, whether the facility was a hospital or community health clinic/district office, eligibility for rural allowance, location of the hospital (rural or urban), working conditions, living conditions, personal safety and access to resources. In addition the results of the dependent variables and statistical analyses of these variables which included attitude of CSDs to community service at entry and exit, the level of community nutrition knowledge at entry and exit, levels of job satisfaction at entry and exit, professional development (single statement rating) and professional practitioner ranking (multiple statements rating) at entry and exit and the self-rated contribution to dietetic service are presented. Please note that some comments regarding the results are made in this Chapter but a fuller discussion will follow in Chapter 6.

### **4.1 Treatment of the data, rationale for the division of the cohorts and distribution of the data**

#### **4.1.1 Introduction**

Baseline data were gathered in 2003 (n=20), which was the first year of compulsory community service for dietitians in RSA. Two sets of questionnaires per year were completed, one at entry and at exit of each year. Demographic information was obtained but additional qualitative data gathered from the 2003 questionnaire was used to expand the questionnaires used in 2004 and 2005 where additional specific questions were asked regarding type of hospital, working conditions, living conditions, professional practitioner ranking (multiple statements) expertise and

the CSDs’ attitude towards community service and the support of the hospital manager. In 2004, a nationwide posting of questionnaires to all CSDs throughout South Africa was undertaken and there were twelve respondents from KZN at entry and seven respondents at exit. The size of the year cohorts were as follows. In 2003, 20 CSDs embarked on community service. Later in the year another CSD commenced with community service but did not participate in the study. The total population for 2003 was n=20 (Figure 4.1). In 2004, although all of the 15 CSDs who commenced community service in KZN were sent questionnaires, 12 completed them at entry and 7 CDSs completed the questionnaires sent to them at exit. As in 2003, one CSD took up community service later in 2004 but did not participate in the study. In 2005, 13 CSDs, undertook community service at the beginning of the year, of these, 12 chose to complete the questionnaire at entry and 13 completed the questionnaire at the end of 2005.

During 2005 an additional 2 CSDs, commenced with community service later in the year and of these two, one completed the questionnaire at exit giving a total of 14 second questionnaires completed at exit.

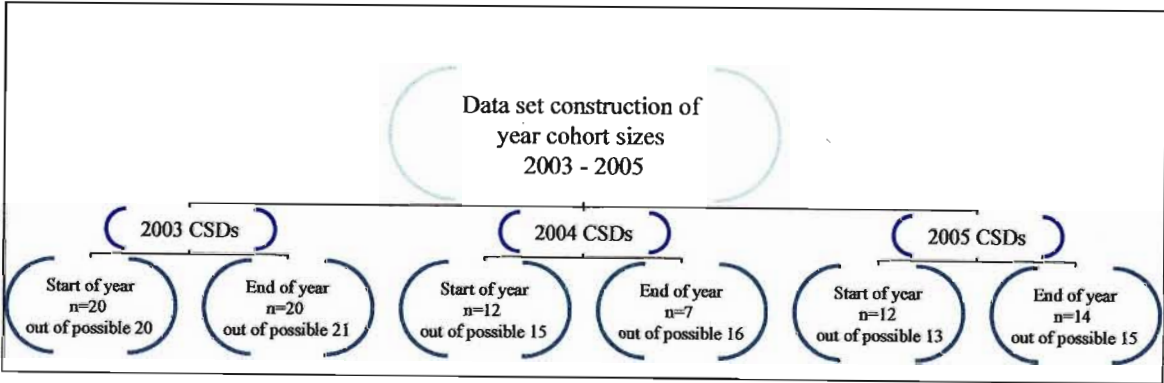


Figure 4.1: Derivation of the cohort composition 2003 and 2004 - 2005 including the population size

The population characteristics will be presented as follows. The first section will be dedicated to the baseline 2003 cohort. The second section will describe the 2004-2005 cohorts. The third section will draw a comparison between the two cohorts.

4.1.2 Rationale for the division of the cohorts

As discussed in the Chapter 3, section 3.3.2, the results of 2004 and 2005 were similar whereas the results for 2003 differed from 2004 and 2005.

*Differences between the 2004 and 2005 cohort*

When comparing the variables between the cohorts 2004 and 2005 the only variable that showed a significant difference between the two years (2004 & 2005) was whether subjects had attended UKZN or another university (p=0.050) compared to the p-value of 0.009 for the 2003 vs 2004/2005 cohorts. None of the other variables tested; community nutrition knowledge at entry and exit, age, job satisfaction nor home language; reflected significant differences between the years 2004 and 2005 (Table 4.1). For this reason it was deemed fit to combine the data for these two years (2004 and 2005) into one cohort.

Table 4.1 The differences between the variables in 2004 and 2005

Variable	Cohort	Mean or frequency (SD)	F	Sig.
Percentage CSDs trained at UKZN	2004	92% UKZN	4.254	**0.050
	2005	57% UKZN		
Percentage score in test for community nutrition knowledge at entry	2004	78% (±11)	2.408	0.135
	2005	70% (±17)		
Age at the start of the year	2004	23% (±1)	2.004	0.170
	2005	25% (±7)		
Percentage score in test for community nutrition knowledge at exit	2004	85% (±9)	0.840	0.371
	2005	82% (±14)		
Job satisfaction at exit(range of score 4-20)	2004	16.57 (±2.76)	0.597	0.449
	2005	15.35 (±3.65)		
Percentage of: English speaking CSDs	2004	83% English	0.542	0.469
	2005	93% English		
Percentage of white CSDs	2004	67% White	0.540	0.466
	2005	71% White		

(To view the full ANOVA results, see Appendix M, Table 1, pA82).

*Differences between variables in the 2003 cohort and the 2004-2005 cohort*

When an ANOVA was performed on a number of variables for 2003 and 2004-2005, such as the community nutrition knowledge scores, job satisfaction scores, language spoken, university the CSDs trained at, it was found that there were differences between the 2003 group and the combined 2004-2005 group in the following areas. “Community nutrition knowledge at entry” showed a significant difference across the cohorts (2003 and 2004-2005) ( $p=0.001$ ); as did “community nutrition knowledge at exit” ( $p=0.001$ ); “university attended”, University of KwaZulu-Natal (UKZN) or other ( $p=0.009$ ); and there was a tendency towards differences when measuring “job satisfaction” levels at exit and “home language” (English or other), ( $p=0.058$ ), (Table 4.2). For this reason the data from 2003 will be presented separately from 2004 and 2005.

Table 4.2: The difference between the 2003 and 2004-2005 cohorts

Variable	Cohort	Mean or frequency (SD)	F	Sig.
Percentage score in test for community nutrition knowledge at entry	2003	60% ( $\pm 11$ )	12.821	<b>**0.001</b>
	2004-2005	74% ( $\pm 15$ )		
Percentage score in test for community nutrition knowledge at exit	2003	67% ( $\pm 12$ )	12.697	0.001
	2004-2005	83% ( $\pm 12$ )		
Percentage of CSDs trained at UKZN	2003	35%	7.461	0.009
	2004-2005	73%		
Job satisfaction at exit (range of score 4-20)	2003	13.65 ( $\pm 3.57$ )	3.805	0.058
	2004-2005	15.76 ( $\pm 3.36$ )		
Percentage of: English speaking CSDs	2003	85%	3.801	0.058
	2004-2005	89%		

(To view the full ANOVA results, see Appendix M, Table 2, pA82).

4.1.3 Testing the distribution of the data

The following variables were tested for skewness in the 2003 cohort; age, job satisfaction at exit, community nutrition knowledge at the start and exit. According to Esterhuizen (2005), the data are skewed when the Skewness statistic is more that twice the Standard Error of Skewness or when the Skewness statistic is  $>1$ . The community nutrition knowledge at exit is the only variable that was skewed in the 2003 cohort (Table 4.3). A histogram indicated that one subject had a very low score of 35% (Figure 4.2). When this case was removed from the analysis, the data were no longer skewed.

Table 4.3: Skewness statistics of the 2003 Cohort

	Age at the start of the year n=20 (years)	Job Satis-faction at exit n=20 (scale)	Community nutrition knowledge at entry n=20 (% score)	Community nutrition knowledge at exit n=20 (% score)	Community nutrition knowledge at exit without the outlier n=19 (% score)
Mean	23.6	13.65	60	67	69
Median	23.5	13.50	60	71	71
Skewness	0.180	0.319	-0.196	-1.022*	0.253
Standard Error of Skewness	0.512	0.512	0.512	0.512	0.524

\*Data are skewed

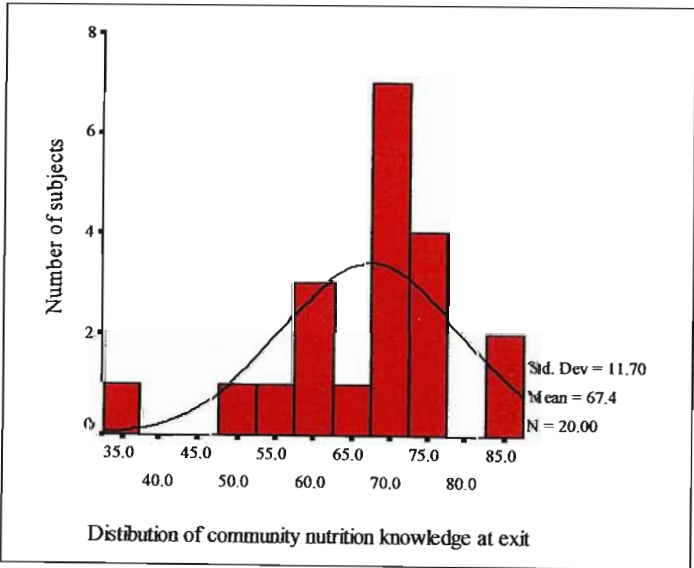


Figure 4.2: Distribution of community nutrition knowledge at exit (2003) measured as percentage

In the 2004-2005 cohort, the variables: age at entry and living conditions were skewed (Table 4.4). It was thought that because one subject was considerably older than the peers that it would account for skewness in the age variable (Figures 4.3 & 4.4) but removing this outlier did not improve the skewness statistics. The majority of the subjects scored their living conditions at a high rate with very few being dissatisfied (Figure 4.4), which could account for the skewness. Skewness is tested to establish whether the data are normally distributed thereby validating the statistical analyses. These two independent variables were not considered influential or important variables in terms of the study and the skewness was subsequently ignored.

Table 4.4: Skewness statistics for the 2004-2005 cohort

Statistic	Age at entry of the year (n=26) (years)	Community knowledge at entry (n=24) (% score)	Self reported professional practitioner ranking (n=24) (scale)	Living conditions Total (n=26) (scale)	Working conditions Total (n=26)	Job satisfaction at entry (n=24) (scale)	Community nutrition knowledge at exit (n=21) (% score)	Job satisfaction at exit (n=21) (scale)
Mean	24.1	74	11.75	5.15	19.62	15.17	83	15.76
Std. Deviation	5.0	15	2.31	1.29	3.32	3.07	12	3.36
Skewness statistic	4.538*	-0.337	-0.616	-1.408*	-0.016	-0.367	-0.006	-0.244
Std. Error of Skewness	0.456	0.472	0.472	0.456	0.456	0.472	0.501	0.501

\*Data are skewed

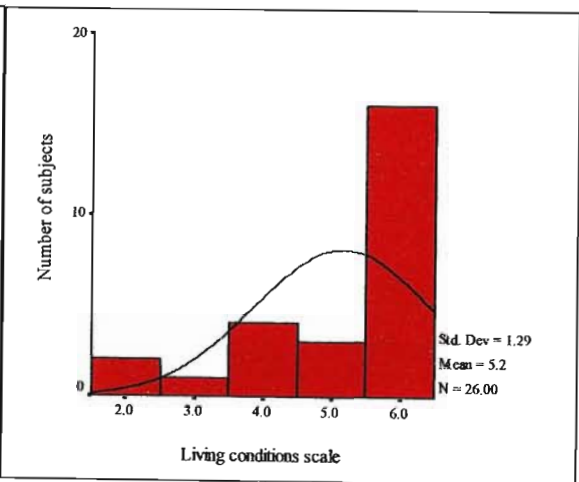
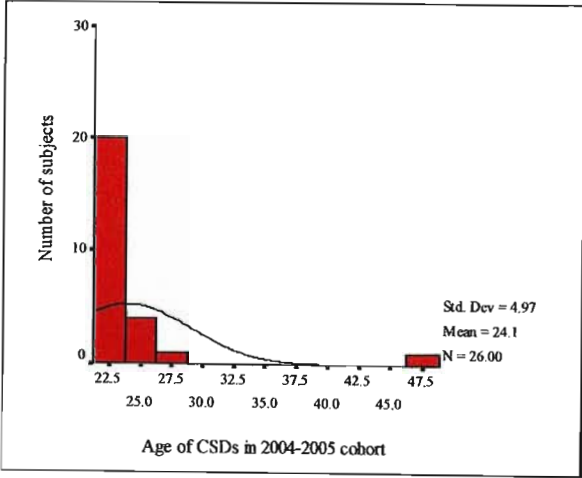


Figure 4.3 : Age of 2004–2005 cohort illustrating skewness

Figure 4.4: Living condition distribution of the 2004-2005 cohort illustrating skewness

## 4.2 Demographic profile and other measurements of the community service dietitians in KwaZulu-Natal - 2003 cohort

### 4.2.1 Demographics of the 2003 cohort - Age, sex, population group, home language and university attended

There were a total of 20 CSDs who embarked on community service at entry in KZN in 2003. The demographic profile of the cohort is presented in the following sequence: age, sex, population group, home language and training university attended.

#### *Age of the 2003 Cohort*

Two sets of data were obtained during the year. To facilitate comparison, the age of each cohort of CSDs was calculated on 1 January of the year of intake. In this case it was the 1 January 2003. The mean age of the group was 23.6 (SD  $\pm$  1.0), range 22-26 years, median was 23.5 indicating that there was not a wide range of ages in the cohort (Figure 4.5).

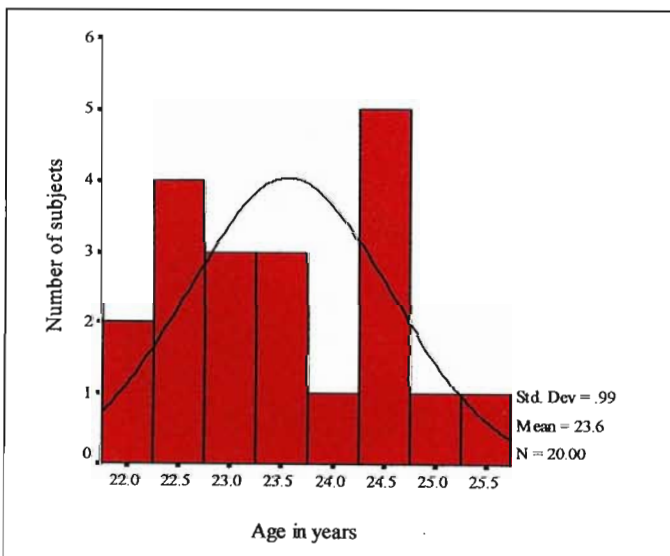


Figure 4.5: Age distribution of the 2003 cohort

The age of the 2003 cohort was divided into two categories to allow for additional statistical tests. The median of the combined cohorts (excluding the outlier) was used to divide the groups. Thirty percent of this cohort (n=6) was younger than 23 years and 70% (n=14) were 23 years and older (Table 4.5).

Table 4.5: Age according to category 2003 cohort

	Frequency	Percent
Less than 23 years	6	30
Twenty-three years and older	14	70
Total	20	100

*The distribution of the sexes in the 2003 cohort*

Of the twenty CSDs in the KZN 2003 cohort, females made up 90% (n=18) and males made up 10% (n=2). Compared to the analysis conducted on dietitians in the register in 1999, the percentage of males was 3.4% (Paterson 2000, p 63). In the latest demographics published by the HPCSA males made up 3.2% of the register for dietitians (Professional Board for Dietetics 2005) (Table 4.6) The 2003 cohort had a higher ratio of male dietitians than the profile of the Dietitians in the HPCSA Register.

Table 4.6: Demographics of the dietitians registered with the Health Professions Council of South Africa (Professional Board for Dietetics 2005)

Population group	Female		Male		Total	
	n	%	n	%	n	%
Asian	41	3	3	6	44	2
African	143	9	26	52	169	11
White South African	800	53	8	16	808	52
Other	2	<1	0	0	2	<1
Unknown	533	35	13	26	546	35
Total	1519		50		1569	

*Population group composition of the 2003 cohort*

The population group composition of the 2003 cohort, comprised of 60% (n=12) whites, 20% African (n=4), 15% coloured (n=3) and 5% (n=1) Indian. To allow valid analysis of this variable, the population group was divided into two groups: white 60% (n=12) and other 40% (n=8) (Figure 4.6). In terms of the population demographics the 2003 CSDs differed from the demographics of the South African population where of the majority are African 79% (n=37,2 million) (Statistics South Africa 2005).

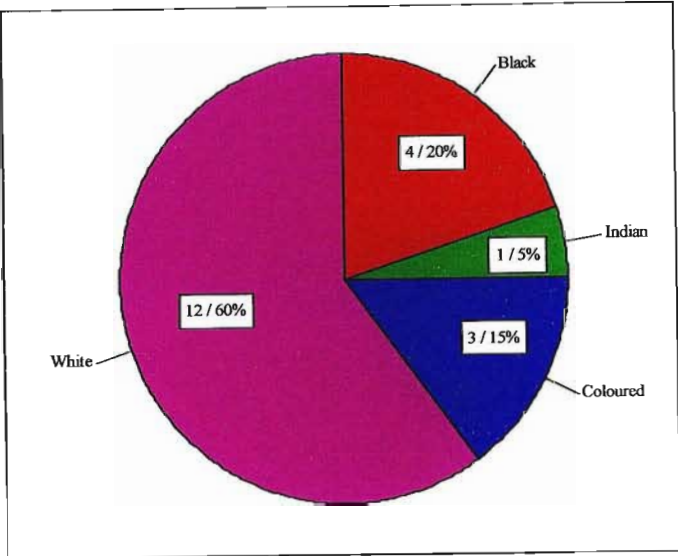


Figure 4.6: Population group composition of the 2003 cohort

*Home language of the 2003 cohort*

English was the predominant language spoken by the 2003 cohort, 65% (n=13). The rest of the languages spoken were Afrikaans 15% (n=3), IsiZulu 10% (n=2), and 5% (n=1) each of SeTswana and XiTsonga (Table 4.7). Home language was divided into English 65% (n=13) and other 35% (n=7). The language spoken by the majority of rural South Africans in KZN is IsiZulu, which could be a barrier in communication.

Table 4.7: Distribution of home languages in the 2003 cohort

Home language	Frequency	Percent
English	13	65
Afrikaans	3	15
IsiZulu	2	10
SeTswana	1	5
XiTsonga	1	5
Total	20	100
Other (not English)	7	35%

*University attended - 2003 cohort*

Graduates from the University of Natal (now KwaZulu-Natal) formed the largest contingent 35% (n=7), but were not the majority group. The rest of the graduates were from Stellenbosch 25% (n=5), Cape Town 15% (n=3), Free State 15% (n=3) and Pretoria 10% (n=2), (Table 4.8). From the point of view of training universities, this group was quite diverse. The training universities

were divided into University of KwaZulu-Natal 35% (n=7) and other universities 65% (n=13). Once again, graduates from other provinces could experience more difficulties as CSDs in KZN where there could be a lack of understanding of local conditions and problems.

Table 4.8: Training universities represented in the 2003 cohort

Training universities	Frequency	Percent
UKZN	7	35
Stellenbosch	5	25
Cape Town	3	15
Free State	3	15
Pretoria	2	10
Total	20	100
Other (not KZN)	13	65

#### 4.2.2 Details of the institutional variables - 2003 cohort

Details regarding the rating of the organisation of community service by the hospital/facility, mentors rating, rating the support of the hospital manager, type of placement regarding locality and eligibility for qualifying for a rural allowance will be presented in this section.

##### *Organisation of community service at hospital level - 2003*

In response to a single question at the end of 2003, 70% (n=14) of the CSDs rated the organisation of community service at hospital level between very poor to poor with 30% (n=6) rating organisation as good (Table 4.9).

Table 4.9: Organisation of community service at hospital level in the 2003 cohort

Organisation of community service in the hospital	Frequency	Percent
Very poor	4	20
Poor	10	50
Good	6	30

### *Mentorship rating 2003 cohort*

A single question rating mentors were posed in the exit questionnaire of 2003. The majority of CSDs rated the quality of mentors as good to very good, 60% (n=12); (Table 4.10).

Table 4.10: Mentorship rating in the 2003 cohort

Rating of mentors	Frequency	Percent
Very good	8	40
Good	4	20
Poor	4	20
Very poor	4	20
Total	20	100

### *Support of hospital managers rated by the 2003 cohort*

When asked to rate the support of the hospital manager 60% (n=12) rated the support as good to excellent, with 40% (n=8) giving a negative rating (Figure 4.7). When looking at the rating against the placement of the hospitals, the urban hospital managers were rated either as excellent (n=5) or very poor (n=2). Seven of the rural hospital managers were rated as good to excellent and 6 were rated as poor to very poor. These results are difficult to interpret because there were more CSDs in rural placements but one could say that 71% of urban placed CSDs rated the support of the hospital managers positively while relatively fewer of rural placed CSDs (54%) rated support of hospital managers positively, reflecting that the urban managers were more supportive of the CSDs than the rural managers.

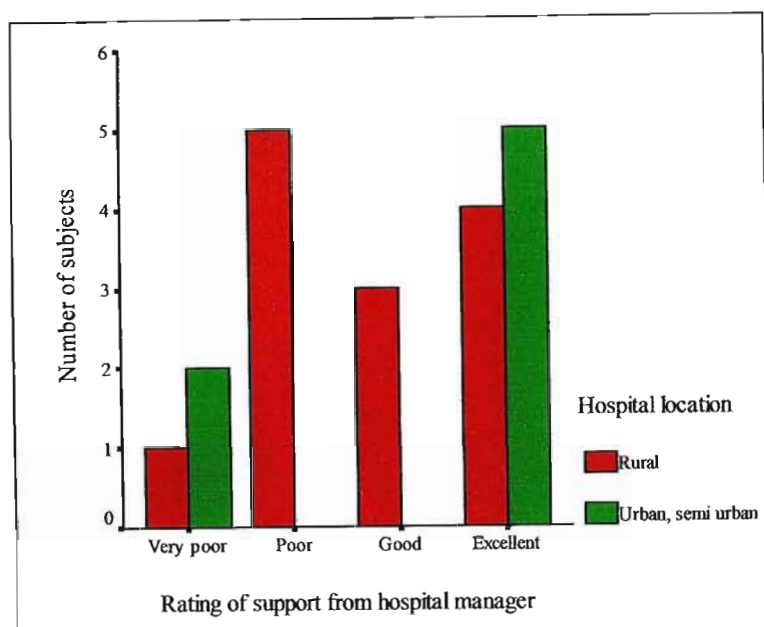


Figure 4.7: Support of the hospital manager in rural and urban hospitals in the 2003 cohort

#### *Type of facility, eligibility for rural allowance and hospital location – 2003 cohort*

Ninety-five percent ( $n=19$ ) CSDs were placed in district hospitals<sup>1</sup>, with one CSD being placed in a community health centre. Ninety percent ( $n=18$ ) were entitled to rural allowances, which is usually regarded as being placed in a rural area. However, when examining the list of district hospitals eligible for rural allowances, CSDs had been placed in fairly large centres such as Ladysmith, Vryheid and Newcastle and these towns (rather than villages) although they are a distance from the Durban-Pietermaritzburg area would not be considered as remote rural areas but rather as under-served areas. Sixty-five percent ( $n=13$ ) were placed in the more rural areas with 35% ( $n=7$ ) in what would be considered a small town (Figure 4.8). This means the allocation of a rural allowance to a CSD did not give an indication of whether CSDs were actually placed in rural areas with the accompanying drawbacks and problems compared to those living in town but also receiving a rural allowance.

<sup>1</sup> A district hospital is the third step of the first (lowest) level of hospital care and is the first level of hospital after primary health clinics (first step) and community health centres (second step). Patients in need of more sophisticated care are sent initially to regional hospitals and if necessary on to tertiary or provincial hospitals. The highest level hospitals are central hospitals and they provide multi-speciality care (Hendricks 2004). District hospitals are to be found in both rural and urban areas.

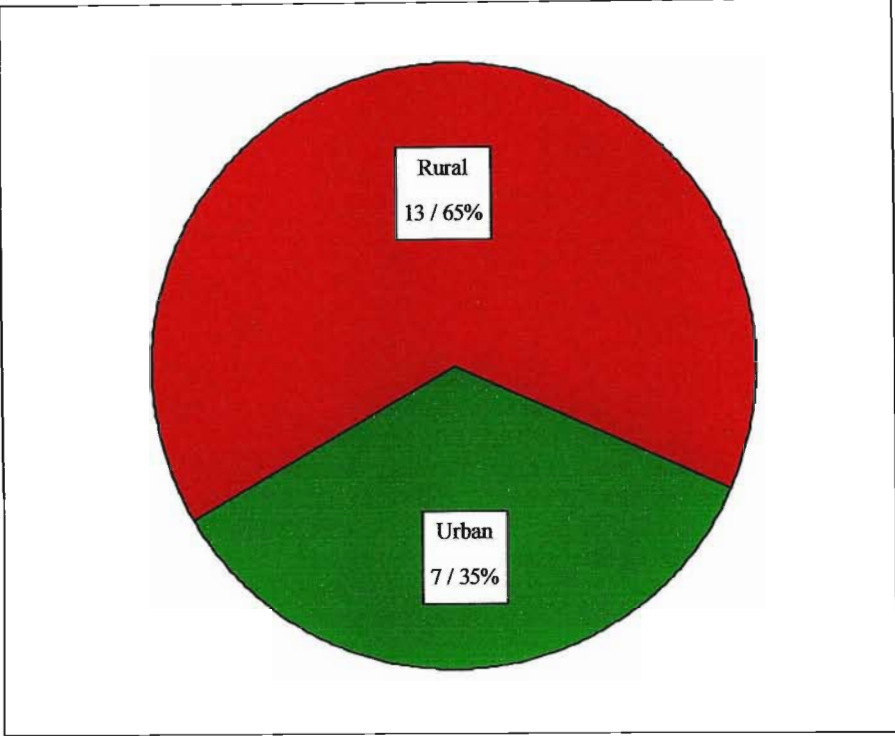


Figure 4.8: Location of hospital/facility rural vs urban in the 2003 cohort

*Unsolicited comments from the 2003 questionnaire*

No other scales were used in 2003 questionnaires. Unsolicited written comments made by CSDs were analysed and treated as either positive or negative comments. The experiences have been summarised in Table 4.11. The most notable positive comments related to experience, responsibility, independence, confidence; theory into practice and helping in the community. The most important negative comments were made regarding the lack of resources and funds, resistance from community and staff and poor support from management and mentors.

Table 4.11: Unsolicited positive and negative comments from qualitative data 2003

Listed as:		Number of comments
Positive	Experience gained	13
Positive	Taking on responsibility, learning to work independently, increased confidence	9
Positive	Putting theory into practice	8
Positive	Setting up a new department	8
Positive	Helping the community	6
Positive	Working as part of a team	4
Positive	Support from management of hospital	3
Positive	Learning to understand the government system	3
Positive	Implementing new programs	2
Positive	Support from mentor dietitian	2
Positive	Discovering new areas of interest	1
Positive	Earning a salary	1
Negative	Lack of access to resources & funds	11
Negative	Resistance to change by the community and staff	9
Negative	Poor support from management	9
Negative	Poor support from mentor dietitian	7
Negative	Concern regarding the loss of previously acquired knowledge	4
Negative	Language barriers with staff and patients	4
Negative	No recognition for the profession	4
Negative	Feeling isolated	3
Negative	Poor organisation at hospital level	3
Negative	Poor support and organisation at government level	3
Negative	Feelings of emotional stress	1
Negative	Poor salary	1

### 4.3 Demographic profile of the community service dietitian in KwaZulu-Natal – 2004-2005 cohort

There was a combined total of 28 CSDs who embarked on community service in KZN at the beginning of 2004 and 2005. In 2004 data were collected from 12 CSDs of whom 7 completed the second set of questionnaires. In 2005, 13 CSDs commenced with community service and twelve completed the first set of questionnaires. Two additional CSDs joined later in 2005, and a total of 14 out of 15 completed the second set of questionnaires (Figure 4.1).

The composition of the cohort is presented in Table 4.12. The size of sample would be determined by the particular variable being presented and would explain the reason for the variations in the sample size in the different analyses.

Table 4.12: Composition of data sets of the 2004-2005 cohort

Questionnaires completed	2004	2005	Totals
Completed questionnaires at entry	12	12	24
Completed questionnaires at exit	7	14	21
Both sets available for analysis over entire year	7	12	19
Maximum number of subjects in cohort	12	14	26

#### 4.3.1 Demographics of the 2004 – 2005 cohort - Age, sex, population group, home language, university attended

##### *Age of the 2004-2005 Cohort*

Once again to ensure uniformity, the age of each year-intake group of CSDs was calculated on 1 January, either 1 January 2004 or 1 January 2005. The mean age of the group was 24.1 (SD  $\pm$  5.0), range 22 - 48 years (Figure 4.3) and median was 22.8.

The age of the 2004-2005 cohort was divided into two categories to allow for additional statistical tests. The median of the combined cohorts (excluding the outlier in this particular case) was used as the division between the groups. Just over half (58%, n=15) of this cohort was younger than 23 years and 42% (n=11) being 23 years and older (Table 4.13).

Table 4.13: Age categories of the 2004-2005 cohort

	Frequency	Percent
Less than 23 years	15	58
Twenty-three years and older	11	42
Total	26	100

##### *The distribution of the sexes in the 2004-2005 cohort*

Of the 26 CSDs in the 2004-2005 cohort in KZN, females made up 96% (n=25) and males made up 4% (n=1). The number of males in this sample was similar to the analysis conducted on dietitians in the HPCSA register in 1999, the percentage of males was 3.4% (Paterson 2000, p 63).

*Population group composition of the 2004-2005 cohort*

The largest population group of the 2004-2005 cohort was 73% (n=19) white. Indians made up 19% (n=5) and 8% (n=2) were African (Table 4.14). The population group was divided in two: white South African (n=19) and other (n=7). This cohort did not reflect the demographics of the country nor indeed of the province or of the dietitians registered at the HPCSA.

Table 4.14: Distribution of the population groups 2004 – 2005 cohort

Population group	Frequency	Percent
African	2	8
Indian	5	19
White	19	73
Total	26	100
Other	7	27

*Home language of the 2004 – 2005 cohort*

English was the predominant language spoken by this cohort (88%, n=23). The other languages spoken were IsiZulu 8% (n=2) and Afrikaans 4% (n=1) (Table 4.15). Home language was divided into English (n=23) and other (n=3). Once again the demographics of this variable did not represent the demographics of the predominant language (IsiZulu) spoken in KZN.

Table 4.15: Distribution of home languages in the 2004-2005 cohort

Home language	Frequency	Percent
English	23	88
IsiZulu	2	8
Afrikaans	1	4
Total	26	100
Other (not English)	3	12

*University attended – 2004 – 2005 cohort*

Graduates from the University of KwaZulu-Natal formed the largest contingent 73% (n=19), and were the majority group. The rest of the graduates were from Stellenbosch 8% (n=2), Cape Town 8% (n=2), and 4% (n=1) each from Medunsa, Free State and Western Cape (Table 4.16). The university attended was grouped into the University of KwaZulu-Natal (n=19) and other

universities (n=7).

Table 4.16: Training university in the 2004-2005 cohort

Training university	Frequency	Percent
UKZN	19	73
Stellenbosch	2	7.5
Cape Town	2	7.5
Medunsa	1	3.8
Free State	1	3.8
Western Cape	1	3.8
Total	26	100
Other (not UKZN)	7	27

#### 4.3.2 Details of the institutional variables 2004 – 2005 cohort

Details regarding organisation of community service by the hospital/ facility, mentorship rating, rating the support of the hospital manager, type of placement (hospital/other), eligibility for qualifying for a rural allowance and hospital locality (rural or urban), working and living conditions, personal safety and access to resources such as equipment, provisions and budgets will be presented in this section.

##### *Organisation of community service at hospital/facility level 2004 -2005 cohort*

More than half of the CSDs 55% (n=11) rated the organisation of community service at the facility as poor to very poor, with 45% (n=9) considering it to be well organised (Table 4.17). CSDs commented on the lack of preparedness of the receiving institutions (n=6). “In the beginning my attitude was not so great, because the CHC was not prepared for me & had no idea what to do with me”. Some 6 CSDs also made specific comments of the poor management of the hospitals, “I feel like I have a total lack of support from both hospital management and provincial nutrition directorate and I feel that no-one is taking responsibility for the serious nutrition crisis that currently exists in the rural areas of KZN”. There were a total number of 33 separate comments on the lack of resources made in the open ended sections of the questionnaire, “Having no office, no stationary (*sic*), no desk or a place to work from.”

Table 4.17: Organisation of community service at hospital level 2004-2005

Rating	Frequency	Percent
Good	9	45
Poor	10	50
Very poor	1	5
Total	20	100

When examining the bar chart rating community service according to the location of the hospital, it is apparent that the organisation of community service in the rural hospitals was equally divided between poor and good and that urban hospitals were poor to very poor rather than good, according to the 2004-2005 cohort (Figure 4.9). One CSD commented that “The DOH needs to enter agreement with the institution receiving the services of a community dietitian in order to ensure that adequate resources will be available to provide effective dietetic services otherwise the placement is a waste of DOH funds.”

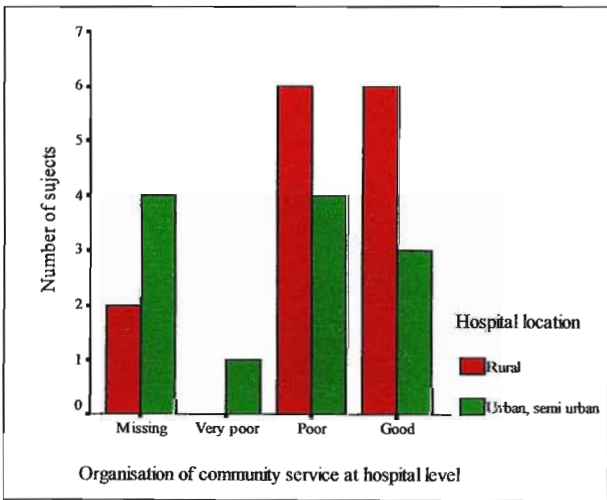


Figure 4.9: Organisation of community service at hospital according to location of hospital in the 2004-2005 cohort

#### *Mentorship rating 2004-2005 cohort*

More than half of the CSDs rated the support of mentors as poor to very poor (52.4%; n=11); “No adequate mentorship programme was available - you are really on your own”. A few CSDs, 9.5% (n=2) did not know of a mentor and the rest 19.1% (n=4) were placed in the same hospital as the mentor (Table 4.18). Nearly twenty percent (19.1%, n=4) were positive about the mentor

support; “Yes I’ve been very happy with my placement - it was close to home, had my mentor in the same hospital therefore received a lot of support”

Table 4.18: Quality of mentors in the 2004-2005 cohort

Quality of mentors	Frequency	Percent
Very poor	5	23.8
Poor	6	28.6
Good	2	9.5
Very good	2	9.5
Mentor not known	2	9.5
The same hospital as the mentor	4	19.1
Total	21	100

*Support of hospital managers 2004 -2005 cohort*

Most CSDs (19 of 21) had hospital managers. In the analysis 53% (n=10) of 2004-2005 cohort rated the support provided by the manager, as very poor to poor, with 47% (n=9) giving a positive rating (Figure 4.10). Just less than half of the cohort was satisfied with the support from the hospital manager.

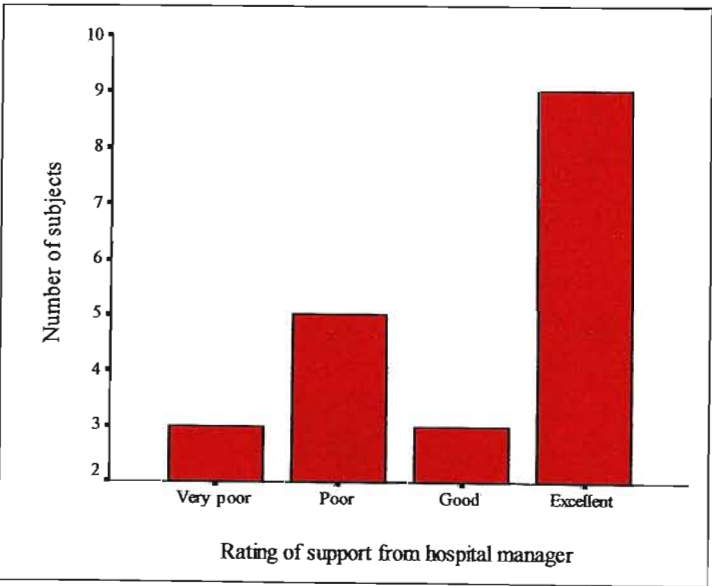


Figure 4.10: Rating of support from hospital manager in the 2004-2005 cohort

*Type of facility, eligibility for rural allowance and hospital location 2004 – 2005 cohort*

Nearly fifty-eight percent (57.7%, n=15) CSDs were placed in district hospitals, and 19.2% (n=5) were placed in community health centres (Table 4.19). Twenty three percent (23.1%, n=6) were

placed in regional or tertiary hospitals. This latter placement of using regional and tertiary hospitals occurred in 2004. In 2005 this trend was reversed and all CSDs were placed either in district hospitals or community health centres.

Table 4.19: Placement health care facility of the 2004-2005 cohort

Health care facility	Frequency	Percent
District hospital	15	57.7
Community health care centre	5	19.2
Regional hospital	5	19.2
Tertiary/specialised hospital	1	3.9
Total	26	100.0

Of the 2004-2005 cohort, 62% (n=16) were entitled to rural allowances and 54% (n=14) were placed in the rural areas, while the rest 46% (n=12) were placed in urban facilities (Figure 4.11).

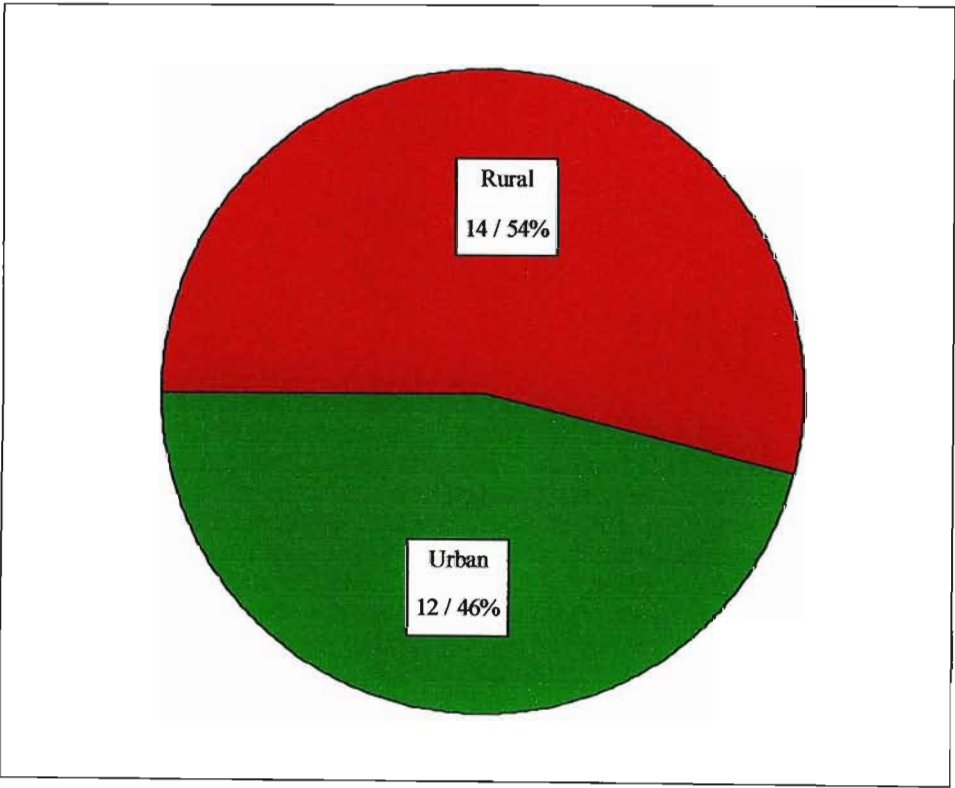


Figure 4.11: Placement facilities remote rural vs urban in the 2004-2005 cohort

*Working conditions, 2004-2005 cohort*

CSDs were asked to rate their working conditions on a 7-item 4-point scale (agree to strongly disagree). The range of this scale was 7-28. Higher scores indicated better working conditions. Questions asked included “I was adequately orientated towards my work” and “I received adequate support from the hospital management and other hospital staff”. The mean score on this scale was 19.63 ( $\pm 3.32$ ), which falls in the on lower side of the upper range of satisfaction with working conditions which could reflect that CSDs were somewhat ambivalent regarding their working conditions.

*Living conditions, 2004-2005 cohort*

CSDs were asked to rate their living conditions on a 6-item, yes =1 and no=0, scale. The range of this scale is 0-6. The higher the score measured the better the quality of the living conditions. The mean score was 5.2( $\pm 1.3$ ). However the data here are skew as the skewness statistic is  $>1$  at -1.408. The histogram shows that most CSDs were satisfied with their living conditions with a few lacking basic facilities such as water, housing and/or transport (Figure 4.12).

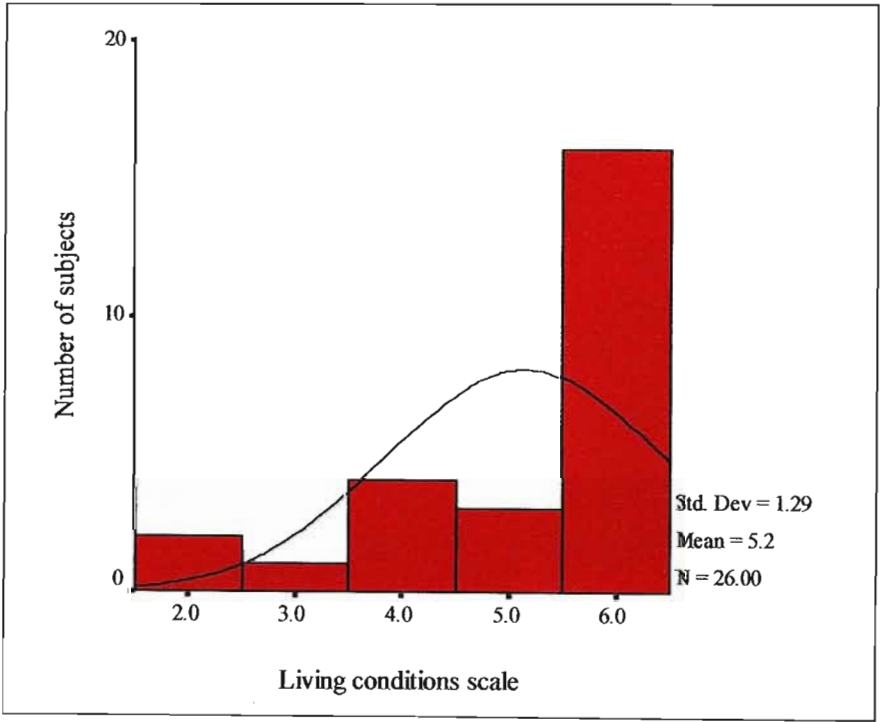


Figure 4.12: Living conditions of CSDs in the 2004-2005 cohort (n=26)

*Personal safety 2004 – 2005 cohort*

In response to a question regarding personal safety, 92% (n=24), reported that they felt safe within the work/living environment, with 8% (n=2) reporting that they felt unsafe. Two CSDs made additional comments on their own safety; “At times I think that our safety should be taken into account more.” Both of these CSDs were placed in or relatively close to large towns and not in rural areas. Another CSD was concerned for the safety of other CSDs but not herself, “Some CSDs are sent away from their homes to live in remote rural areas which are dangerous and there is no system in place to help ensure their safety” but none of the CSDs who were placed in the remote rural areas made comments regarding their own safety. Considering the general concern regarding safety in rural areas this is an interesting finding, possibly reflecting invalid perceptions.

*Access to resources 2005 group of the 2004 – 2005 cohort*

This question was asked only of the 2005 group. Previous written remarks referred to access to resources being a problem. The resources included equipment, transport, access to provisions and budgets. It also referred to basic requirements such as an office, a desk and stationery. Of this group 64% (n=9), stated that there was not adequate access to resources, while 36% (n=5) were satisfied with the resources at their disposal (Table 4.20).

Table 4.20: Adequate access to resources in the 2005 cohort

Rating of access to resources	Frequency	Percent
Strongly disagree or disagree	9	64
Agree or strongly agree	5	36
Total	14	100

Although this question was only asked of the 2005 group, CSDs from 2004 also made comments regarding the lack of resources. A total of 33 comments were made regarding the lack of resources. These ranged from no office or stationery, no equipment, a lack of feeds and funds, lack of transport which hampered their contact with outlying clinics and a lack of computer

facilities, “ ... feel very frustrated that I do not have the equipment eg height sticks to adequately assess patients. I have a limited budget for feeds - makes me very negative - How am I supposed to do my job?” Details of the various comments made can be found in Appendix M, in Table 3, pA83

### 4.3.3 Summary of the comparison of common variables measured in the 2003 and 2004-2005 cohorts

The similarities between the 2003 and 2004-2005 cohorts were the age of the CSDs, the percentage of females, the population distribution, and the location of hospital (urban or rural). The 2004-2005 cohort tended to have more English speakers ( $p=0.056$ ). Significantly fewer CSDs in the 2004-2005 cohort received rural allowances ( $p=0.029$ ); significantly fewer of the CSDs in the 2004-2005 cohort were positive towards community service at exit ( $p=0.014$ ) but significantly more CSDs in the 2004-2005 cohort attended UKZN; ( $p=0.010$ ) than CSDs in the 2003 cohort (Figure 4.13).

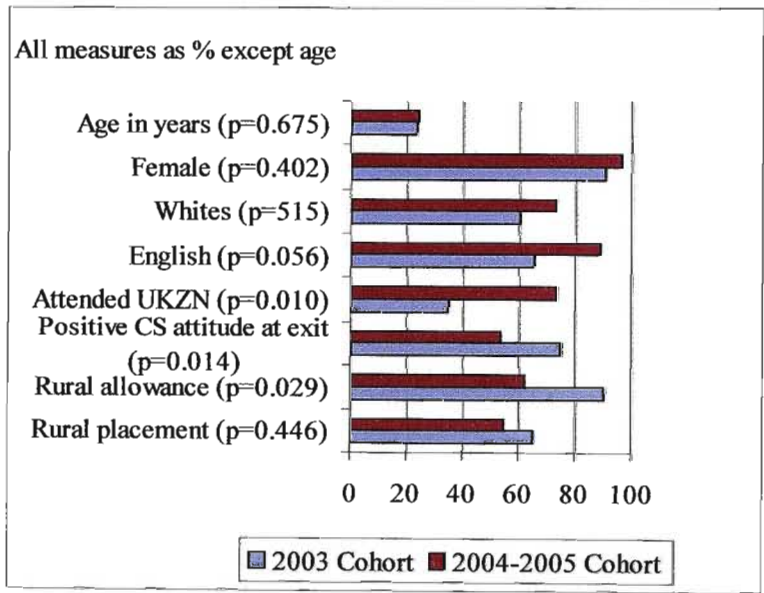


Figure 4.13: Comparison of variables measured in the 2003 and 2004-2005 cohorts

## 4.4 Results of the subproblems - 2003 cohort

### 4.4.1 Attitude towards community service and the change that occurred over the year 2003

In response to a single question in the second questionnaire of 2003, 40% ( $n=8$ ) of CSDs stated

that they had a positive attitude to community service at the beginning of the year but that by the end of the year that changed to 75% (n=15) being positive and 25% (n=5) being negative (Table 4.21). Twenty percent (n=4) CSDs remained positive and one CSD remained negative throughout the year. The overall attitude reflected a tendency to change towards a positive attitude reflected by the Fisher's exact test<sup>2</sup> (p=0.058). (See Appendix M, Table 4, pA84 for the full analysis).

Table 4.21: Chi-square analysis of attitude to community service at entry and at exit -2003

		Attitude to community service at exit		Total
		negative	positive	
Attitude to community service work at entry	Negative	5% (n=1)	55% (n=11)	60% (n=12)
	Positive	20% (n=4)	20% (n=4)	40% (n=8)
Total		25% (n=5)	75% (n=15)	100% (n=20)

p=0.058

#### 4.4.2 Community nutrition knowledge at entry and exit 2003

The level of community nutrition knowledge at entry was 62% (±11) and at exit was 64% (±12) (Table 4.22). A paired sample t-test shows that the levels of community nutrition knowledge (start and exit) did not differ significantly from each other (p=0.512 at 95% confidence level) so there was little growth or loss of community nutrition knowledge during the year. It was expected that individuals should reach a target score of 75% indicating an acceptable level of knowledge of community nutrition. The content of the questionnaire was considered to be the minimum basic knowledge that all dietitians should know at entry level of the profession. However, a one sample t-test demonstrated that the 2003 cohort scored significantly less than the 75% score expected (p<0.001).

<sup>2</sup> Fisher's exact test is computed when a table that does not result from missing rows or columns in a larger table has a cell with an expected frequency of less than 5.

Table 4.22: Descriptive statistics for community nutrition knowledge at entry and exit 2003

	n	Minimum (Score %)	Maximum (Score %)	Mean (Score %)	Std deviation	Skewness	
						Statistic	Std. Error
Community nutrition knowledge at entry	20	37	83	62	11	-0.196	0.512
Community nutrition knowledge at exit	20	30	80	64	12	-1.127	0.512

#### 4.4.3 Job satisfaction levels at exit 2003 cohort

The Kalderberg & Becker job satisfaction scale was used to measure the levels of job satisfaction of CSDs (Kaldenberg & Becker 1991). The range for this 4-item, 5-point Likert scale was 4–20. The higher the total scored, the greater the level of job satisfaction. The mean job satisfaction level of the 2003 cohort at exit was 13.65 ( $\pm 3.57$ ). This level was not significantly different from the test value of 12.63, the job satisfaction levels of South African registered dietitians (Paterson 2000, p79),  $p=0.217$  (Table 4.23). This meant that there was little difference in the level of job satisfaction of the 2003 cohort and that of South African registered dietitians. See Appendix M, Table 5, pA84 for the full analysis.

Table 4.23: One sample t-test comparing exit levels of job satisfaction of 2003 CSDs with SA registered dietitians (Paterson 2000, p79)

Job satisfaction at exit	Test Value = 12.63			
	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
			Lower	Upper
Mean =13.65 ( $\pm 3.57$ )	0.217	1.020	-0.652	2.692

#### 4.4.4 Professional development -2003 cohort

##### *Self-rated professional development (single statement) - 2003 Cohort*

In response to a single statement 85% (n=17) of CSDs rated their own professional development during the year as good to excellent with only 15% (n=3) dissatisfied with their development

(Table 4.24), which meant that the 2003 CSDs felt that they had developed professionally during the year.

Table 4.24: Self-rated professional development

Self-rated professional development (single statement)	Frequency	Percent
Poor	3	15
Good	12	60
Excellent	5	25
Total	20	100

**4.5 Results of the subproblem dependent variables 2004 – 2005 cohort**

**4.5.1 Attitude towards community service and the change that occurred over the year 2004 - 2005 cohort**

CSDs who were positive at entry numbered 74% (n=14), 11% (n=2) were neutral and 16% (n=3) had a negative attitude to community service at entry of 2004-2005. By the end of the year the positive attitude declined to 53% (n=10) CSDs remaining positive, 37% (n=7) being neutral and 11% (n=2) being negative. Although the Chi-square test was invalid, when examining the percentage change over the year 74% at entry reducing to 53% at exit, it shows a trend worth further investigation. When those who were neutral regarding community service were removed from the analysis the Fisher’s exact test gave p=0.091 which demonstrated a tendency for attitude to become less positive over the year in the 2004-2005 cohort. See Appendix M, Table 6, pA84 for the full analysis.

Ten interns also made positive comments regarding their attitude to community service and two mentioned that they were assured a job for a year. “Yes, I have met some lovely people, enjoyable work environment, good experience, rewarding and when compared with some other comm..*(sic)* service dieticians, although there are problems, mine seem less significant” whereas one CSD felt that she had been forced to complete community service and was negative about community service, “Only doing it because I have to”. An interesting comment made by a Zulu-

speaking CSD who was working in an under-served area was, “These conditions have made me realise that working in a rural area is not the best option”.

#### 4.5.2 Nutrition knowledge at entry and exit 2004-2005

Levels of community nutrition knowledge at entry were 73% ( $\pm 14$ ) and 78% ( $\pm 11$ ) at exit. In addition this cohort did not differ significantly from the 75% target score at entry and exit ( $p=0.780$  &  $0.523$ ), (Table 4.25). A paired sample t-test revealed that there was a significant improvement of knowledge at exit ( $p=0.045$ ) where both sets of questionnaires were answered by subjects. This indicated that this cohort seemed to acquire additional knowledge during the year.

Table 4.25: Descriptive statistics for community nutrition knowledge at entry and exit in the 2004-2005 cohort

Paired sample	Mean	N	Std. Deviation	Std. Error Mean
Community nutrition knowledge at entry	73	19	81	3.207
Community nutrition knowledge at exit	78	19	11	2.489

#### 4.5.3 Job satisfaction levels at entry and exit, 2004-2005 cohort

The job satisfaction scale was administered at entry and exit. The range for this 4-item, 5-point Likert scale was 4 - 20. The higher the total scored, the greater the level of job satisfaction. There was no difference in the level of job satisfaction of the 19 CSDs who rated job satisfaction at entry 15.58 ( $\pm 3.000$ ) and exit 15.58 ( $\pm 3.360$ ) when a paired sample t-test was performed ( $p=1.00$ ).

The mean score for job satisfaction of all 21 CSDs who completed the questionnaire at exit was 15.76 ( $\pm 3.40$ ). Comparing the job satisfaction of these CSDs to that of registered dietitians, the CSDs were significantly more satisfied with dietetics than the registered dietitians who were measured in 1999 ( $p<0.001$ ), (Table 4.26). See Appendix M, Table 7, pA84 for the full analysis. When comparing the job satisfaction of the 2004-2005 cohort with the 2003 cohort using an

independent sample t-test, there was a tendency of the 2004-2005 cohort to have a higher job satisfaction rate at exit ( $p=0.058$ ).

Table 4.26: One sample t-test comparing exit levels of job satisfaction of 2004-2005 CSDs with SA registered dietitians (Paterson 2000, p79)

Job satisfaction at exit (n=21)	Test Value = 12.63			
	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
			Lower	Upper
Mean 15.76 ( $\pm 3.40$ )	<0.001	3.132	1.602	4.661

#### 4.5.4 Professional development

##### *Self-rated professional development (single statement) - 2004-2005 cohort*

Sixty-five percent ( $n=14$ ) of CSDs rated their own professional development (single statement) during the year as good to excellent with 35% ( $n=7$ ) not being satisfied with their professional development (Table 4.27). CSDs made comments especially with regard to the loss of clinical nutrition knowledge ( $n=6$ ); "Serious lack of clinical experience".

Table 4.27: Self-rated professional development (single statement) in the 2004-2005 cohort

Self-rated professional development (single statement)	Frequency	Percent
Very poor	1	4.8
Poor	6	28.6
Good	11	52.4
Excellent	3	14.3
Total	21	100

##### *Professional practitioner ranking (multiple statements) at entry and exit, 2004-2005 cohort*

CSDs were asked to rate comments on being a professional practitioner at entry and exit. The higher the score measured, the greater the ranking of the professional practitioner (multiple statements). CSDs scored a mean of 11.75 ( $\pm 2.31$ ) at entry and 12.80 ( $\pm 1.67$ ) at exit, which is in the upper range of the scale. The paired samples t-test showed that there was a tendency towards

improvement between entry and exit ( $p=0.088$  at 90% confidence level). The 2004-2005 cohort did not therefore experience a change in their ranking of the professional practitioner (multiple statements) in their view.

#### 4.5.5 Self-rating of dietetic services 2004 – 2005 cohort

A statement rating the CSDs contribution to dietetic services by CSDs to the community was asked of the 2004-2005 cohort at exit. Ninety-five percent (95.2%,  $n=20$ ) rated their dietetic services as good to excellent with 4.8% ( $n=1$ ) rating the dietetic services as poor (Table 4.28).

Table 4.28: Self rating of dietetic services to the community 2004-2005 cohort

Dietetic services to the community		
Rating	Frequency	Percent
Poor	1	4.8
Good	15	71.4
Excellent	5	23.8
Total	21	100

#### 4.6 A summary of results obtained for the measured variables in the 2003 and 2004-2005 cohort

The average age of the CSDs in the two cohorts was 23.5 (2003) and 24.4 years (2004-2005). The cohorts were predominantly female, between 90 (2003) and 96% (2004-2005) of the cohorts. Home language was predominantly English (65 and 88%). University of KwaZulu-Natal was the main training university in both cohorts with there being relatively fewer UKZN graduates in the 2003 cohort compared to the 2004-2005 cohort. Both cohorts were placed mainly in rural hospitals/facilities. The 2003 cohort rated their professional development (single statement) lower than the 2004-2005 cohort. The community nutrition knowledge score of the 2003 cohort was lower than that of the 2004-2005 cohorts. It appears that the level of community nutrition knowledge and professional development reinforced each other. Most of the CSDs in the 2004-2005 cohort rated working and living conditions on the higher side. A summary of results from both the 2003 and 2004-2005 cohorts is presented in Table 4.29).

Table 4.29 Summary table of the measured variables

Variable	2003		2004-2005	
	At entry	At exit	At entry	At exit
Sample size:	n=20	n = 20	n = 24	n = 21
			Max: n = 26	
Age in years	25.6(± 1.0)		24.1(± 5.0)	-
Age category: % < 23 years	30% (n=6)		58% (n=15)	
Sex: % Female	90% (n=18)		96% (n=25)	
Population group: % White	60% (n=18)		73% (n=19)	
Home language: % English	65% (n=13)		88% (n=23)	
University attended: % UKZN	35% (n=7)		73% (n=19)	
Organisation of community service: % rating of "Good"		30% (n=6)		43% (n=9)
Mentorship rating: % "Good to very good"		60% (n=12)		19% (n=4)
Hospital manager support: % "Good to excellent"		60% (n=12)		43% (n=9)
Type of facility: % Hospital	95% (n=19)		58% (n=15)	
Rural allowance: %Eligible	90% (n=18)		62% (n=16)	
Hospital location: %Rural	65% (n=13)		54% (n=14)	
Working conditions (scale 6-24)	-	-	19.63(±3.32)	
Living conditions (scale 0- 6)	-	-	5.2(±1.3)	
Personal safety: %Yes	-	-	92% (n=24)	
Attitude to community service: % Positive	40% (n=8)	75% (n=15)	79% (n=19)	57% (n=12)
Community nutrition knowledge % for MCQ	62% (±11)	64% (±12)	73% (±14)	78% (±11)
Job satisfaction (scale 4-20)	-	13.65 (±3.57)	15.58 (±3.00)	15.58 (±3.39)
Professional development (single statement) % "Good to excellent"	-	85% (n=17)	-	67% (n=14)
Professional practitioner ranking (multiple statements) (scale 4-16)	-	-	11.75 (±2.31)	12.80 (±1.67)
Contribution to dietetic services % positive	-	-	-	95% (n=20)
Access to resources 2005 group only: % Satisfactory resources	-	-	35.71% (n=5)	

## 4.7 Results of statistical analyses

The various statistical analyses have been summarised and the results appear at the end of the chapter (Table 4.37). Although the analysis of the 2003 and 2004-2005 cohorts were done separately as explained in Chapter 4, in some cases where no significant results were found, the two cohorts were combined to see whether the independent variables were related to the variable being examined.

### 4.7.1 Factors related to the attitudes of the community service dietitians

Subproblem one was to determine the attitude of the CSDs towards community service at entry and at exit and whether this was influenced by the group demographics (individual factors) and institutional/situational factors such as organisation of community service in the facility, support of appointed mentors, support of health facility manager (by CSDs), the type of facility (hospital or community health centre/district office), eligibility for rural allowances, working conditions, living conditions, personal safety and access to resources.

#### *Attitude of 2003 and 2004-2005 cohort and related factors evaluated separately*

The attitudes of the CSDs in these cohorts were not related to any factors when analysed separately.

#### *Attitude of the combined 2003 and 2004-2005 cohorts*

A cross tabulation and chi-square analysis of the combined 2003 and 2004-2005 cohorts showed that the graduates from the UKZN were significantly more positive toward community service ( $p=0.020$ ) than graduates from other universities (Table 4.30). Fuller statistical results can be seen in Appendix M, Table 8, pA85. There was also a tendency for the English-speaking CSDs to be more positive towards community service at exit than the other language group ( $p=0.061$ ).

The “neutral”<sup>3</sup> group was removed from these analyses for the purposes of comparison.

Table 4.30 Chi-square analysis of the attitude of CSDs at entry and the university attended both cohorts

Attitude at start of year	UKZN	Other Universities	Total
Negative	5	10	15
Positive	19	8	27
Total	24	18	42

p= 0.020

A chi-square analysis revealed that the attitude of CSDs at entry and exit was not related to their age (in categories), sex, population group, the organisation of community service at the hospital, the support of the mentor or the hospital manager, type of facility (hospital or community health centre) placed in, the eligibility for a rural allowance, locality of hospital or the concerns for personal safety and this was irrespective of the cohort they were in. An independent sample t-test showed that neither working nor living conditions were related to the entry or exit attitude of the CSDs. Although working conditions did not have a significant effect on attitude, they were problematic in some instances. One of the 2004-2005 CSDs noted that “... conditions are very frustrating and very stressful and therefore obviously create a negative attitude towards community service. But it would be similar for any permanent dietitian that was working here!! The positive thing is that because we have to find out everything for ourselves, we are learning a lot!”

#### 4.7.2 Factors related to the level of community nutrition knowledge

Subproblem two gauged the entry and exit levels of community nutrition knowledge using a multiple choice questionnaire to measure change over the year; and examined the relationship of individual and institutional factors, and the attitude of CSDs at entry and exit, on the levels of community nutrition knowledge.

<sup>3</sup> The 2003 cohort was not given the option of choosing “neutral” when asked about attitude.

When comparing the community nutrition knowledge between the year cohorts there was a significant difference between the 2003 and 2004-2005 cohorts regarding baseline levels of knowledge ( $p<0.001$ ) (Appendix M, Table 9, pA85). The change in community nutrition knowledge over time was not dependent on the year cohort ( $p=0.130$ ). These results are reflected below (Figure 4.14).

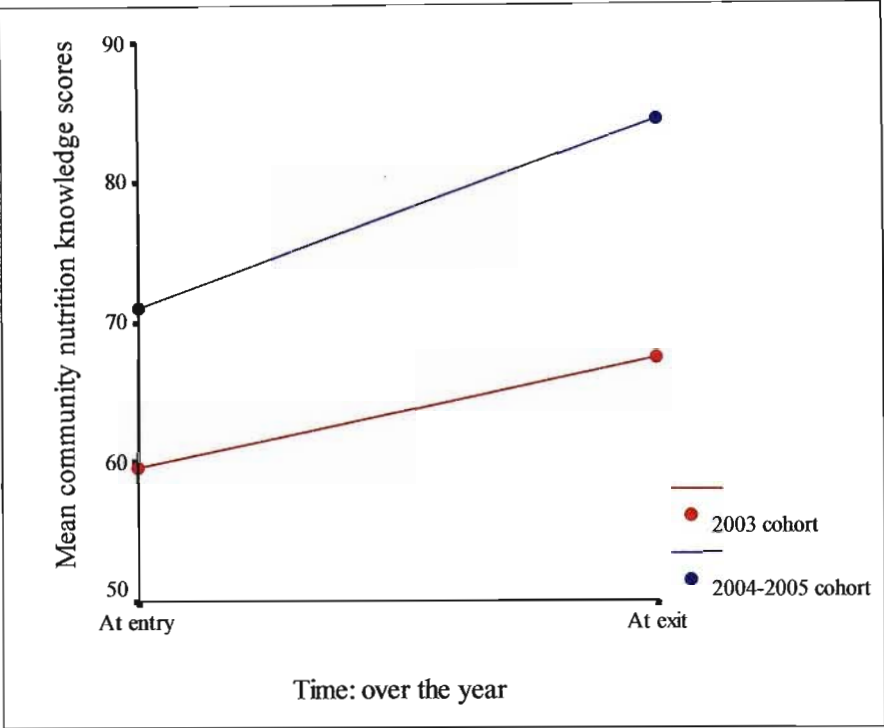


Figure 4.14: Linear model (repeated measures) depicting the change in community nutrition knowledge at entry and exit of the two cohorts 2003 and 2004-2005.

The only variable that was related to the level of community nutrition knowledge was the university attended and then only in the 2004-2005 cohort. The community nutrition scores were significantly higher in the group that attended UKZN at entry and exit ( $p=0.002$  and  $0.010$ ). This could possibly partially be explained by the fact that the students of UKZN had been involved in administering this questionnaire a year previously.

#### 4.7.3 Factors related to job satisfaction

Subproblem three assessed the entry and exit levels of job satisfaction, measured the change over the year, compared this to the job satisfaction levels of South African Registered Dietitians and determined whether job satisfaction was related to individual factors, institutional/situational

factors, attitude to community service, community nutrition knowledge, professional development rating (single statement) and the professional practitioner ranking (multiple statements).

When examining job satisfaction at entry and exit of the 2004-2005 cohort<sup>4</sup>, a repeated measures linear model revealed opposite trends regarding job satisfaction at the start and the exit between the years 2004 and 2005. Although job satisfaction increased during the 2004 year and decreased during the year for the 2005, these changes were not significant.

*Job satisfaction exit levels of 2003 cohort.*

An independent sample t-test revealed that the only variable that was significantly related to levels of job satisfaction in the 2003 at exit was whether the CSD belonged to the other population groups or to the white group, with the other population groups having significantly more job satisfaction than the white group ( $p=0.040$ ) (Table 4.31). There was a trend for levels of job satisfaction (in the 2003 cohort) to increase with positive self-rated professional development (single statement) ( $p=0.080$ ), the rural location of the hospital ( $p=0.074$ ) and whether the community service at the hospital was well organised ( $p=0.099$ ).

Table 4.31: Results of statistical analyses of job satisfaction of the 2003 cohort

	Job satisfaction of 2003 cohort	Test and pvalue
<b>Significant differences</b>		
Population group : other vs White	Other > satisfied than White	Independent sample t-test $p=0.040$
<b>Trends</b>		
Self-rated professional development (single statement)	Positive rating increased job satisfaction	Independent sample t-test $p=0.080$
Location of hospital	Rural placement increased job satisfaction	Independent sample t-test $p=0.074$
Organisation of community service at hospital	Well organised community service increased job satisfaction	Independent sample t-test $p=0.099$

<sup>4</sup> Job satisfaction levels were not measured at entry in the 2003 cohort and therefore cannot be subjected to the repeated measures linear model.

*Job satisfaction entry levels of 2004-2005 cohort*

An independent sample t-test showed that there was a relationship between job satisfaction levels at entry and the attitude of the CSDs at exit. Those with greater job satisfaction at entry were inclined to have a positive attitude to community service (p=0.021).

*Job satisfaction exit levels of 2004-2005 cohort*

CSDs in the 2004-2005 cohort with higher exit levels of job satisfaction had a significantly more positive attitude (independent sample t-test) at entry (p=0.016) and at exit (p=0.006). By implication job satisfaction and attitude were interrelated. (For fuller statistical results see Appendix M, Table 10, pA85).

The level of job satisfaction was also positively related to the self-rated professional development (single statement) at exit (p=0.045) (Appendix M, Table 11, p A86). English speakers in the 2004-2005 cohort tended to have higher job satisfaction level than other language speakers (p=0.057), contrary to the findings for the 2003 cohort where home language had no influence. The only scale that correlated significantly with job satisfaction was the professional practitioner ranking (multiple statements) at exit, (r=0.555 and p=0.011) (Table 4.32). None of the other variables were related to job satisfaction levels.

Table 4.32: Pearson correlation between job satisfaction and community nutrition knowledge, professional practitioner ranking, working and living conditions 2004-2005 cohort

	Job satisfaction at exit	
Community nutrition knowledge at end of year (n=21)	Pearson Correlation	0.097
	Sig. (2-tailed)	0.675
The professional practitioner ranking (multiple statements) at exit (n=20)	Pearson Correlation	0.555(*)
	Sig. (2-tailed)	0.011
Working conditions Total (n=21)	Pearson Correlation	-0.153
	Sig. (2-tailed)	0.507
Living conditions Total (n=21)	Pearson Correlation	-0.014
	Sig. (2-tailed)	0.954

\* Correlation is significant at the 0.05 level (2-tailed).

*Job satisfaction exit levels of the combined cohorts and professional development (single statement)*

As there was not a significant difference between the two cohorts regarding the professional development (single statement) the cohorts were combined to test the job satisfaction levels. It was found that self-rated professional development (single statement) was positively related to increased exit levels of job satisfaction ( $p=0.038$ ) (Table 4.33). Fuller results of the statistical tests can be found in the Appendix M, Table 12, pA86.

Table 4.33: Independent sample t-test self-rated professional development (single statement) and exit levels of job satisfaction combined cohorts

	Self-rated professional development (single statement) conflated	n	Mean	Std. Deviation
Job satisfaction exit rating	Good	31	15.39	3.19
	Poor	10	12.70	4.14

$p=0.038$

4.7.4 Factors related to professional development

Subproblem four determined the self-rated professional development (single statement) at exit and the professional practitioner ranking (multiple statements) of CSDs at entry and exit of the community service year and whether these were related to individual and institutional/situational factors, attitude towards community service and community nutrition knowledge.

*Results for the 2003 cohort*

The only variable to influence the self-rated professional development (single statement) positively was the support of the hospital manager ( $p=0.021$ ) (Table 4.34). A fuller analysis can be found in Appendix M, Table 13, pA86.

Table 4.34: Chi-square analysis of self-rated professional development (single statement) and support of the hospital manager 2003 cohort

Self-rated professional development	Support of hospital manager		Total
	Negative	Positive	
Poor	3	0	3
Good	5	12	17
Total	8	12	20

Fisher's exact test  $p=0.049$

There was also a trend for self-rated professional development (single statement) to be positively related to levels of community nutrition knowledge at exit ( $p=0.080$ ) and attitude of the CSD towards community service (0.071). The following variables did not influence the self-rated professional development (single statement): age, sex, population group, home language, the organisation of community service, support of the mentor, the type of facility (community health centre or hospital), eligibility for the rural allowance or the location of the hospital (rural or urban).

*Results of self-rated professional development and the professional practitioner ranking 2004-2005 cohort*

The self-rated professional development (single statement) of the 2004-2005 cohort was enhanced by a positive attitude as measured at exit (Table 4.35).

Table 4.35: Chi-square analysis of the self-rated professional development (single statement) with attitude at exit of the 2004-2005 cohort

Self-rated professional development (single statement) conflated	Attitude at exit conflated		Total
	Negative	Positive	
Poor	2	1	3
Good	0	11	11
Total	2	12	14

Fisher's exact test  $p=0.033$

There was a tendency for the self-rated professional development (single statement) of the 2004-2005 cohort to be positively related to the eligibility for the rural allowance ( $p=0.064$ ). See Appendix M, Table 14, pA87 for further detail. None of the remaining variables were related to

the self-rated professional development (single statement) in the 2004-2005 cohort.

A Pearson correlation revealed that there was no correlation between the professional practitioner ranking (multiple statements) and levels of community nutrition knowledge at exit. The professional practitioner ranking (multiple statements) was not influenced by either living or working conditions. Access to resources did not influence the professional practitioner ranking (multiple statements) of the 2005 group of the 2004-2005 cohort either.

*Results of self-rated professional (single statement) development on both cohorts (2003 and 2004-2005)*

As there was not a significant difference between the two cohorts with regard to professional development (single statement) ( $p=0.172$ ) they were combined to establish whether other independent variables would be related to the self-rated professional development (single statement). A cross tabulation of both cohorts established that a positive attitude at exit was positively associated with the self-rated professional development (single statement) (Table 4.36) of all CSDs ( $p=0.002$ ).

Table 4.36: Influence of attitude at exit on self-rated professional development (single statement)

		Attitude at exit		Total
		Negative	Positive	
Professional development (Single Statement) conflated	poor	4	2	6
	good	3	25	28
Total		7	27	34

Fisher exact test:  $p=0.002$

There was a tendency for the eligibility for the rural allowance to be related positively to the self-rated professional development (single statement) ( $p=0.060$ ). This could be because the CSDs receiving a rural allowance had been placed in what was classified as an under-served area and perceived their experience to have a positive effect on their professional development. Interestingly community nutrition knowledge scores were not related to the self-rated professional development (single statement) of the CSDs. None of the individual factors nor any of the other

institutional factors exerted any influence on the self-rated professional development (single statement) levels in the combined cohorts.

#### 4.7.5 Factors related to perceived contribution of dietetic services to the community by the 2004-2005 cohort

Subproblem five determined the perceived contribution of dietetic service to the community by the CSDs and how individual factors, institutional/situational factors, attitude towards community service, community nutrition knowledge, job satisfaction, professional development (single statement) and the professional practitioner ranking (multiple statements) was related to service delivery.

There was a tendency for the perceived increased community contribution of dietetic service to be related to the eligibility for a rural allowance ( $p=0.097$ ), the location of the hospital (rural getting a better service) ( $p=0.065$ ), living conditions ( $p=0.088$ ), the attitude of the CSD at entry ( $p=0.063$ ) and job satisfaction levels at entry ( $p=0.061$ ). Other factors that tended to be related to the rating of service delivery were self-rated professional development (single statement) ( $p=0.091$ ), and the professional practitioner ranking (multiple statements) at entry ( $p=0.053$ ). None of the other individual or institutional factors were related significantly to the level of dietetic services.

#### 4.7.6 Summary of significant results and trends

The variables which showed significant or trend results are presented in Table 4.37 and a summary of the significant results in Table 4.38.

##### *Attitude of community service dietitians and related factors*

CSDs who attended the UKZN had a more positive attitude towards community service both at entry and exit of the community service year. The attitude of the English speaking CSD tended to be more positive towards community service at exit.

### *Community nutrition knowledge*

Higher scores for community nutrition knowledge were obtained by the CSDs from UKZN at entry and exit of the 2004-2005 cohort. In the 2003 cohort exit community nutrition knowledge tended to be related to self-rated professional development (single statement).

### *Job satisfaction*

There was a relationship between population group and exit level of job satisfaction, where whites had lower job satisfaction in the 2003 cohort and where English speakers tended to have higher job satisfaction in the 2004-2005 cohort. The exit job satisfaction was related to a number of variables: entry and exit attitude to community service of the 2004-2005 cohort, self-rated professional development (single statement) at exit of both cohorts, the professional practitioner ranking (multiple statements) and the contribution of dietetic service to the community all being positively linked.

### *Professional development*

Self-rated professional development (single statement) was positively associated with the support of the hospital manager in the 2003 cohort. The self rated professional development was also positively associated with the attitude of the CSDs at exit (both cohorts) as was the professional practitioner ranking (multiple statements) at exit (2004-2005 cohort).

### *Level of dietetic services*

There was a tendency for the self-rated level of dietetic services to be associated with the type of facility, eligibility for the rural allowance, the working conditions, and the attitude of the CSDs at entry. All were positive associations. The level of dietetic service also tended to be associated with self rated professional development and the professional practitioner ranking (multiple statements) at entry.

These results will be discussed more fully in the discussion chapter (Chapter 6).

Table 4.37: Summary of statistical analyses

	Dependent variables shown in top row	Attitude to CS % positive				Community nutrition knowledge as %				Job satisfaction Measured on scale (4 – 20)				Self-rated professional development (SS) good- Excellent as %		The professional practitioner ranking (multiple statements)				Contri- bution to Dietetic Services Positive as %
		Entry		Exit		Entry		Exit		Entry		Exit				Entry		Exit		Exit
	Measurements of dependent variables	40	79.2	79	57	62	64	73	78	♣	13.65	15.58	15.58	85	67	♣	11.75	♣	12.8	95
	2003 & 2004-2005 Cohort measurements	03	04-05	03	04-05	03	04-05	03	04-05	03	04-05	03	04-05	03	04-05	03	04-05	03	04-05	04-05
Individual factors	Age category % < 23 years 30%&57.7%	×	×	×	×	×	×	×	×	♣	×	×	×	×	×	♣	×	♣	×	×
	Sex Female: 90%&96.2%	×	×	×	×	×	×	×	×	♣	×	×	×	×	×	♣	×	♣	×	×
	Population group White: 60%&73.1%	×	×	×	×	×	×	×	×	♣	×	a	×	×	×	♣	×	♣	×	×
	Home language English 65%&88.5%	×	×	×	×	×	×	×	×	♣	×	×	†	×	×	♣	×	♣	×	×
				†																
University attended UKZN35%&73%	×	×	×	×	×	b	×	a	♣	×	×	×	×	×	♣	×	×	×	×	×
			a																	
a: p<0.05																				
†: p>0.05<0.09																				
● No test performed																				
b: p<0.01																				
c: p<0.001																				
* r=0.555																				
× Not significant																				
♣ No measure taken																				

Table 4.37: Summary of statistical analyses - continued

	Dependent variables shown in top row	Attitude to CS % positive				Community nutrition knowledge as %				Job satisfaction Measured on scale (4 – 20)				Self-rated professional development (SS) good-excellent		The professional practitioner ranking (multiple statements)				Contribution to Dietetic Services positive
	Measurements of dependent variables	Entry		Exit		Entry		Exit		Entry		Exit				Entry		Exit		Exit
	2003 & 2004-2005 Cohort measurements	40%	79.2%	79%	57%	62	64	73	78	✱	13.65	15.58	15.58	85%	67%	✱	11.75	✱	12.8	95%
Institutional factors	Organisation of CS Good30%&45%	×	×	×	×	×	×	×	×	✱	×	†	×	×	×	✱	×	✱	×	×
	Mentorship rating Good to very good 60%&19%	×	×	×	×	×	×	×	×	✱	×	×	×	×	×	✱	×	✱	×	×
	Hospital manager support Good to excellent 60%&47.3%	×	×	×	×	×	×	×	×	✱	×	×	×	a	×	✱	×	×	×	×
	Type of facility Hospital95%&58%	×	×	×	×	×	×	×	×	✱	×	×	×	×	×	✱	×	✱	×	†
	Rural allowance Eligible 90%&61.5%	×	×	×	×	×	×	×	×	✱	×	×	×	×	†	✱	×	✱	×	†
														†						
	Hospital location Rural 65%&54%	×	×	×	×	×	×	×	×	✱	×	†	×	×	×	✱	×	✱	×	×
	Working conditions n/a&19.63	✱	×	✱	×	✱	×	✱	×	✱	×	✱	×	✱	×	✱	×	✱	×	†
	Living conditions n/a&5.2	✱	×	✱	×	✱	×	✱	×	✱	×	✱	×	✱	×	✱	×	✱	×	×
	Personal safety Yes n/a &92%	✱	×	✱	×	✱	×	✱	×	✱	×	✱	×	✱	×	✱	×	✱	×	×
	Access to resource Satisfactory 36%	✱	×	✱	×	✱	×	✱	×	✱	×	✱	×	✱	×	✱	×	✱	×	×

a: p&lt;0.05

†: p&gt;0.05&lt;0.09

● No test performed

b: p&lt;0.01

c: p&lt;0.001

\* r=0.555

× Not significant

✱ No measure taken

Table 4.37: Summary of statistical analyses - continued

	Dependent variables shown in top row	Attitude to CS % positive				Community nutrition knowledge as %				Job satisfaction Measured on scale (4 – 20)				Self-rated professional development (SS) good-excellent		The professional practitioner ranking (multiple statements)				Contribution to Dietetic Services positive
	Measurements of dependent variables	Entry		Exit		Entry		Exit		Entry		Exit				Entry		Exit		Exit
	2003 & 2004-2005 Cohort measurements	40%	79.2%	79%	57%	62	64	73	78	♣	13.65	15.58	15.58	85%	67%	♣	11.75	♣	12.8	95%
Attitude, community nutrition knowledge, job satisfaction, professional development (single statement) and the professional practitioner ranking (multiple statements)	Entry attitude of CSDs to CS	●	●	●	●	♣	×	♣	×	♣	×	♣	a	×	×	♣	×	♣	a	†
	Exit attitude of CSDs to CS	●	●	●	●	♣	×	♣	×	♣	a	×	b	†	b	♣	♣	♣	a	×
	Entry com nut knowledge	●	●	●	●	●	●	●	●	♣	×	×	×	×	×	♣	×	♣	×	×
	Exit com nut knowledge	●	●	●	●	●	●	●	●	♣	×	×	×	†	×	♣	×	♣	×	×
	Entry job satisfaction	●	●	●	●	♣	×	♣	×	●	●	●	●	♣	×	♣	●	♣	●	†
	Exit job satisfaction	●	●	●	●	×	×	×	×	●	●	●	●	†	a	♣	●	♣	●	×
	Professional development (SS)	●	●	●	●	●	●	†	×	†	a	●	a	●	●	♣	●	♣	●	†
	Professional practitioner ranking at entry(MS)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	♣	×	♣	●	†
	Professional practitioner ranking at exit(MS)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	♣	×	♣	●	×

a:  $p < 0.05$   
†:  $p > 0.05 < 0.09$   
● No test performed

b:  $p < 0.01$

c:  $p < 0.001$

\*  $r = 0.555$   
× Not significant  
♣ No measure taken

Table 4.38: Summary of significant results

		Attitude to community service		Community nutrition knowledge		Job satisfaction		Self-rated professional development (single statement)		Professional practitioner ranking (multiple statements)	Contribution to dietetic services
		Entry	Exit	Entry	Exit	Entry	Exit	Exit	Exit	Exit	Exit
	Cohort 2003 & 2004-2005	03-04-05	04-05	04-05	04-05	04-05	03-04-05	03-04-05	04-05	04-05	04-05
Individual factors	Population Group						a				
	Home language		†					†			
	University attended	a		b	a						
Institutional factors	Organisation of community service						†				
	Hospital manager support							a			
	Rural allowance							†			†
	Hospital location						†				†
	Working conditions										†
Attitude, community nutrition knowledge and job satisfaction	Entry attitude of CSDs to community service						a			a	†
	Exit attitude of CSDs to community service					a	b	† b	b	a	
	Exit com nut knowledge							†			
	Entry job satisfaction										†
	Exit job satisfaction									a*	†
	Self-rated professional development (single statement)										†
	Professional practitioner ranking at entry (multiple statements)										†

a: p&lt;0.05

b: p&lt;0.01

c: p&lt;0.001

\* r=0.555 †: p&gt;0.05&lt;0.09

## **CHAPTER 5 ANALYSIS OF FOCUS GROUP DISCUSSION**

### **5.1 Introduction**

Compulsory community service (community service) for dietitians in South Africa commenced in 2003. The principal objective of community service was to both overcome service delivery problems in under-served areas including rural areas and to attract and retain professionals in these areas (Department of Health 2002). Further objectives were listed in a letter addressed to medical interns about to embark on community service in 2000 (Reid 2002). These objectives included the improvement of the health status of all South Africans and in the process it was suggested that health professionals would be provided a chance to improve their skills, knowledge, critical thinking and behaviour, thereby producing competent professionals. Newly qualified dietitians are guaranteed jobs and opportunities to gain valuable experience during community service.

### **5.2 Aim of the focus group discussion**

The aim of the focus group discussion was to investigate the effect of community service on service delivery and the professional development of dietitians and to explore constraints and obstructions experienced by community service dietitians (CSDs) during community service. The focus group discussions were conducted with the 2005 CSD cohort.

### **5.3 Results of analysis**

When comparing the written answers to the few questions asked at the start of the discussion (see Chapter 3, section 3.6.3, it was noted that most agreed with those given during the discussion which gave credence to the findings of the focus group discussion. The characteristics of the CSDs are summarised in Table 5.1.

Table 5.1: Characteristics of CSDs in the focus group discussions (n=13)

Mean age	24.2 ( $\pm 1.65$ )
Home language	
English	12
Afrikaans	1
Rural Allowance	
Yes	9
No	5
Distance from home	
Living at home	2
Less than an hour away	3
Less than half a day away	5
More than half a day away	2
Female	13
Population groups	
Indian	4
White	9

The following themes were identified from the focus group transcripts for analysis (See Chapter 3 and Appendix N, pA88): *The placement process, obstructions and constraints, the progress of the professional development of the CSD and means of enhancing professional development.*

### 5.3.1 Theme: Placement process.

One area listed in the literature as being contentious, was the process used to allocate community service professionals to their community placements (Naude 2001). It appeared during the focus group discussion that in this case, these issues had been addressed, with the majority of the CSDs (n=10) being neutral to very happy about the process and with three expressing dissatisfaction with the process. Dissatisfaction by these three arose around the lack of detailed information regarding the type of placement being advertised especially for those CSDs applying from outside the province. Another problem raised was that there were three institutions training dietitians in the Western Cape, but only 5 positions were offered in that province for 2005. This reflected the higher level of service and development in the

Western Cape in that the numbers of placements were limited which indicated that the Western Cape did not have as many under-served areas as did the rest of the country. The CSDs from the Western Cape felt it was unfair that they should be placed so far from their homes.

### 5.3.2 Theme: Obstructions and constraints.

The question posed. “In your opinion what help and constraints were there to achieving your objectives?”(Appendix L, A81), yielded the largest theme “obstructions and constraints” (Table 5.2) with very little positive feedback from the group. Text boxes giving CSD’s actual quotes have been included to highlight the themes. Coded initials were used to protect sources.

Table 5.2: Obstructions and constraints in community service

<p><u>Structural and facility problems</u></p> <ul style="list-style-type: none"> <li>• Lack of supervision and support</li> <li>• Lack of preparedness of the receiving institution and by the CSDs themselves</li> <li>• Lack of basic facilities &amp; resources</li> <li>• Bureaucratic problems and poor hospital administration</li> <li>• Breakdown in communication</li> </ul>	<p><u>Nature of the job</u></p> <ul style="list-style-type: none"> <li>• Work/role overload and extended geographic work area</li> <li>• Anti retroviral (ARV) programme overload</li> <li>• Cultural barriers</li> <li>• Problems of remote areas</li> <li>• Lack of promotional prospects and remuneration</li> <li>• Family and travel issues</li> </ul>
<p><u>Problems with professional role</u></p> <ul style="list-style-type: none"> <li>• Lack of understanding of CSDs’ role by others</li> <li>• Under-utilisation of dietetic services and lack of recognition</li> <li>• Not being part of a team</li> </ul>	

#### 5.3.2.1 Structural and facility problems

This set of problems relate to the facility in which the CSD had been placed. These problems were also of a structural nature and could be ascribed to the organisation of the community service programme.

### *Lack of supervision & support*

There was a distinct lack of direct supervision of the CSD's by qualified dietitians. Not one of the 15 CSDs in KZN was placed under the direct supervision of a registered dietitian in 2005. In addition to this, a number of these dietitians were not

#### Comment by A

At the District office, the District Manager is my supervisor but I've seen him once this year so I actually...I report to the Programme's manager. She signs all my forms that need to be signed and I suppose my immediate supervisor is the nutritionist but when she's leaving they don't actually know. I organize with the hospitals with the Medical manager, but at the District office there's no one.

#### Comment by B

He wouldn't have a clue about whether I was there or not.

even supervised by the managers in their own institution. A number of CSDs stated that their managers had no idea about what their work entailed or even whether they were at work or not. The KZN Nutrition Directorate implemented a mentorship programme but only one CSD of this group mentioned this programme in a positive light. Some did not know who their mentors were and many felt that there was a lack of understanding by the permanent/mentor dietitians about the specific problems the CSDs faced when working in a rural area, because the permanent dietitians and the nutrition management team in

#### Comment by C

Well I haven't gotten in touch with my mentor, actually I don't know who she is, I haven't been able to find out who she is.

the DOH had not had to undertake community service themselves and therefore lacked the insight of the range of problems experienced by the CSDs.

### *Lack of preparedness*

There were two components of this aspect. One was on the part of the receiving institution<sup>1</sup> hosting the CSD and the other was on the part of the CSDs themselves.

<sup>1</sup> Receiving institution: Community service facility

### *Lack of preparedness by receiving institution*

CSDs were concerned about the lack of preparedness for their arrival at their receiving institutions. Some institutions were not even expecting them and others made no effort to receive them or prepare them for the type of work that they would be performing. It seemed that very little had been done by way of orientation of the CSDs by their

Comment made by D

And at the beginning of the year, the permanent staff.... It must be frustrating for them getting a new bunch of people every year and they don't want to sit and explain to everybody and they not going to be that enthusiastic now they've got new people who don't know what they doing but... ag but I think they could have helped a lot more, and people who are involved like I was saying... ah kind of involved with community, the paed's wards, matrons... I only really met them after a couple of months. They could have come at the beginning of the year and said, "Listen this is what we need from you, these stats." But they didn't. They kinda just waited for us to ....(Interviewer: to make contact with them). I think we need a little more orientation about that kind of thing would make our jobs a lot easier.

institutions and that the institutions were loath to invest time in someone who would be leaving at the end of the year.

#### 1) Lack of preparedness by the community service dietitian

There appeared to be some misunderstanding on the part of the CSDs themselves as to what community service was about<sup>2</sup>. A number of them showed greater concern about losing their clinical skills rather than being pleased about the gains they were making in community nutrition and administration skills. Others had no concept that community service was about delivering a service in a rural or under-served area.

Comment by F

I just want to add a short... one thing I've realized is, that KZN's one of the only provinces that really push this rural issue. If you speak to com serve 's from other universities, and I realize most of you are from Maritzburg so maybe you don't have friends in other positions or maybe you do... but obviously we're the only two from Cape Town, so all the people that were from our university are in built up cities. They were in Johannesburg, Pretoria, even like Kimberley. I mean it's not a big place but it's a city. None of them, we're the only ones, and I'm not even that rural. I'm 40km out of Durban. I'm really lucky. But it's only KZN that pushes this rural issue that you must work fully out from home. There's no water. The other provinces don't do it, so why? And I know there's a need for it but why? It's not fair you know. You rather then apply in another province and know that I'm at least in civilization

<sup>2</sup> Community service is the delivery of services to previously under-served communities which would probably be a rural institution. The focus would be on primary health and promotive and preventative care. In the case of the dietitian this would include the key performance areas of disease specific nutrition support, promotion of breastfeeding, food service management, nutrition education, household food security, micronutrient intervention, growth promotion, the anti-retroviral programme and the management of severe acute malnutrition.

It was important that the receiving institutions be ready to receive community service professionals because it was very unsettling for community service workers to have to make their own way without the support of management. Likewise effort should have been made to prepare the CSD for work in the community both by the KZN-DOH and the training universities.

### *Lack of basic facilities and resources*

A large area of discontent was the lack of basic facilities and resources. CSDs stated that they did not even have basic facilities such as a desk, an office, stationery or a telephone. This had a subsequent effect in that they missed out on training opportunities because they did not receive faxes or messages on time.

Comment by A

Um, no. Because of budget constraints, I didn't have a scale for like.... I still don't have a scale. I didn't have a height stick um.... It's just basic equipment, there's no budget. We couldn't get feeds um I was one person having to set up a department and not knowing anything about nothing and so it was a bit hard.... I think now it's getting better. But there is still a problem with staff not being able to let go of things... so it makes it more difficult for you to do your job because sometimes you order something and nothing's happened. You write letters to management to tell them nothing... They're just wasting the feeds, they basically just throwing it away and there's nothing you can do about it, 'cause management is not doing anything about it. So what do you do? So you just... lose your mind.

Others did not have the basic “tools of the trade” such as scales and height sticks and access to enteral and formulae feeds. Others were expected to service a large geographic area but had difficulty accessing transport to visit the outlying hospitals; they were not allowed to drive state vehicles because they were considered to be contract workers. Their allocated drivers were often late, the distances to be covered great and they found that it was virtually impossible to provide a service to all the hospitals within their jurisdiction.

### *Bureaucratic problems and poor hospital administration*

CSDs mentioned they had problems with their salaries and medical aid payments. Another problem area was the stores' managers who did not

Comment by G

I just think one of the most obstructionist networks in Government is people just don't do what you ask them to do. It's just that I've just learnt that.... and I've learnt not to get frustrated because no matter how many times you say something, no matter how many times you repeat something, physically if you're not there to stand and order the feed yourself and phone and say “Is it coming?”, it doesn't get done. If you don't go somewhere and do it yourself, things just don't get done. I don't know that's just how life works. I've never worked before, it's my first working experience ever, but it's just very frustrating. (Interviewer: and that seems to me like.....I see lots of nods... yes?)

place orders timeously or had too much stock on hand that had expired and had to be discarded. Complaints to the hospital management did not result in any remedial action being taken. Some CSDs learned that they had to get actively involved themselves if they wanted orders placed or tasks completed.

### *Breakdown in communication*

CSDs found that due to poor communication structures they did not always receive the appropriate instructions. The implementation of the management of severe acute malnutrition was one area that CSDs should have been involved in and some missed the opportunity of attending this workshop and were then informed about it afterwards. They were nevertheless instructed to implement the system even though their knowledge of the process was passed on to them via a third party. Another area that was not well communicated was the

completion of statistical records which still appeared to be problematic. In addition, CSDs were expected to adopt a multi-sectoral approach in some aspects of their work and to collaborate

#### Comment by H

Our district is very badly run. Our Projects Manager - you can never get hold of her and when you do, she's not helpful at all. (Interviewer: yes) We just battle along to try and get anything done... so everything takes extra long because your support network's then cut. Like for example, I'm trying to organize a clinic garden which I've been trying to do since January and our agricultural department is across the road from us, is not interested in helping (Interviewer: yes) They just don't understand and I don't know its because I am English, I can't speak the language but they just don't seem to get what I'm asking and when they do come out and help me, they give me the wrong things and when I do go to the HOD, he's also not very helpful so I find this whole stone-walling effect the whole time.

with departments outside the DOH. One CSD experienced a real problem when approaching another department and talked about the “stonewalling” effect when she tried to elicit assistance with clinic gardens.

### 5.3.2.2 Problems with professional role

This set of discussions reflected the problems associated with the profession of dietetics within the province of KZN. There seemed to be a lack of understanding by other health

workers regarding the role CSDs should play in community service and where they belonged in the hierarchy within the facility in which they were placed.

### *Lack of understanding of CSDs' role by others*

The role of the dietitian seemed to be appreciated by the management in most hospitals but the CSDs had to explain their role to staff working in the community health centres (CHCs). Some<sup>3</sup> of the CSDs complained that other staff members such as the nurses and especially the community service doctors were not aware of the role of the CSD. Other CSDs were proactive and sent out questionnaires and other documentation explaining their role in community service and the facility.

### *Under-utilisation of services and lack of recognition*

Another area in which CSDs experienced problems was to get staff members to use their professional services. It appeared that because there were no dietetic services available previously, the nursing and other staff members

#### Comment by C

Um.. At our hospital I think we they have a fairly good understanding of what a dietitian does, because we have (*sic*) a dietitian for 3 months, prior to me being there. But ah... the biggest problem was for me to get the doctors to actually call for me. They didn't find a need for me. They knew what I was there to do but they didn't call for me. The nurses didn't call for me either so ah... my biggest problem getting them to send me referrals and you know... (Interviewer: and their knowledge of what you did you said was quite good?). Yes they knew that if they had a malnourished patient they needed a dietitian to be there. They knew for.. that if they were giving nasogastric feeds, they needed me there to calculate feeds. They knew that they needed me there for burns patients as well. And um... well if they had overweight outpatient, the doctor just won't send but she would tell the patient, "Well, you need a low fat diet, you need um..." if the patient was diabetic, "You must now stay away from sugar," you know but she would never send the patient to me.

had learned to cope on their own. CSDs had to put quite a bit of effort into getting other staff members to use their services. They expressed frustration at the lack of appreciation of the work they had undertaken in very trying circumstances. They also felt no-one cared whether they worked to the best of their abilities and that there was a lack of recognition or reward for a job well done.

<sup>3</sup> The term "some", "other", "a few" have been used deliberately. The literature indicates that "...it is not appropriate to give percentages in reports of focus group data, and it is important to try to distinguish between individual opinions expressed ...." (Kitzinger 1995, p301)

### *Not being part of a team*

One aspect that was raised a number of times was the CSDs felt that they lacked being in a team. They mentioned “Rehabilitation” as an area that the other therapists took part in and were perplexed that they were excluded from these activities. There appeared not to be another health team in which they could have played an active role.

#### **Comment by B**

I just want to ask why don't we fall under that whole rehab....I mean...I mean like what's the difference between an audiologist, speech therapist, occupational therapist and physio? I mean they're all together and then there's the Dietitian? I don't understand that. (Interviewer: I think that that's a good question and that maybe its something that we'd want to address.) Because they're always having these rehab meetings and they'd go off on Fridays and go and have rehab meetings. I think well, I'm also part of the hospital and I'm also part of the team but I'm not...

### 5.3.2.3 Nature of the job

Most of the CSDs were placed in rural areas and there was some discussion around the problems of working in rural areas. These discussions were grouped together under the title of the “Nature of the job”.

### *Work/role overload and extended geographic work area*

CSDs commented about work and role overload. They felt there was much that they had to do and often too much work for one person to complete satisfactorily. Those CSDs working in the CHCs, found the expectation that they should be covering a large area and travelling far distances on very poor roads, was unrealistic and ineffective.

#### **Comment by C**

No I haven't. I've...I've... in fact it's exactly what K said that Um... I have to be everywhere at the same time and I find myself doing, not a full assessment of the patient you know, just looking for what the patient needs and that's it and writing out the pink sheets you need to go over that.

It was also noted that those CSDs who were placed in non-hospital venues wanted to be in the hospital environment where they appeared to feel more comfortable. This was an indication

of the lack of preparedness for community service both by the training universities and by the non-hospital receiving institutions.

### *ARV programme overload*

Virtually all the CSDs noted that the only role seen for them by others was in the anti-retroviral (ARV)<sup>4</sup> programme. Some felt there was too much work for a single person to manage this programme and that there was a need for additional assistance

#### **Comment by C**

At the moment I'm expected to do work in the ARV clinic, together with everything else. The biggest problem I have there, is that we don't have enough help. Um.. we have, like currently I think, over 800 patients in the ARV program and there are patients that haven't started on ARVs. The biggest problem there, is that I don't have someone to help me to do the initial screening, so it..it.. there's not enough people working there to help us.

in the ARV programme so they could have attended to other duties as well.

### *Problems of working in remote areas*

A few mentioned the problems associated with working in rural areas such as the driver getting lost for three hours, being stuck in the mud and the hospital being without water for a number of days. One CSD stated that it was all very well placing CSDs in remote areas but that by the time they had organised supplies and other facilities they had come to the end of their contract and it was time for them to leave again.

### *Cultural barriers*

Another constraint raised by CSDs was that of their lack of understanding of the culture in which they were working which also included problems of communication. Some mentioned difficulties in communicating with patients because of language difficulties and others in working with the community because they still had to learn the accepted methods of interaction. Some CSDs had access to translators and others said they had been learning to

<sup>4</sup> ARV programme is part of the AIDS Plan. Dietitians are involved in the nutritional assessment and nutritional support of patients on the ARV programme. See Chapter 2, section 2.6.4

speak Zulu. These cultural barriers were part of learning about working in a new environment and were obstacles that the CSDs needed to overcome themselves.

#### *Lack of promotional prospects and remuneration*

A few CSDs were concerned about their salaries and mentioned that if they knew they would be employed on a higher level once they had completed community service, they would be willing to stay and work after their community service year. Others mentioned that knowing there were no additional benefits in remaining in a position in their rural placement, they would rather go elsewhere after completing community service.

#### *Family and travel issues*

Some CSDs were unhappy about being separated from family and friends and being far from home. They claimed that this affected their motivation and made them feel isolated and abandoned. Most of these CSDs were from other provinces and had been forced to apply outside their provinces because of the lack of positions for them locally. Some CSDs also talked of social isolation and feelings of having been 'dumped' in a rural area.

### 5.3.3 Theme: Progress of professional development of the community service dietitian

This theme was subdivided into further areas of: Self-rated development, skills gained and lost, scope of practice, and quality of service provided, self determination, and creation of permanent dietitian posts.

#### *Self-rated development*

CSDs were asked to rate their own professional development. Nine of the thirteen rated themselves as competent on the Dreyfus & Dreyfus scale, one rated herself between the advanced beginner and competent and one each rated themselves as an advanced beginner

and as a novice (Figure 6.1). The loss of skills was one area that a number of CSDs saw as a constraint to professional development. It was interesting to note that CSDs did feel strongly that their efforts should be recognised. This implied they had developed an emotional attachment to their work which could be interpreted that the majority who rated themselves as competent were in accordance with the Dreyfus & Dreyfus professional development scale (Dreyfus & Dreyfus 1986; Dreyfus 2004) although according to Benner (2001, p25) they would only have reached this level after two to three years of practice. None of the focus group participants rated themselves as being at the higher level of professional development that is, as being “proficient” or an “expert” which was to be expected.

Comment by I - competent  
Have learnt how to cope and have developed a lot throughout the year and learnt how to make decisions.

Comment by A - advanced beginner  
I am just starting off and learning as I go along.  
Not yet able to make very wise decisions  
Experience level is not well developed yet.

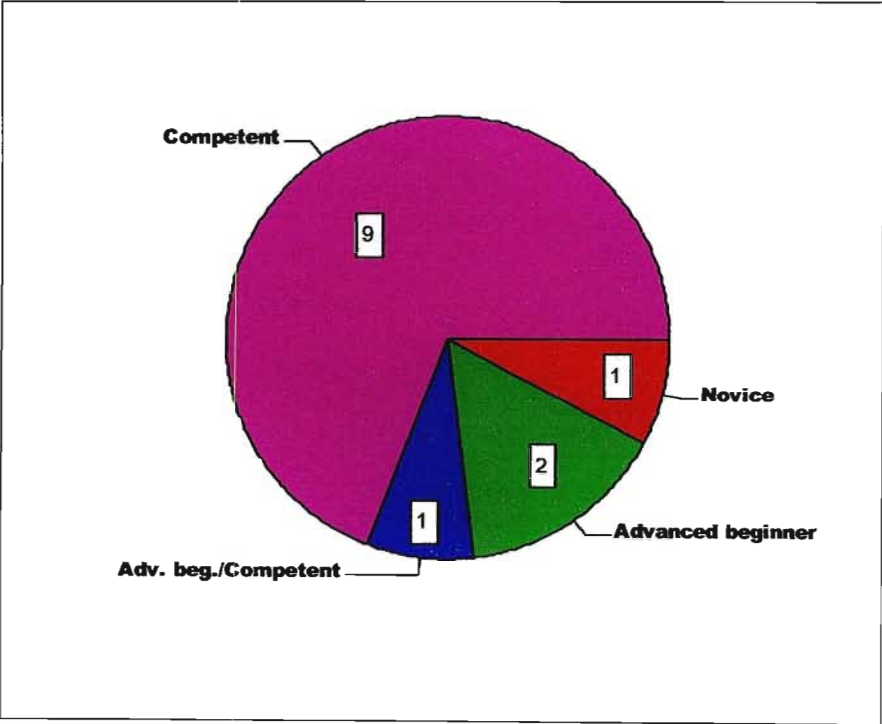


Figure 5.1: Self-rated professional development – Dreyfus & Dreyfus model (1986)

### *Skills gained and lost*

The area of new skills gained that was mentioned most often was that of the ARV programme. Other new skills learned were Vitamin A programme, severe acute malnutrition management, kangaroo mother care and a number of administrative and management skills. The area of concern regarding skills loss was the lack of practice in clinical nutrition where CSDs saw a lot less of the more complicated disease conditions because the seriously or critically ill patients were sent to the larger hospitals and therefore placed outside the range of the CSDs' practice.

### *Scope of practice*

CSDs were involved in the paediatric wards dealing with malnourished children. They were used extensively in the ARV programme. They were also involved in health education, food service management, poverty alleviation and administrative tasks such as ordering and distribution of enteral and formulae feeds. This showed that the CSDs were exposed to a fairly wide range of tasks and experiences.

### *Quality of service provided*

When asked whether they had given a service to the best of their ability most answered that if they had better support and if the hospital were better

#### **Comment by F**

I wouldn't say it was optimal, I'd say it was good; I've been able to give a good service. I've seen a lot of patients. At least I know I make a difference in people's lives, but it's not what it should be, not 100%, and again it's not because I'm lazy or I don't want to do it, it's just the circumstances won't allow it.

managed, they would have been able to achieve a great deal more. The problem of distances was also listed as an obstacle to giving better service. Another CSD was concerned about the lack of input by the district manager and how it impacted on her work.

#### 5.3.4 Theme: Means of enhancing professional development

##### *Self determination*

CSDs found they had to prioritise their services to achieve optimum efficiency and a number of them made comments regarding these decisions. Some said that they focussed on children. One CSD commented that she had learned to cope and make decisions. Some had educated other professionals on the role of dietitians. One learned to make adjustments to her counselling skills and to simplify messages to make them understandable to all. Another CSD talked about learning to be practical and to translate theory into practice. From the examples listed above it appeared that a number of the CSDs learned to be proactive and to solve their own problems and in this way also boosted their professional development and expertise.

##### *Coping mechanisms and collaboration with other health professionals*

Many of the CSDs mentioned the formal and informal support systems that they had utilised. They mentioned the extensive reliance on the KZN Nutrition Directorate who had given them support and helped them with some of the problems. CSDs had also used other health professionals. Physiotherapists, occupational therapists, social workers, ward sisters and hospital management were mentioned as sources of support and information. One CSD mentioned a procedure manual that she found particularly useful. This had been compiled by other health professionals in the previous year and contained all relevant administrative information.

Clarity of the dietitians' role

CSDs appreciated working in hospitals where there was an understanding of the role of the dietitian. It was noted that those CSDs working in CHCs were nearly all pioneer CSDs, meaning that they were the first dietitians to be working in these venues and had to explain and justify their place in the centres. Chi square analysis revealed that a significant number of pioneer dietitians had been placed in CHCs (Table 5.3). These

Comment by J  
I mean I feel like I've actually wasted my year as a dietitian when I could have been in a hospital such as E that actually needs another dietitian where in the community health centre... I mean it's great to learn about a new culture which I'm happy about. I've learnt their... why they do these certain things so I understand them when they do go to a hospital and I am with them at E once or twice a week now but maybe more like once a week, but I'm getting that interaction on the clinical side...

dietitians intimated that they would rather have worked in a hospital where they were not expected to travel so extensively and where they assumed they would have had better access to resources. One CSD said that there should have been more clarity in the application information regarding placements as to the tasks involved when working in a community health centre. It would have been useful for the DOH to list the specific duties of CSDs in CHCs compared to those in hospitals.

Table 5.3: Cross tabulation of pioneer CSDs and placement facility

	PLACEMENT FACILITY		Total	Chi square
	Hospital	Community health centre or district office		
Pioneer CSD	1	4	5	p= 0.034 Fisher's exact test
Non-Pioneer CSD	7	1	8	
Total	8	5	13	

### *Other unpredicted benefits*

One advantage mentioned was that where CSDs were placed in the more remote areas they were not able to return home every weekend. These CSDs built up friendships and attachments to

Comment by D

I think more for us it's been more of a social aspect of where we're staying. We didn't expect to see as much. It's not work related but it does impact on your work because if your not happy where you're staying you're not going to be working as effectively, K and I've seen a lot and we stay in a beautiful area. (Interviewer: Yes... so that kind of social aspect has been and interaction with other individuals?) Ya I've formed a lot of close relationships at my hospital because we all live together and we're all working together.

other community health professionals and were appreciative of this opportunity. This aspect was not mentioned by those CSDs who were able to go home more frequently.

### *Creating permanent dietitian posts in rural areas*

It was recommended that there is a need for permanent posts for dietitians in hospitals that have been allocated CSDs. Some said there was far too much work for a single individual and that the appointment of a permanent dietitian would alleviate many of the problems. One CSD was of the opinion that they had just learned the systems and how they operated by

Comment by F

I just want to say I really think that, head office, or I don't know who's responsible, must push the hospitals to open positions for permanent dietitians. At the moment I'm sure most hospitals rely on CSDs. They're like well "We don't pay their salaries, we've got their service, at least we got someone every year to do CSD"... but you can't, one dietician can not manage the whole hospital, plus ARVs plus 2 clinics in the area. It's impossible that they rely, you know, they don't open the positions because then they don't have to pay the salaries, and someone, don't know who's responsible, must push them to open a permanent dietitian and a CSD in most of the hospitals, especially these people some of them do 4 or 5 clinics and 3 hospitals or whatever, there should be more than one person doing that.

the end of the year and would then have to leave again.

## **5.4 Summary of findings**

The full potential of services that could be given by CSDs was restricted because of obstructions and constraints. These included structural and facility problems, problems with their professional role and the nature of the job. Some of the structural and facility constraints were the lack of supervision and support, lack of basic facilities, bureaucratic and

hospital mismanagement. Problems regarding their professional role that were discussed were the lack of understanding of the role of the dietitian, underutilisation of their nutritional services and also included an excessive emphasis on the ARV clinics resulting in overloading the CSDs. Not being part of the team was also identified as an issue by the discussions. The wide geographic area to be covered, cultural barriers and working in remote areas where there were a lack of basic facilities all contributed towards the frustration of the CSDs. All findings will be discussed in Chapter 6.

## **CHAPTER 6 DISCUSSION**

### **6.1 Introduction**

The aspects investigated in this research were to establish what the attitude was of CSDs working in rural or under-served areas, whether there was a change in their level of knowledge, what the effect was on levels of job satisfaction, whether professional development would improve, what the perception was of CSDs regarding the quality of service delivery and whether a variety of demographic, individual and institutional factors were related to these aspects. Also examined were the effects of community service on gaining new skills, perceived loss of knowledge, access to training, access to resources and the support networks garnered by the CSDs.

### **6.2 Discussion of the methods**

A variety of methods were used to collect information from the study population. The primary method was the use of a questionnaire administered over a three year period on three annual intakes of CSDs. The study population was easily accessible which was important when using postal and telephonic surveys (Dillman 1978 p46). When choosing between a postal and telephone surveys, it was indicated in the literature that where the interviewer was experienced that the telephone survey was superior and where the interviewer was not experienced a mail survey would give more accurate results (Salant & Dillman 1994, p35). A variety of methods of collecting data included posting, faxing, telephoning and e-mailing. These methods were described in the chapter on the methodology. The is variation may have affected the reliability and validity of the data but the variety of methods of delivering questionnaires was used to ensure that as many of the target population as possible were reached (Dillman 2000, pp5-6). These methods were employed because of constraints imposed by time, distance and the work circumstances of the CSDs which were beyond the researcher's control. Although bias may

have been introduced because of this, it was felt that there was sufficient and reliable information that should not be discarded. The design of the rating scales may also be open to scrutiny. The results of a study conducted by Churchill & Peter (1984) demonstrated that borrowed scales did not have a higher reliability than developed scales. Borrowed scales in this research were; the Kaldenberg & Becker (1991) Job Satisfaction Scales and the community nutrition knowledge questionnaire (Ross 2002). The Job Satisfaction scale used in this study could also be considered as measuring career satisfaction as exemplified in the first statement to be rated: "I am satisfied with dietetics as a career". However the two concepts of job and career satisfaction are difficult to separate. It was felt that since the literature referred to this scale as a measure of "job satisfaction" (Kaldenberg & Becker 1991) that this terminology would be retained. Scales developed for use in this research were the working conditions scale, the living conditions scale and the professional practitioner ranking scale (multiple statements).

A measure of bias may also have been introduced because the community nutrition knowledge questionnaire was not discussed outside the province. However it was discussed in a wider forum that just the UKZN Discipline of Dietetics and Human Nutrition which would have improved validity (Bowers *et al* 2006, p97). The size of the population was small and therefore the entire population was targeted for use in this research. Bias was reduced by not sampling the target population.

Qualitative methods were also employed to extract further information. Procedures described by a variety of authors were used to design and conduct the focus group discussions (Bloor *et al* 2001; Greenbaum 2000; Kim *et al* 1996; Kitzinger 1995; Merton *et al* 1990; Mullings 1985; Patton 1990). By conducting qualitative research one was able to access "Information rich" perceptions from subjects which gave the researcher more insight into the situation of the CSDs (Patton 1990, p337). The findings in the focus group discussions reinforced the findings in the

questionnaires particularly in the area of limited resources, thereby validating the findings of the survey.

A follow-up discussion was held with some of the 2005 CSDs, mentors involved in the support of CSDs and the DOH. See Epilogue (Chapter 8).

### **6.3 Attitude of CSDs towards community service**

The majority of the of the 2003 cohort (75%), were positive towards community service at exit compared to 40 percent at entry. From these results, although only a tendency, it appeared that the experience of community service had a positive effect on the attitude of CSDs in 2003. In contrast, the attitude of the 2004 -2005 cohort showed a tendency to decrease over the year. A reason for the positive change in attitude of the 2003 cohort could be explained as follows. The year 2003 was the first year of community service for dietitians. These CSDs were only given a year's notice that they were expected to perform community service once they had graduated. Many were not prepared for this eventuality and felt coerced into the situation (Maunder 2005). However, once they had embarked on community service, they were more accepting of the situation. Reid (2001), found that some community service doctors changed their attitudes when they found that they were making a difference to the lives of their patients and Visser *et al* (2006) found that their study group of CSDs also improved their attitude to community service during the year. In this research some CSDs remarked on the positive effect that they had had in the communities they were working in. One CSD noted that initially her arrival had not been anticipated but once she had been accepted by her colleagues her attitude improved. The fact that dietitians were assured of a job for the first year out of university (comments made on questionnaires, Chapter 4, Section 4.5.1) may also account for the positive attitude to community service. Graduates of UKZN were more positive towards community service. This was probably because most of the graduates who applied to work in KZN from the UKZN, originated

from KZN. These CSDs would have been more familiar with local communities and understood the situation in KZN and would have been closer to family and therefore felt less isolated. English speakers were also more positive to community service and this could be related to the fact that they were also mostly from UKZN as UKZN is one of the few universities represented in this study population that instructs dietitians exclusively in the medium of English.

In this research it was found that a positive attitude was also positively linked to job satisfaction. In the model showing factors that are related to job satisfaction, a positive attitude was listed as one of these factors and was an expected result (Price 2001). Attitude, either negative or positive are aspects of an individual's personality and are considered to be part their disposition or temperament (Brief *et al* 1988). These authors classified individuals as being either negative or positive and found that negative individuals would more likely to have lower job satisfaction. It was also found that individuals who had negative dispositions were less likely to be influenced by other circumstances into changing their attitude and therefore remaining negative compared to those with a positive attitude who could experience periods of negativity (Brief *et al* 1995). Although no personality tests were conducted on the subjects in this research, it is interesting to note that individuals who started off by being negative about community service became more positive, giving an indication that they were probably positive individuals by disposition and had experienced a short term negative attitude to their initial unexpected circumstances therefore agreeing with the findings of Brief (1995). Worth noting was that although many comments were made during the focus group discussions especially with regard to the working conditions that statistically neither working nor living conditions was significantly associated with attitudes towards community service, reinforcing the theory that attitude as a personality trait was not easily altered (Brief *et al* 1988).

Of interest here as well was the issue of safety or rather the non-issue of safety. Various authors raise the problem of personal safety in rural areas (De Vries & Marincowitz 2004; Reid 2001). Parents have also raised concerns about the safety of their children having to work in remote areas (personal experience of this researcher). When examining the results it was found that 2 out of 26 CSDs were concerned about their safety but these were CSDs who were placed closer to urban areas rather than in the more remote rural areas, which somewhat counters the perception that remote areas are unsafe. Visser *et al* (2006) also found that safety is not an important issue which supported the findings in this research.

#### **6.4 Community nutrition knowledge**

Community nutrition knowledge was measured using a multiple choice questionnaire. There was a significant difference in the scores between the 2003 and 2004-2005 cohorts, with the 2003 cohort scoring less than the 2004-2005 cohort. The 2003 cohort scored an average of 62 percent at entry and 64 percent at exit, in contrast to the 2004-2005 cohort who scored 73 percent and 78 percent at entry and exit respectively. This could have been ascribed to contamination of the later study population. The questionnaire was used for the first time in 2003 and although the questionnaires were collected from the participants after the surveys, there was a possibility that questionnaires could have been seen and discussed in subsequent years. A total of six dietetic interns also assisted with the research project in 2003 and 2004 and four of them were subsequently part of the 2004-2005 cohort which may have slightly influenced the results.

The time – time linear measure showed that there was an improvement of knowledge over the year in both cohorts which although not significant, gave an indication that community nutrition knowledge was not lost. In the section on the progress of professional development (Chapter 4 Section 4.5.4), comments were made about the loss of clinical nutrition knowledge but concern regarding loss of community nutrition knowledge was not made. Nutrition

knowledge questionnaires generally available are usually used to test the knowledge of non-dietitians (Schaller & James 2005). The MCQ used in this research was specifically designed to cover topics presented in the 4<sup>th</sup> year of study (Ross 2002) and should therefore be a reflection of the level of entry knowledge of CSDs. It was designed to cover minimum levels of community nutrition knowledge and was therefore a relatively simple questionnaire. The poor scores of the 2003 cohort was a matter of concern with one CSD scoring a meagre 30 percent! These poor scores could be cause for concern because this was really basic knowledge. None of the other articles on community service dealing with dietitians or other health professionals measured knowledge *per se*.

## **6.5 Job satisfaction**

### **6.5.1 Job satisfaction of 2003 cohort**

The job satisfaction of the 2003 cohort at exit, showed significantly lower levels of job satisfaction for whites than the other groups while the exit levels of job satisfaction of the 2003 CSDs did not differ significantly from South African registered dietitians (Paterson 2000, p79). There was also a tendency for job satisfaction to be positively linked to the organisation of community service in the facility, the rural location of the hospital and self-rated professional development.

The South African registered dietitians in the 2000 study were considered to be dissatisfied with dietetics because they scored significantly less than the test score determined by Kaldenberg & Becker (1991). An explanation for the dissatisfaction of the 2003 cohort could be that the implementation of compulsory community service was sudden and unexpected because no consultation regarding compulsory community service had taken place before the beginning of 2002 between the dietetic students in training and the DOH. A number of dietetic interns at UKZN expressed surprise and disappointment that they would have to complete an additional

year before they would be considered fully qualified dietitians (Maunder 2005). Other population groups probably welcomed the guarantee of a job, whereas whites might have planned to do something else. In his thesis on doctors undertaking community service, Maseka (2001, p89) noted that a number of his subjects objected to being coerced into undertaking community service. Reinforcing this argument were the negative comments made by the 2003 cohort which included the lack of preparedness of facilities hosting CSDs, the lack of provision of resources, dearth of funds, resistance from the community and in some case the poor support from hospital management and mentors. The job satisfaction of the 2003 cohort tended to be related to the statement on the quality of the organisation of the community service within the hospital (Chapter 4, Section 4.6.3), which was in agreement with the statements made regarding community service.

#### 6.5.2 Job satisfaction of the 2004-2005 cohort

The relationship of the population group and job satisfaction did not manifest itself in the 2004 - 2005 cohort, where job satisfaction was measured both at entry and exit. It could be argued that by 2004-2005, CSDs became accustomed to the idea that they would have to complete community service and no longer saw this service as a burden. Similarly, Maseka (2001, p91) remarked that the first group of doctors completing community service in 1998-1999 felt that they were treated unfairly but that thereafter community service was seen by doctors as a normal progression towards full qualification.

Job satisfaction was related to improved self-rated professional development (single statement) as well as a higher professional practitioner ranking (multiple statements). The higher levels of job satisfaction in the group of CSDs demonstrated improved professional development could be explained by increased job involvement, job and decreased job routinisation<sup>1</sup>. CSDs who were

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<sup>1</sup> Routinisation was described by Price (2001) as routine repetitive tasks without challenge

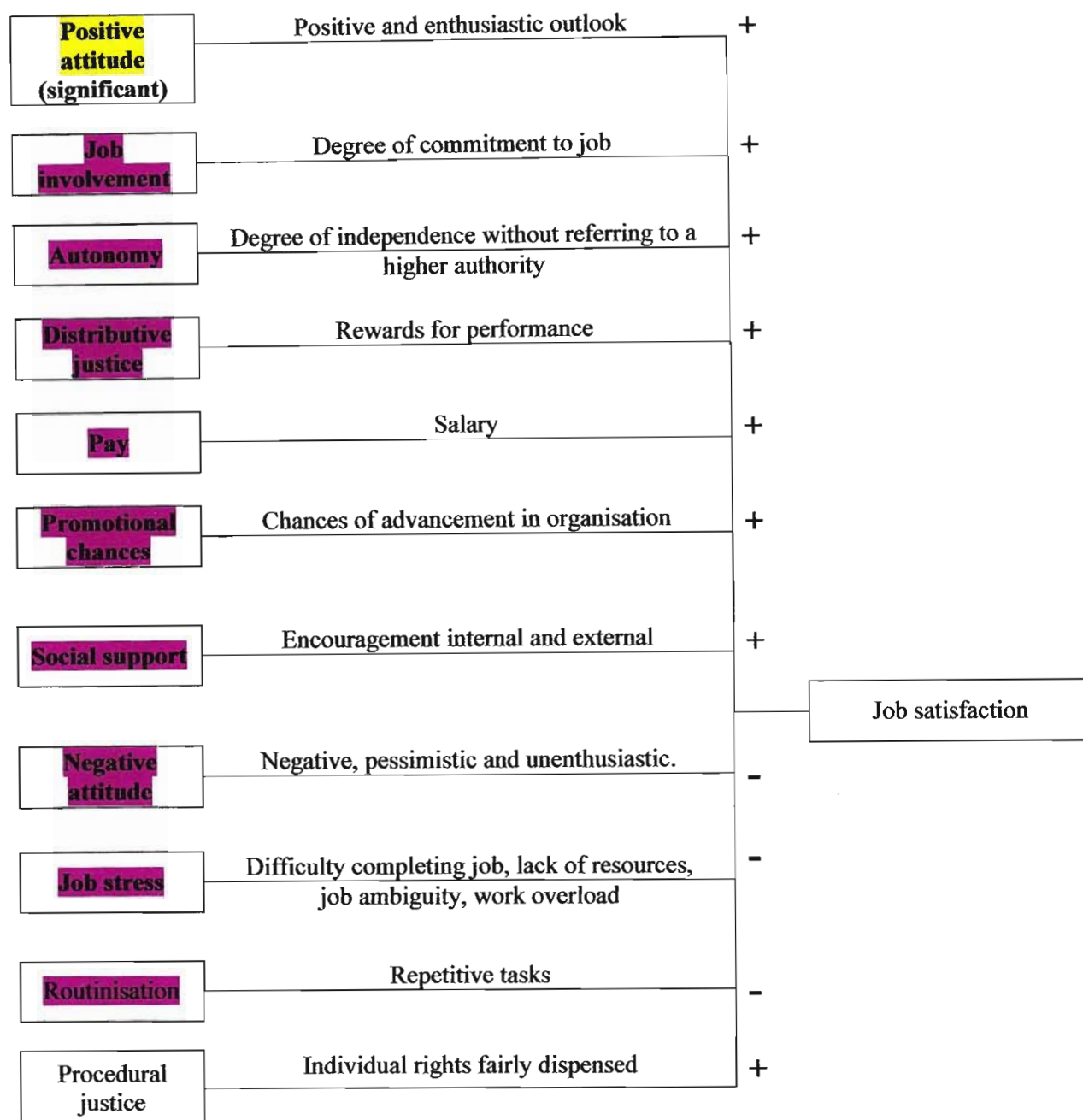
able to improve their professional development would have had to face new challenges (job involvement) and were probably less exposed to mundane and repetitive tasks (job routinisation) and had the freedom to choose what they wanted to do (job autonomy). A number of CSDs commented on the level of independence granted to them. Price (2001) also indicated that there was a strong negative correlation of  $r = -0.50$  between job autonomy and job routinisation.

Interestingly the 2004-2005 CSDs were significantly more satisfied with dietetics than both the South African registered dietitians and the 2003 cohort. This may be an indication that community service is becoming more acceptable and part of the process of qualifying as a dietitian. The English speakers in this cohort, similar to the findings of those of South African registered dietitians (Paterson 2000, p79) tended to be more satisfied with dietetics as a profession than did the other language speakers. The reason for English speakers to have higher levels of job satisfaction is not known.

### 6.5.3 The model of job satisfaction

The job satisfaction model, Figure 6.1 after Price (2001) was originally presented in Chapter 2, section 2.8.3. When looking at Figure 6.1, those areas that featured in the results of this research have been highlighted in purple. The one factor in the present research that was significant and positively associated with job satisfaction was attitude and this factor has been placed at the top of the model and highlighted in yellow. This model has been reorganised as follows: the positive associations between factors and job satisfaction have been placed in the top part of the model and the negative associations in the lower part of the model. The one factor found not to be involved with job satisfaction in this research was that of “procedural justice” and this factor has been placed at the bottom of the model. The positively and negatively ranked factors have not been arranged in any particular order because there was no indication as to how much influence they exerted on job satisfaction in this research.

Those CSDs working in rural areas showed “job involvement” in the focus group discussion. “Autonomy” experienced by those working in rural areas was also apparent. A number of problems raised by the focus groups could be related to “job stress” (as discussed in Chapter 2, Section 2.8.3) and included role ambiguity (where CSDs were not sure about their role in the community service), lack of resources and work overload. A few CSDs mentioned salaries (“pay”) as being problematic although there was no relation to job satisfaction in this research. Focus group discussions revealed the concern over the lack of “promotional chances” and that should they be employed as permanent dietitians there would be no increase in their remuneration once they had completed community service.



'+' means a positive relationship to job satisfaction, '-' means a negative relationship

Figure 6.1: A model of job satisfaction (after Price 2001).

A decrease in "routinisation" was manifested by improved job satisfaction once again by those CSDs working in rural areas and the presence of "social support" was mentioned particularly by those also working in rural areas. Some CSDs who were far from home felt deprived of family

support which was linked to lower levels of job satisfaction. “Distributive justice” would also have played a part in job satisfaction where CSDs mentioned in the focus group discussion that there was no incentive to excel at their work. The only aspect of the job satisfaction model not supported in this study was the procedural justice making this model a useful descriptor of community service in KZN.

The CSDs despite some of the negative impacts discussed above, were satisfied with their jobs, more so than the South African dietitians studied in by Paterson (2000), which means that if afforded the opportunity and an appropriate remuneration that they would be inclined to remain in service in a rural area (Price 2001).

## **6.6 Professional development**

### **6.6.1 2003 cohort and professional development**

Most of the 2003 CSDs (85%) were positive about their self-rated professional development (single statement) which was positively related to the support from the hospital manager. One way of interpreting this result was that when a professional group had the support of management, they were able to embark on actions that improved their professional development. Support by management also reduced job stress (discussed in Chapter 2, Section 2.8.3) (Price 2001) which could also free the CSD to improve professional development. The trend for increased professional development being related to improved exit levels of knowledge of CSDs and attitude towards community service was evident. One would have expected this, because improved knowledge would lead to an improved self-rated professional development. Those individuals with a positive attitude were better able to cope with the situation than those with a negative attitude (Fogarty *et al* 1999) and accordingly able to work on improving their professional development.

### 6.6.2 2004-2005 cohort

More than half (66%) of the 2004-2005 cohort was satisfied with their professional development. They were however concerned about their loss of clinical knowledge. Eligibility for the rural allowance was related to improved professional development and positive attitudes played a role here as well. Being paid a rural allowance would mean that those CSDs had been placed in under-served and rural areas and that the experience would have enhanced their exposure to new information and skills. Interestingly this was in contrast to the study of community service doctors by Reid (2001), who found that his subjects who received rural allowances were more negative regarding their clinical supervision (and by implication professional development) but never-the-less 64 percent of his sample felt that they had developed professionally. The question to be addressed here was whether 64-66 percent was a satisfactory figure with regard to professional development. The HPCSA has implemented the Continuing Professional Development for health professionals and expected all health professionals to pursue professional self-development (Health Professions Council of South Africa 2006) and it could be argued that a figure as low as 66 percent was not ideal and that there should be a concerted effort to improve this situation. It was suggested that qualified doctors be encouraged to remain in rural hospitals so that they could be instrumental in assisting with the supervision of community service doctor and thereby improve their professional development (Cameron *et al* 2002). Benner (2001, pp x-xi), maintained that the ability to practice cannot be learned in theory but must be learned through performing the tasks in the real situation, "...clinical discernment must be learned in practice". By being involved in the working situation CSDs learned and developed skills that could not be taught in the classroom. However, one needs to be cautious of the current practice of the lack of direct supervision of CSDs by qualified dietitians. Research on medical interns and newly qualified doctors working in district hospitals revealed that they may not have been aware of "gaps in their knowledge" (Cameron *et al* 2002), and by the same token CSDs could also have been unaware that they were lacking skills and knowledge as well.

## 6.7 Contribution to the level of dietetic service (self-rated)

### *Levels of dietetic service in the 2004-2005 cohort*

The 2003 cohort were not asked the question on the level of contribution but most of the 2004-2005 CSDs (95%) rated their contribution to dietetic services as good to excellent, which is contradictory when one considers that the quality of the organisation of community service was not highly rated (30% – 45% considering this to be good) (relationship not significant). It could be deduced that the CSDs saw that the quality of dietetic service as a direct reflection on themselves rather than as a product of a poor environment thus accounting for this contradiction. Another way to measure the level of dietetic services would have been to draw on the CSDs' quarterly reports.

It could be that CSDs felt that despite the poor organisation they were able to make a difference which is reflected in the findings of the focus group discussions (in quality of service provided Chapter 5, Section 5.3.3). It was found in the written comments on the survey questionnaires, that the CSDs felt that the hospitals hosting them should have made every effort to ensure that they (the hospitals) were well organised so that the CSDs (and other community service professionals) were able to give their best service. It was a pity that this question on the contribution to dietetic service was introduced later on in the study as the majority of the 2003 cohort (70%), rated the organisation of the community service at the hospital as poor to very poor (50% and 20%, respectively). This latter finding could be attributed to the fact that 2003 was the first year of community service for CSDs and one would expect teething problems especially in the first year. There was a marked improvement in the 2004-2005 cohort where 55 percent reported the organisation of community service to be poor to very poor (50% and 5%, respectively). The focus group discussions also revealed dissatisfaction with the quality of organisation within some of the hospitals.

In a study on the perceptions and experiences of community service doctors in one hospital, Maseka (2001, p96) refers to the quality of the service provided by the hospital administrative section. Although not the same as organisation of community service, this is related to the topic of organisation in general. He notes that the quality of the administration in the hospital he researched was extremely poor and that a number of community service workers went without salaries in their first months of service. There appears to be no benchmark available in the literature as to what would be considered “a well organised community service” but factors such as whether the institution had prepared themselves for receiving CSDs by providing basic equipment, budgets or even expecting the CSD on the first day of duty could be used to evaluate this statement. A number of CSDs used these factors to substantiate their point of view regarding the organisation of the community service; some 33 comments were made about the lack of resources (Chapter 4, Section 4.3.2 & Table 16, Appendix 4, pA92). Although no figures are available, the employment of such large numbers of community service workers is expensive and for these funds to be used optimally, additional funding in terms of resources within the health facilities is also imperative. The lack of transport and poor infrastructure was also raised in the comments and in the focus group discussions agreeing with the findings of De Vries and Marincowitz (2004) and supporting the view of Mason *et al* (1999) that to improve health services, it is important to address infrastructure as well.

## **6.8 Outcome of community service – results of the focus group discussions**

### **6.8.1 Findings of focus group discussions**

Many of the issues raised by the CSDs were problems that had already been raised by other professionals working in rural areas. The full potential of services that could be provided by CSDs was restricted because of the obstructions and constraints that existed as shown in Error! Reference source not found.. Some of these obstructions and constraints would be difficult to

resolve but a number of them could be addressed by improving management and communication within the health system of the province.

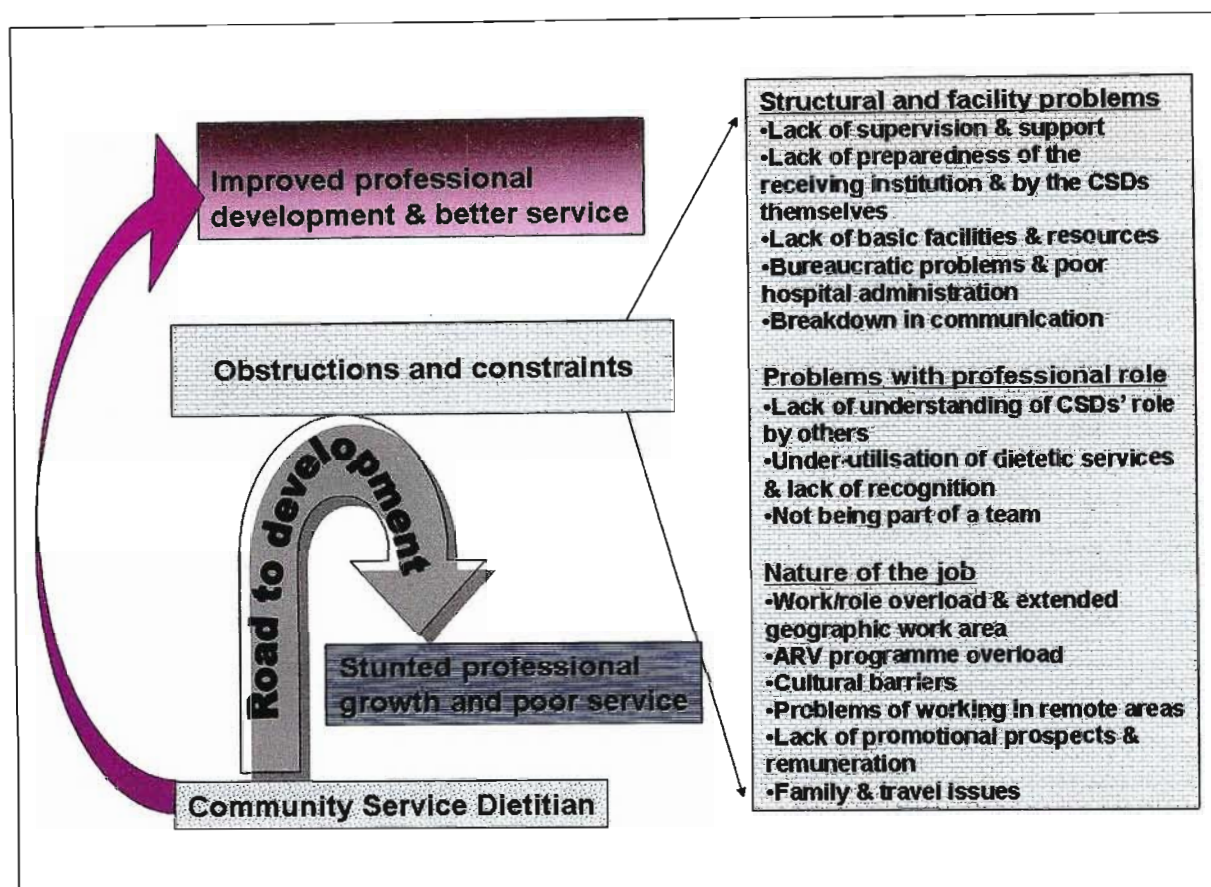


Figure 6.2: Model of findings from the focus group discussion with the 2005 cohort of CSDs

### 6.8.2 Professional supervision of community service dietitians

The system of community service has merit in that it provides work and affords learning experiences to newly qualified dietitians and brings nutrition expertise and knowledge into the rural and under-served areas. The focus group discussions revealed important aspects of community service which were similar to the findings in the literature. The most important was the lack of supervision and support (Reid 2001). In its haste to implement community service, the Department of Health failed to make provision for the direct supervision of dietitians by

members of their own profession, especially in the remote rural placements. Many CSDs had to cope on their own, often even without the supervision of a non-dietitian. Very little has been published on CSDs, but Professor Gounden (2002), a physiotherapist, maintains that this problem could be overcome by gearing the university training curriculum to allow newly qualified physiotherapists to work without supervision in remote locations. No suggestions of how this could be achieved were put forward in his editorial. There is however no substitute for direct supervision. Gericke & Labadarios (2006) maintain that mentoring cannot be a substitute for supervision. In view of the observations of van der Wiel *et al* (2004), a lack of supervision would be detrimental to the development of the professional and therefore logically to any profession where the first few years of practice set the foundation for future actions as well as to the delivery of services. Also, bad habits, poor attitudes and a lack of work ethic may be permanently instilled and become difficult to correct without a role model. There was no doubt that the CSDs gained valuable experience during their community service and some learned to become resourceful and proactive. The system of mentors was implemented by the DOH (Department of Health 2002a) as one way of supervising CSDs but the results showed that there was not much faith placed in the mentors. For a mentoring programme to be successful, the mentors needed to be matched with the CSDs (Eby & Lockwood 2005; Johnson & Sullivan 1995) and the mentors themselves must be committed to the process (Eby & McManus 2004). Geographical factors that were present in this study and that the mentors themselves were perhaps somewhat overloaded in their own areas of work could also be a reason that the mentoring programme had limited success (Eby & Lockwood 2005). Other methods of support between community service health workers and in particular physiotherapists is the buddy method but this too is not a successful alternative to direct supervision (Tabjhai & Mahabeer 2004).

### 6.8.3 Professional development

Most CSDs developed professionally but supervision and guidance was missing during their community service year. The Dreyfus & Dreyfus five-stage model described the process of professional development through the five stages; beginner, advanced beginner, competent, proficient and expert (Dreyfus 2004). Benner expected a nurse to reach the competent stage between two to three years of practical experience (Benner 2001, p 25). Although most CSDs (65%) in the focus group discussion rated themselves as competent on the scale: novice, to expert, compared to Benner's work with nurses, it was unlikely that CSDs had progressed beyond the advanced beginner stage. One would only be able to classify a dietitian as competent after a number of years of practice. The model presented by Gilmore (1997) shows that an individual is only expected to become competent after a period of five years (including training, practice exposure and work experience), (see page 66). This once again reinforces the need for supervision. Supervision and support are considered essential at the levels in which the CSDs are operating (Cameron *et al* 2002; van der Wiel *et al* 2004). By ignoring this aspect the DOH is "running before it walks" and by placing CSDs in a "sink or swim" environment, this could possibly act as a deterrent to dietitians making a long term career in a rural area.

### 6.8.4 Problems encountered by community service dietitians

Other problems in common with the literature were transport problems, poorly managed districts and hospitals, cultural and language barriers, lack of resources and isolation (Cavender & Albán 1998; De Vries & Marincowitz 2004; Gyi 2001; Reid 2001). Specific to the CSDs was the lack of understanding of their role in community service, not being part of a team, problems with transport and being restricted, in the opinion of others (nurses and doctors), to only having a role in the ARV programme and nowhere else. This restriction of CSDs being perceived to only having a role in the ARV programme (as opposed other areas of dietetic expertise) could also be linked to the model on job satisfaction and in particular "job stress" because conflict of role

delineation was listed as a sub factor of job stress. CSDs also reported language difficulties as reported under cultural difficulties (Chapter 5, Section 5.3.2) which restricted their ability to practice in rural areas. There were suggestions that there should be congruence between the population being serviced and the recruitment of students for the profession (Department of Health 1997, p29). However it was telling that one of the Zulu-speaking CSDs (an ideal candidate for being employed in a rural area) realised that there is a lack of resources available in under-served areas and therefore working in an under-served area is “not the best option” for her (Chapter 4, Section 4.5.1).

#### 6.8.5 Role of the Department of Health

It would be important for the DOH to identify those problems that could be addressed. These would be the problems of support and supervision, the lack of preparedness within facilities and the lack of basic amenities and resources (from the focus group discussions) which would have prevented the CSDs from reaching their full potential. Those districts and/or institutions, who were not prepared to make an effort to host community service professionals, should not be allocated community service professionals until they have made provision for them in terms of basic facilities, supervision and support, access to suitable equipment and budgetary allowances (See Chapter 4, Section 4.3.2).

Within the year 2002, the DOH managed to create posts and place 994 allied health professionals (Department of Health 2002b). The creation of new posts by government is known to be difficult to achieve in a short period of time but the commitment of the DOH to implement community service demonstrated that where there was a political will, posts could be created within a year. It could therefore be argued that if the DOH wanted to fulfil its aspiration of attracting and **retaining** health professionals in rural areas, that a system of creating double

posts<sup>2</sup> at community service placement institutions be followed (Paterson *et al* 2006, See Appendix O, pA94). This would mean a CSD would be guaranteed a full-time position once they have completed their community service. The permanent post should also be at a higher post level in order to retain the services of the now experienced CSD (albeit to the level of an advanced beginner). In this way one could address the objective of retaining staff who were interested in continuing in a rural placement and simultaneously have provided suitable supervision for the new CSDs by the permanent dietitian. Appropriate supervision of the CSD would be in accordance with the recommendation for the medical profession that there be at least one qualified doctor to oversee the work of two community service doctors (Reid 2001). Pioneer placements should rather not be staffed by CSDs but by permanent dietitians who have completed community service, in placements where double posts have not been created.

#### 6.8.6 Role of the Nutrition Directorate – KwaZulu-Natal

One of the problems experienced by a CSD was approaching members of staff in a different sector, in this case the Department of Agriculture to assist in the gardens project. It was unrealistic to expect an inexperienced junior member of staff to tackle the problem of communication in the multi-sectoral approach as mentioned in Chapter 5, Section 5.3.2, “Breakdown of communication”. For CSDs to be able to utilise these resources, multi-sectoral negotiations should be properly organised by more senior members of the Nutrition Directorate, higher up in the structure of the DOH.

As far as placements in the rural areas are concerned there was a definite trend away from placing CSDs in the more urban centres with more of them being placed in the more rural

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<sup>2</sup> Double posts meaning one permanent post at all facilities having community service posts. CSDs completing community service should be given first preference for the permanent post preferably at the same institution should the post be vacant.

hospitals in 2005 compared to 2004 which is more in line with the DOH objectives for community service (Department of Health 1997).

#### 6.8.7 Role of training universities

The training universities also need to be more proactive in preparing the dietetic student for community service. There seemed to be a misunderstanding on the part of the CSDs about the purpose of community service which needed to be addressed before they qualified as dietitians. A recommendation would be that during their undergraduate training, the students be placed with CSDs or dietitians working in rural areas so that dietitians-in-training can gain insight into the realities of community service. Discussions should be held with dietetic students about how they perceive community service and there should be a component on the management of community health centres (CHC) within the management modules in undergraduate studies. Current CSDs should also be invited to address dietetic students about their experiences in community service. This would also be in line with the suggestions in the white paper on Health where health science curricula should focus on community needs (Department of Health 1997, p31).

#### 6.8.8 Continuity of service

The issue of continuity between community service years of dietetic appointments was not raised in the focus group discussions, but was raised in earlier feedback meetings with the Provincial Department of Health. Logically, lack of continuity would be an important constraint in the development of a sustained service in rural areas (Cavender & Albán 1998). There was no hand-over period between incoming and out-going CSDs. A suggestion here was that the out-going CSDs leave a report which contains their goals, what they have achieved and with recommendations and advice for the incoming CSD. In this manner out-going CSDs would also have an opportunity to reflect on their community service year. This could perhaps have

enhanced their opportunity for professional development and would have contributed to continuity of service and assist the incoming CSD. A useful suggestion put forward during the focus group discussions was that a simple procedures manual with basic information be made available to all CSDs by the receiving institution, at the beginning of their community service year. This manual should contain information on how to order various items, how to complete leave forms and who to contact in case of problems.

### **6.9 Theoretical model of professional development revisited**

The theoretical model of the professional development of the CSDs (Chapter 2, section 2.9) identified three factors that would enhance professional development of the CSD. These were knowledge, attitude and practice. In addition to this the lack of supervision of the CSD by a dietitian could be a serious obstacle to professional development.

The findings of this research revealed that there was a significantly positive change in attitude over the year in 2003 and although there was a decrease in the level of attitude in 2004-2005 this was not significant. Factors related to attitude found that UKZN CSDs were more positive than other CSDs. Factors that were related to community nutrition knowledge were that UKZN CSDs had higher entry and exit level of knowledge in the 2004-2005 cohort. CSDs did however express concern regarding the loss of clinical nutrition knowledge during the focus group discussions. The level of skill was not measured during the survey but it emerged from the focus group discussions that CSDs felt that these had improved and that they had gained confidence over the year. The professional development of the CSDs was positively related to their attitude and interestingly in contrast to Reid's (2001) findings, those CSDs receiving a rural allowance rated their professional development higher than those who did not. There was also a tendency for community nutrition knowledge to be positively associated with self-rated professional development. Lack of supervision, support and poor access to resources were discussed in the focus group and could be a real obstacle in the professional development of the CSDs.

According to Gericke and Labadarios (2006) practice is improved through the exposure to new experiences but a lack of supervision and mentoring could stunt professional development. Community nutrition knowledge and low levels of job satisfaction could also be affected by demographic and institutional factors. Attitude, knowledge, practice and skills are interdependent and by improving any one of these aspects, one could optimise the professional development of the CSD.

In view of these findings it is felt that the theoretical model presented in Chapter two, section 2.9 is a valid model for the professional development of CSDs.

### **6.10 Summary**

The research method was primarily a 3-year survey combined with focus group discussions to validate and illuminate the findings. Reasons for the attitudes of the CSDs differing, depending on where they graduated, were ascribed to those being closer to home being happier about their situation. Although working and living conditions were discussed in the focus groups and mentioned in written comments these apparently did not affect the CSDs' attitudes toward community service which is in keeping with findings in the literature. The issue of safety especially in rural areas appears not to be a particularly big problem for those CSDs working in rural areas and is in line with findings in the literature as well.

The reason for the levels of community nutrition knowledge being greater in the 2004-2005 cohort could be ascribed to a measure of limited contamination. It appeared as if the experience of community service did not significantly improve the community nutrition knowledge and could perhaps be cause for concern.

As far as job satisfaction was concerned, it was interesting to note an improvement in the levels of this over time. This may be taken as an indication that community service is becoming more acceptable to graduating dietitians or that the receiving facilities are better prepared.

Considering the level of job satisfaction, it could also be surmised that CSDs would be inclined to remain in permanent positions in rural areas.

CSDs rated their professional development at a relatively high level; this may have been due to the relative inexperience of the CSDs. Direct supervision was lacking in the approach of the DOH, KZN and is an important aspect of proper professional development. These findings were confirmed by the focus group discussions as well.

Levels of self-rated dietetic services were somewhat contradictory in terms of the hospitals' organisation of community service. The dietetic services were highly rated and this was in spite of the generally poorly organised community service in the hospitals but the CSDs still felt that they were providing a good service which they probably perceived as being a direct reflection upon themselves.

The focus group discussions revealed a wealth of detailed information. Once again the problem of supervision was raised and a recommendation of creating permanent positions for dietitians in rural areas has been made. Poorly managed hospitals which were not prepared for the CSDs were an issue that was raised in the discussion but it could be argued that one would have to start somewhere. Important here were the problems of the rural areas being underdeveloped and that the development of these areas should be conducted within the framework of improved health delivery. The continuity of service was also raised and is a problem that can only be improved by the intervention of the DOH, also by appointing permanent dietitians.

The theoretical model presented in chapter 2 was revisited and it was concluded that this would be valid model for the professional development of CSDs, especially in the context of KZN.

## **CHAPTER 7 CONCLUSION**

### **7.1 Introduction**

The implementation of community service for dietitians in 2003, presented a unique opportunity to investigate various aspects of the profession of dietetics and how dietitians would perceive and react to community service. Aspects investigated were the attitude of CSDs towards community service, community nutrition knowledge, job satisfaction, professional development, quality of dietetic service delivery and the outcome of community service and the factors that could possibly affect it.

### **7.2 Attitude of the community service dietitians**

The first subproblem investigated the attitude of the CSD towards community service at entry and exit and whether this was related to individual and institutional factors. The majority of CSDs had a positive attitude to community service. A positive attitude was linked to improved job satisfaction which was important in terms of obtaining optimum service from the CSDs and also for retaining services of CSDs once community service was completed. Working and living conditions although discussed extensively by the focus groups were found not to impact on attitude significantly. Those with positive attitudes were less resistant to undertaking community service. The issue of personal safety in remote areas has also reported to be much less of a problem than previously supposed.

### **7.3 Community nutrition knowledge**

The second subproblem determined the level of community nutrition level knowledge at entry and exit and the related factors. It was found that the levels of community nutrition knowledge were not of an acceptable standard within the 2003 cohort but reached an acceptable level in the 2004-2005 cohort. This is an area that requires further investigation and feedback from other universities as to what they would consider the minimum knowledge requirements for CSDs.

The reported loss of clinical nutrition knowledge was also of concern and raised quite extensively in the focus group discussions and an area that needs to be addressed by the authorities.

#### **7.4 Job satisfaction**

The third subproblem measured entry and exit levels of job satisfaction and the factors related to this. It was gratifying to see the improvement of the levels of job satisfaction from the lower levels measured in 2003 to the improving levels seen in the 2004-2005 cohorts, this despite the problems associated with professional recognition and lack of resources. Job satisfaction in some instances was related to home language, the organisation of community service in the hospital and the location of the hospital. It appeared that the more rural placements had a positive effect on job satisfaction. This could have been attributed to more independence, greater job autonomy and less routinisation as postulated in the discussion chapter. In the focus group discussions it emerged that there was greater social interaction in the more rural hospitals than in those that were closer to urban areas which could be a positive aspect of compulsory community service in rural areas. Although individuals felt that they had been coerced into working in rural areas once there they developed a better understanding of the situation and found that they enjoyed the experience more than they thought they would.

#### **7.5 Professional development**

The fourth subproblem determined the self-rated professional development and the professional practitioner ranking and the related factors. For the purposes of the conclusion, the self-rated professional development (single statement) and the professional practitioner ranking (multiple statements) will be treated as a single entity. Professional development was related to a number of variables and included the attitude of the CSD, the support of the hospital manager, the type of placement, the payment of the rural allowance and the level of community knowledge at exit and

job satisfaction. Professional development is probably the most important issue because it relates to the quality of service delivery and could be severely hampered by a lack of direct supervision.

## **7.6 Dietetic service delivery**

The fifth subproblem determined the contribution to the delivery of dietetic services by the CSDs and the factors that were related to this service. Where one found well prepared hospitals, CSDs felt that they were able to deliver better services. Although many CSDs commented about the lack of resources they still felt that their service delivery was adequate. One of the obstacles to successful delivery of dietetic services were the cultural difficulties especially with regard to language but a number of CSDs took the opportunity to learn a new language and start to overcome this obstacle. One aspect reinforced by the focus group discussion was that other health professionals were ignorant of the role of dietitians resulting in poor use of services and overloading in other areas such as the ARV programme

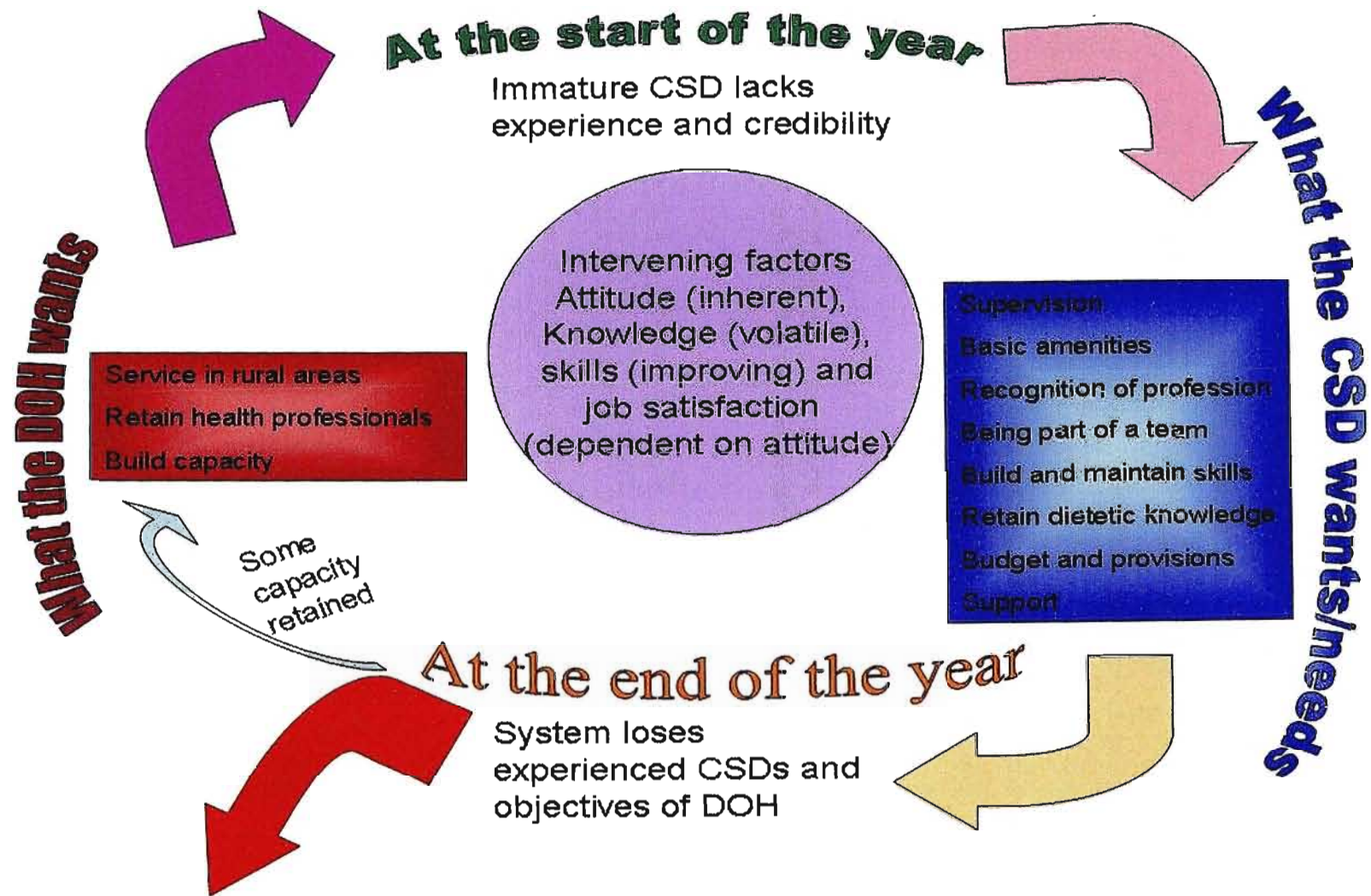
## **7.7 Outcome of community service**

The sixth subproblem through the use of focus group discussions evaluated the outcome of community service on the CSDs in terms of new skill acquired, areas of new and lost knowledge and supports and constraints to achieving objectives; that is supporting professional development. Although the HPCSA recommended the use of mentors and the physiotherapists used the buddy system, both the survey and focus group discussion showed that the role of mentors was not as successful as expected for the CSDs. This finding would lend support to the suggestions made in this research of the use of direct supervision by a permanent dietitian as being a better alternative than mentoring. Another aspect raised by the CSDs was the lack of personal experience of working in rural areas by mentors and dietitians in the Nutrition Directorate of KZN and therefore a lack of insight by the management team of dietitians within

the DOH regarding work in a rural and under-served area. Active recruitment of a dietitian who has completed community service, to manage the community programme would address this problem.

### **7.8 A new theoretical model for community service**

A final theoretical framework is presented in Figure 7.1. The DOH wanted to improve the service in rural and under served areas, retain the services of health professionals and build capacity. At the start of the year the immature CSD lacked experience and credibility. The CSDs had a number of requirements necessary to fulfil their role and contribution to dietetic services. These were supervision, access to basic amenities, recognition of their profession, being part of a team, building and maintaining skills, retaining dietetic knowledge, access to budgets and provisions and support. The intervening factors included the attitude of the CSD to community service which was in most cases an inherent trait of their personality, some knowledge and skills gained and/or lost and improving job satisfaction which was also dependent on attitude. By the end of the year CSDs were more experienced and had learned the systems but most of this expertise was lost when the CSDs left having fulfilled their community service obligations. The only aspect of “what the DOH wanted” that was adequately addressed was the service to rural areas but even here one could argue that the service was intermittent in some cases. Due to the turnover of CSDs, capacity was lost and their services were not retained. By succeeding in an improved community service model, support for greater professional development could also be achieved.



**Figure 7.1:** Final theoretical framework for community service for dietitians

### **7.9 Effectiveness of the policy of community service**

The DOH implemented compulsory community service as a method of addressing the problems of manpower shortages in under-served and rural areas. Community service has advantages, provided it is properly managed. Dietitians reported that community service has brought nutrition to the people in under-served and rural areas. Rural communities also have access to nutrition services as can be seen by the numbers of CSDs placed in CHCs, district offices and district hospitals, especially those situated in rural areas. Many of the factors affecting service delivery and the professional development of dietitians were identified during the focus group discussions. To avoid the problem of trying to run before it walks, the DOH would do well to heed the recommendations by ensuring that the district where the CSD is placed is well managed and functioning properly. It is suggested that adequate preparation, supervision and support for CSDs would conserve knowledge and experience, retain expertise and maximise the benefits of community service.

### **7.10 Recommendations for community service**

The evidence in this research pointed to the fact that CSDs should be supervised directly by permanently appointed dietitians but community service had to start somewhere. Initially there were no dietitians employed in rural areas; however after a period of 3 – 4 years there are now a number of dietitians with rural experience. The DOH should actively recruit and retain these experienced dietitians to work in rural areas to address problems of supervision and continuity. It would be beneficial in terms of human resources to encourage the CSDs to remain in the community after community service by offering them permanent posts at a higher grade with better salaries and the added benefit of improved career structures in rural areas.

Professional development should also be addressed by the authorities and perhaps the professional body for dietetics. The Association of Dietetics in South Africa should be approached to give additional support to those CSDs who feel professionally isolated.

Direct supervision would lead to improved practice and skill and although a more expensive alternative to mentoring, the costs should outweigh the benefits. Greater effort should be placed on the retention of CSDs with rural experience and this was also an objective of the DOH. More emphasis should also be placed on the maintenance of continuity.

It is also important to recognise the efforts of CSDs to perform optimally. Some form of incentive should be offered to those CSDs who have shown extraordinary dedication in their community work. The attitude of the hospital manager towards the CSD is important in terms of service delivery, professional development and job satisfaction. If CSDs in rural placements were to be supervised by permanent dietitians, the support of the hospital manager would probably be less important because the direct support from another dietitian could take the place of the hospital manager. However, it would still be important to educate the hospital manager on the role of the dietitian. It is important for the DOH to recognise that well organised community service within the hospital with the provision of transport, equipment, budgets and supplies would also improve the service capabilities of the CSDs and offset the additional cost of employing CSDs by receiving value for their cost input.

#### **7.11 Suggestions on how the research project could be improved**

One area that was not covered in the study was the perceptions and attitudes of managers of the CSDs and of other community health professionals. A strong recommendation is made that should this study be replicated that the opinions of managers and other community health professional also be sought.

If this research project was to be undertaken again, more attention would be paid to the various aspects of job satisfaction and the instruments used to measure this variable. The Kaldenberg and Becker (1991) scale was satisfactory but it did not cover some of the aspects of job satisfaction, especially the area of job stress and it is debatable whether this scale addresses the concept of career satisfaction rather than job satisfaction as discussed previously<sup>3</sup>.

Had there been opportunity, it would have been useful to survey all nine provinces making the results valid for the whole of South Africa rather than just for KZN. Information from the other health professionals as to how they saw the role of the dietitian in community service would have added a useful dimension in improving the profile of the profession.

Another aspect that could have been undertaken in this research was the role of the socialisation of the CSDs in the rural areas and how being able to go home regularly as opposed to seldom affected the CSDs' ability to integrate into the hospital and the community they were serving.

One of the limitations of this research project was the multiple choice community nutrition questionnaires because of contamination from being used in previous years. One way of overcoming this problem would have been to change the questions in the questionnaire but then comparisons would have been difficult to make. Questions on the contribution to the dietetic service delivery and the scales on working and living conditions, as well as the professional practitioner ranking (multiple statements) were introduced in the 2004-2005 cohort whereas had it been introduced earlier the results would have been more generalisable. The Dreyfus & Dreyfus (1986) model was only introduced in the focus group discussion in 2005 and it was felt that it would have given some useful insights had it been used in the compilation of the scale for

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<sup>3</sup> It could be argued that the concepts of job satisfaction and career satisfaction are closely linked and therefore difficult to separate and treat as separate entities.

the professional practitioner ranking (multiple statements). Unfortunately this model was discovered too late by the researcher for earlier inclusion in the study.

### **7.12 Recommendations for further study**

Areas that could be considered for further study are the following: the perception and understanding of other health professions regarding the role of the dietitian and nutrition in community service, the effectiveness of nutrition intervention by CSDs in the ARV programmes in the rural hospitals and how the role of the dietitian is perceived by other health professional in the ARV programme. Another area that could be investigated is the effect of the ARV programme on the role of the dietitians and how it affects other programmes that CSDs are involved in such as the Integrated Nutrition Programme. A further area for study is the evaluation of the quality of the dietetic services by other health professionals and the hospital managers. This study could also be extended to cover all the provinces in the country to give a national perspective.

### **7.13 The answer to the research problem**

In answering the statement of the research problem with regard to the extent that community service would change the attitude of CSDs towards work in rural and under-served areas, improve knowledge, impact on job satisfaction levels and professional development, and establish the relationship between individual and institutional factors and the CSD's perception of their contribution to dietetic service delivery, as well as the professional growth from the community service experience on the acquisition of skill, loss of clinical nutrition knowledge, and access to resources and support networks, the following can be stated. This research found that the exposure to community service had a generally positive effect on the attitude of CSDs, especially those working in the rural areas. Community nutrition knowledge was neither gained nor lost. Job satisfaction levels improved from the lower level in 2003 to higher levels in 2004 -

2005. Job satisfaction was also related to the attitude of the CSDs. The level of professional development was disappointing and could perhaps have been linked to a lack of direct supervision. The CSDs also felt that their clinical nutrition knowledge and practice had deteriorated.

The final conclusion was that the CSDs felt that community service had improved dietetic services to rural and under-served areas. It was important to provide support to the CSDs and improved organisation within the health facilities to sustain this improvement. A concerted effort should be made to encourage CSDs to remain in service after they have completed their community service obligations to ensure capacity building and retention of nutrition services.

## CHAPTER 8 EPILOGUE

During 2006 a number of discussions were held with various individuals to evaluate the findings of the research, *post hoc*. This was undertaken after the analyses, discussions, conclusions and recommendations were completed to re-examine and evaluate the findings and recommendations. These individuals included the Cluster Manager for Nutrition and Maternal Child and Women's Health at KZN; DOH (Spies 2006), two dietitians appointed by the KZN; DOH to mentor the CSDs, (Gregersen 2006; Morris 2006); and past CSDs who completed their community service and who are now employed as dietitians (Adams 2006; Naicker 2006; Perreira 2006; Seevaparsaid 2006).

### 8.1 The role of the mentor from the perspective of the mentor.

Both mentors indicated that mentoring at a distance is complicated. One of the mentors has the experience of both supervising a CSD directly and also mentoring CSDs at a distance and states that mentoring is not a substitute for supervision. The other mentor confirmed this which supports the findings of this research. Problems both mentors encounter are the difficulties in building a rapport with the protégé CSD because of the distances involved, consultations over the phone are not easy and the time and work constraints of the mentors themselves, make the process difficult. One mentor stated that the policy of arbitrarily appointing unknown mentors to CSD protégés is not as effective as when the protégé knows the mentor and therefore feels comfortable about making contact with the mentor. It was also found that CSDs do not always remain with the assigned mentor but tend to consult dietitians that they know or have met previously. Some effort would still be required by the DOH to set up meetings between mentors and protégés early on in the community service year to improve this situation.

## **8.2 Professional development of the community service dietitians in retrospect**

CSDs from the 2005 group were contacted and asked in retrospect whether they felt that the professional development rating they had given themselves the previous year, in view of their now greater experience, was still valid. Three felt that they rated themselves at the correct level. One CSD felt that in retrospect she had rated herself at a lower level of professional development because of the lack of support and supervision during her community service year. A positive point of view she mentioned is that by working in community service, one is encouraged to seek employment with the government which is a desirable outcome of community service in the objective of retaining health professionals. She mentioned intermittent service as being problematic because receiving facilities found the new CSDs to be tedious in terms of having to show them what is happening at the start of each year and also seeing them try out systems that proved ineffective the previous year.

## **8.3 Response by the Cluster Manager of Nutrition in the Department of Health, KwaZulu-Natal to the recommendations made in this research to improve community service**

In discussions held with Spies (2006) she agreed that the best option for CSDs is to be directly supervised by registered dietitians. Permanent posts are now available, alongside the CSD placements specifically for this purpose. However, when some of the permanent posts are not filled the next best option would be to retain the use of registered dietitians in the mentoring system. Spies (2006) maintained that being supervised by other health professionals is problematic because as “inexperienced and green as the CSD is” the health professionals themselves would be looking to the CSD for direction regarding nutrition intervention. Her response regarding the suggestion of withdrawing CSDs from facilities that are not supportive is that community service is about the provision of service. In the case of poor management of these facilities, it is the management that needs to be addressed and improved so that the focus remains on this provision of service.

#### **8.4 Response by lecturers involved in training of dietitians – University of KwaZulu-Natal**

Lecturers in the Discipline of Dietetics and Human Nutrition, UKZN, concurred with the recommendations regarding the role of the training institution in promoting community service and directing the training of dietetic students so that they understand their role as dietitians in community service. Pillay (2006) stated that she already invites the current CSDs to address the first-year students about community service. Important also, in her view, is to choose a CSD who has a positive attitude so that this can also be communicated to the dietitians-in-training. She found that the dietetic students showed a great deal of interest in the concept and process of community service (Pillay 2006). Another comment made was that dietetic students be exposed to CSDs at each level of study as they progress through the dietetic training programme so that as they gain more insight into the profession they can then ask appropriate questions related to their level of understanding (Meaker 2006). Meaker (2006) also reiterated the importance of an integrated model to health care by implementing a team approach in the undergraduate training.

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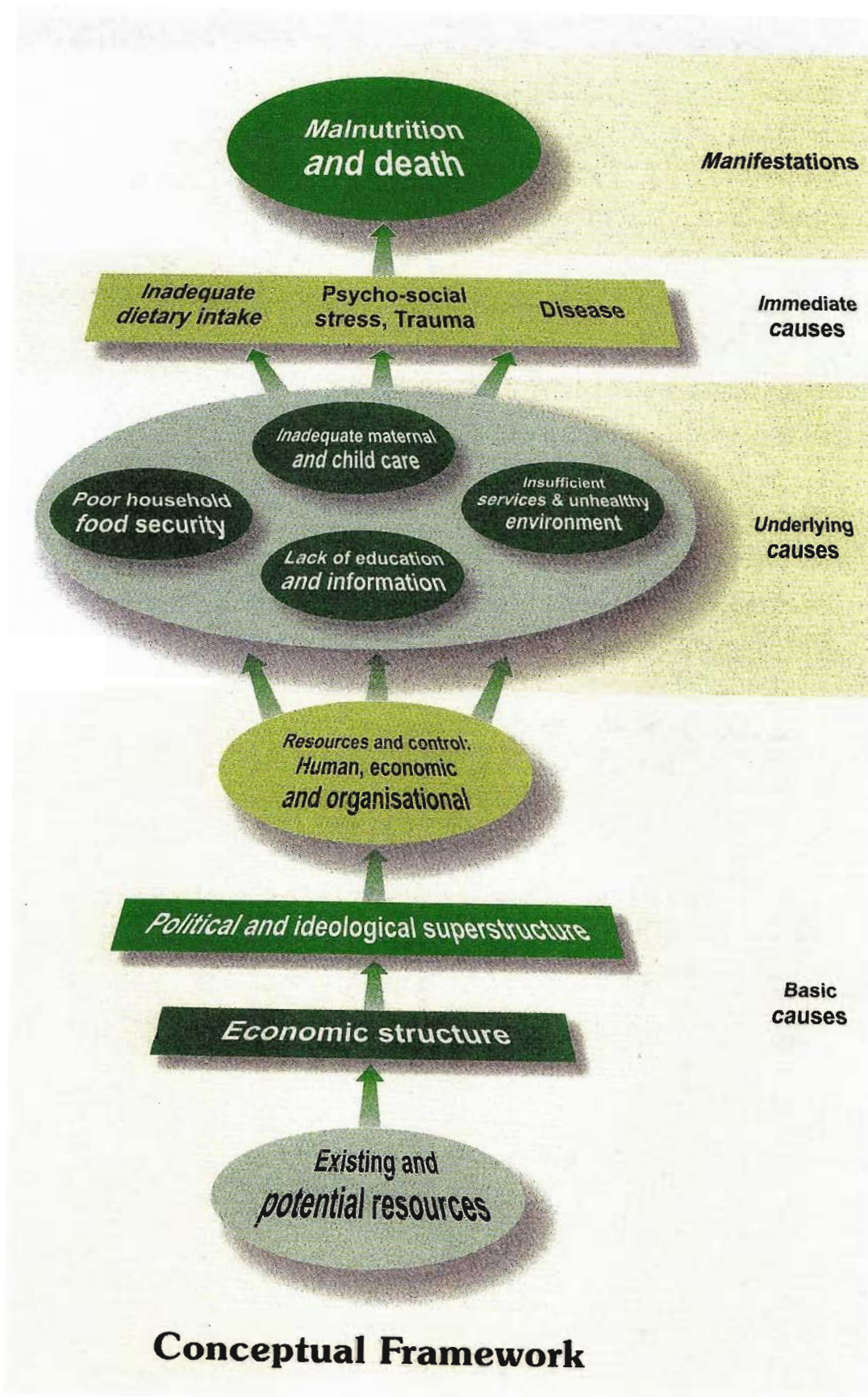
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## APPENDIX A: CONCEPTUAL FRAMEWORK OF BASIC CAUSES OF MALNUTRITION (Department of Health 2004a)



## APPENDIX B: SGB DOCUMENT WITH EXIT LEVEL OUTCOMES FOR DIETITIANS

**Bachelor of Science: Dietetics (Professional Board for Dietetics 2006)**

SAQA QUAL ID	QUALIFICATION TITLE		
16867	Bachelor of Science: Dietetics		
SGB NAME	NSB	PROVIDER NAMES	
Professional Board for Dietetics	09 Health Sciences and Social Services	University of Cape Town University of the Free State University of Kwa-Zulu/Natal University of Limpopo University of the Northwest University of Pretoria University of Stellenbosch University of the Western Cape	
QUALIFICATION TYPE	FIELD	SUBFIELD	
Professional Qualification (4 years)	Health Sciences and Social Services	Preventive Health Services / Promotive Health and Developmental Services	
ABET BAND	MINIMUM CREDITS	NQF LEVEL	QUAL CLASS
HET	480	Level 7	Regular-Provider-ELOAC
REGISTRATION STATUS	SAQA DECISION NUMBER	REGISTRATION START DATE	REGISTRATION END DATE
Registered	SAQA	Jan 2007	Dec 2011

### PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose of the professional four year qualification is to:

1. Train a dietitian who will be able to register with the Health Professions Council of South Africa (HPCSA), and who is in possession of graduate-level scientific knowledge, skills and attitudes necessary to practice independently in any of the areas of therapeutic nutrition, community nutrition and food service management, in line with national and international trends.
2. Equip students with the necessary knowledge, skills and insight to function independently within the public as well as the private sector.
3. Equip students in the various steps of research methodology, in order to prepare them for postgraduate studies in the field of nutrition.
4. Produce a professional who is focused on self-development through life-long learning, and who will uphold professional and ethical standards of practice.

## **RULES OF COMBINATION**

Core learning includes the subjects which are core to the profession such as the nutrition and dietetic related subjects. At least 320 (67%) of the credits for this professional qualification must be from Core learning.

Fundamental learning includes the subjects which are Fundamental to the profession, such as scientific subjects which forms the foundation on which the nutrition and dietetic subjects are based, as well as communication, management (time and resources), portfolios, planning, computer skills and reflection. At least 144 (30%) of the credits must be from Fundamental learning.

Elective learning includes professional directed learning material of choice. Elective learning may consist of 16 (3%) of the credits.

Due to the essential proportion of Core and Fundamental learning needed for the profession only a few credits, if any can be allocated to elective learning.

## **ACCESS TO THE QUALIFICATION**

Senior Certificate with Matriculation Exemption or an equivalent university admission qualification and the student should meet the following access criteria:

- A pass in Mathematics together with at least one other science subject (eg Biology, Physiology, Physical Science), with at least one in the Higher Grade.
- If Mathematics was passed in the Standard Grade, at least a D-symbol is required.

Additional to the generic requirements for access above, individual institutional selection criteria may apply at Providers.

## **LEARNING ASSUMED TO BE IN PLACE**

Prospective student should have acquired the following skills through learning prior to entering the programme in Dietetics:

- Communication (reading, writing and speaking) skills
- Numerical skills
- Language skills
- Basic life skills
- Technological skills, including computer literacy

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
<b>1. SCREENING / NEEDS ASSESSMENT / SITUATION ANALYSIS</b>	
1.1 Demonstrate the ability <u>to assess nutritional status</u> and the concomitant health risk of clients/patients and groups in communities/institutions by applying the following:	
1.1.1 socio-demographic evaluation	<p>Ability to <b>assess socio-demographic status</b> of individuals and groups by identification of the indicators of health, demographic and socio-economic status.</p> <p>Ability to <b>compile a community profile</b> by incorporating all indicators of health, demographic and socio-economic status.</p>
1.1.2 anthropometric evaluation and body composition analysis	<p>Ability to demonstrate the various anthropometric measurements by using the correct equipment, applying the correct techniques, and taking accurate measurements or correctly estimating length, height, weight, head circumference, upper arm circumference, waist and hip circumference, calf circumference, elbow width, and nutritionally relevant skinfold thicknesses in children and adults.</p> <p>Ability to critically evaluate anthropometric measurements by describing the uses and limitations of length, height, weight, head circumference, mid-upper arm circumference (MUAC), waist and hip circumference, calf circumference, elbow width, and nutritionally relevant skinfold thickness measurements in children and adults.</p> <p>Ability to measure or estimate body composition by means of various practical techniques and demonstrates the application of the correct techniques and interprets the results.</p> <p>Ability to critically evaluate body composition analysis techniques by describing the theoretical principles, uses and limitations of the various techniques.</p>
1.1.3 dietary evaluation	<p>Ability to describe the concept of quality assurance in the development of dietary intake instruments by describing the basic concepts of validity and reproducibility as applied in the development of such instruments.</p> <p>Ability to describe the most important sources of error in assessment of dietary intake in terms of sampling bias, response bias, coding errors, food composition data base, portion size,</p>

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
	<p>memory, variation in intake, effect of survey method.</p> <p>Ability to select the most appropriate instrument for assessing dietary intake in individuals and groups taking in consideration age, gender, literacy level, purpose, sample size, logistical matters.</p> <p>Ability to design instruments/tools (ie questionnaires) for assessment of dietary intake making allowance for adequate description of food items, time of ingestion, portions sizes and frequency of intake.</p> <p>Ability to demonstrate the correct application of the techniques in assessing dietary intake of individuals and groups.</p> <p>Ability to discuss the value of various standard techniques used for assessment of dietary intake by describing the characteristics, uses and limitations of the different instruments.</p>
1.1.4 clinical evaluation	<p>Ability to identify and describe the symptoms and signs of nutritional deficiencies.</p> <p>Ability to describe and apply the basic concepts employed in the clinical assessment of nutritional status.</p> <p>Ability to establish, practice and demonstrate a holistic approach to the clinical evaluation of nutritional status.</p>
1.1.5 biochemical evaluation	<p>Ability to critically evaluate biochemical measurements by describing the uses and limitations in relation to nutritional status.</p> <p>Ability to interpret biochemical data in relation to nutritional status.</p>
1.2 Demonstrate the ability <u>to integrate, analyse and interpret</u> nutritional assessment data to identify nutrition and related health risks and problems.	<p>Ability to summarise the nutritional status of patients/clients in health and disease by integration and interpretation of all the relevant data from the dietary, anthropometric, clinical, biochemical and socio-economic assessments.</p>
1.3 Demonstrate the ability, based on the appropriate methods of nutritional assessment, <u>to predict</u> types and severity of nutrition-related health issues which may occur in individuals or communities.	<p>Ability to predict the type and severity of nutrition-related health issues in individuals and communities for nutrition intervention, based on the application of standard screening tools.</p>
1.4 Demonstrate the ability <u>to diagnose</u> , based on the appropriate methods of nutritional assessment, the type and severity of the nutritional disorder or special nutritional needs of individual patients/clients.	<p>Ability to compile a nutritional diagnosis based on the integration of nutritional assessment data.</p>

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
<p>1.5 Demonstrate the ability for in-depth <u>cause analysis</u> of nutrition-related health issues based on appropriate conceptual frameworks and scientific and contextual information.</p>	<p>Ability to describe the effect of disease on nutritional status by explaining the underlying mechanisms.</p> <p>Ability to identify the potential cause(s) of nutrition-related health issues in individuals and groups based on the nutritional assessment data.</p>
<p>1.6 Demonstrate the ability to <u>assess patient/client/group food preferences</u>.</p>	<p>Ability to describe and apply social and cultural factors which affect food preferences and eating behaviour.</p> <p>Ability to assess patient/client/group food preferences using appropriate interviewing skills or valid questionnaires.</p> <p>Ability to conduct food wastage studies using appropriate techniques to determine client satisfaction.</p> <p>Ability to identify the causes of plate-waste by investigating all potential contributory factors (patient and non-patient related).</p>
<p>1.7 Demonstrate the ability to <u>determine needs for nutrition services</u>, including nutrition health promotion.</p>	<p>Ability to assess and classify the nutrition knowledge of individuals and groups using appropriate techniques.</p> <p>Ability to identify the need for nutrition education and health promotion in individuals and groups, by integrating nutrition knowledge and cause analysis data.</p> <p>Ability to identify the food service needs and need for nutritional support in institutionalised individuals or groups.</p> <p>Ability to identify individuals for referral to government, community-based or NGO-based support services/programmes.</p>
<p>1.8 Demonstrate the ability to <u>assess the training needs</u> of individuals and/or groups in communities/institutions involved in nutrition service delivery to build capacity in this regard.</p>	<p>Ability to assess the needs for training and development of people involved in nutrition service delivery.</p>
<p><b>2. PLANNING, IMPLEMENTATION, EVALUATION AND DOCUMENTATION OF NUTRITION SERVICE DELIVERY</b></p>	
<p>2.1 Demonstrate the ability to conceptualise, plan, implement, monitor, evaluate and document appropriate <u>intervention strategies</u> to address nutrition and related health issues of groups in communities and/or the public.</p>	<p>Ability to design, implement, monitor, evaluate and document appropriate intervention strategies to address nutrition and related health issues of groups in communities and/or the public.</p>

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
2.2 Demonstrate the ability to <b>collaborate with relevant stakeholders</b> in the selection, conceptualisation, planning, implementation, monitoring, evaluation and documentation of appropriate intervention strategies to address nutrition and related health problems of groups in communities and/or the public.	Ability to collaborate with relevant stakeholders to address nutrition and related health problems of groups in communities and/or the public.
2.3 Demonstrate the ability to <b>facilitate and monitor community or public participation</b> in the selection, planning, implementation and evaluation of appropriate intervention strategies.	Ability to facilitate and monitor community or public participation in the selection, planning, implementation and evaluation of appropriate intervention strategies.
2.4 Demonstrate the ability to select, plan, implement, monitor, evaluate and document appropriate <b>nutrition care and education</b> for individual patients/clients with specific disease conditions or special nutritional needs in different settings.	Ability to select, plan, implement, monitor, evaluate and document appropriate nutrition care and education for individual patients/clients with specific disease conditions or special nutritional needs in different settings.
2.5 Demonstrate the ability to collaborate with the different members of the health care team to select, plan, implement and evaluate the nutrition care and education of individual patients/clients with specific disease conditions or special nutritional needs.	Ability to collaborate with the different members of the health care team to select, plan, implement and evaluate the nutrition care and education of individual patients/clients with specific disease conditions or special nutritional needs.
2.6 Demonstrate the ability to promote and monitor patient/client compliance with the nutrition care plan.	Ability to promote and monitor patient/client compliance with the nutrition care plan.
2.7 Demonstrate the ability to compile normal and therapeutic menus to comply with patient/client and/or group nutritional needs and food preferences.	Ability to compile normal and therapeutic menus to comply with patient/client and/or group needs.
2.8 Demonstrate the ability to <b>plan, execute and control food procurement, storage, production, distribution, and consumption of the final product.</b>	Ability to plan, execute and control food procurement, storage, production, distribution, and consumption of the final product.
2.9 Demonstrate the ability to develop and <b>standardise</b> normal and therapeutic <b>recipes</b> for specific needs of patients/clients and/or groups in communities.	Ability to develop and standardise normal and therapeutic recipes for specific needs of patients/clients and/or groups in institutions and communities.
2.10 Demonstrate the ability to <b>apply food quality standards</b> as well as procedures to monitor food standards with reference to nutritional, sensory and microbiological aspects.	<p>Ability to conduct a sensory evaluation of food products.</p> <p>Ability to establish food quality standards as well as procedures to monitor these standards with reference to nutritional, sensory and microbiological aspects.</p>
2.11 Demonstrate the ability to <b>interpret and apply specifications</b> for food preparation areas, space and equipment needed for optimal work flow and production based	Ability to interpret and apply specifications for food preparation areas, space and equipment needed for optimal work flow and production based on the menu and purchasing and

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
on the menu and purchasing and production policies.	production policies.
2.12 Demonstrate the ability to <b>compile food and nutritional product specifications</b> .	Ability to compile food and nutritional product specifications.
2.13 Demonstrate the ability to <b>integrate the food service system in nutrition service delivery</b> in the private and public sectors, as well as community settings.	<p>Ability to integrate the food service system in nutrition service delivery in the private and public sectors, as well as community settings.</p> <p>Ability to integrate management principles, quality assurance, and to integrate the system in terms of the needs of the target groups.</p>
2.14 Demonstrate the ability to <b>monitor patient/client/group satisfaction</b> with nutrition service delivery.	<p>Ability to monitor patient/client/group satisfaction with nutrition service delivery.</p> <p>Ability to perform a plate waste study</p>
2.15 Demonstrate the ability to <b>adapt the intervention</b> strategy/nutrition care plan/food service based on feedback from continuous monitoring of the quality of nutrition service delivery.	Ability to adapt the intervention strategy/nutrition care plan/food service based on feedback from continuous monitoring of the quality of nutrition service delivery.
<b>3. COMMUNICATION</b>	
3.1 Demonstrate the ability to <b>communicate effectively with individuals and groups</b> in different contexts.	Ability to effectively communicate with individuals and groups in different contexts using various communication methods.
3.2 Demonstrate the <b>ability to communicate effectively</b> using the oral, written and electronic media.	<p>Ability to communicate effectively orally.</p> <p>Ability to communicate effectively in writing.</p> <p>Ability to communicate effectively using electronic media.</p>
3.2 Demonstrate the ability to <b>advocate for nutrition-related issues</b> .	Ability to advocate for nutrition-related issues.
<b>4. MANAGEMENT</b>	
4.1 Demonstrate the <b>ability to apply appropriate</b> human resource management principles.	Ability to describe, interpret and apply human resource management principles.
4.2 Demonstrate the <b>ability</b> to apply appropriate approaches and techniques to <b>effectively manage finances</b> .	<p>Ability to discuss the role of the dietitian/food service manager in the preparation of the budget</p> <p>Ability to discuss all the factors that influence cost control in food service management.</p> <p>Ability to conduct food wastage studies using appropriate techniques to determine impact on food expenditure.</p>

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
4.3 Demonstrate the <b>ability</b> to apply appropriate approaches and techniques to <b>effectively manage operational procedures and resources (products)</b> .	Ability to effectively manage aspects of a nutrition delivery service or other appropriate environment.
4.4 Demonstrate the <b>ability to compile, implement, monitor and evaluate a business plan/project</b> .	Ability to demonstrate the ability to compile, implement, monitor and evaluate a business plan/project.
4.5 Demonstrate the ability to <b>interpret, implement and integrate internal and external policy and legislation</b> in management.	Ability to demonstrate the ability to interpret, implement and integrate internal and external policy and legislation in management.
4.6 Demonstrate the ability to review, evaluate and implement quality assurance systems.	Ability to discuss and interpret quality assurance principles and systems. Ability to apply and manage quality assurance systems.
<b>5. RESEARCH</b>	
5.1 Demonstrate the ability to assess, critically review and apply relevant scientific information, in order to identify research needs.	Ability to plan and write a composite literature review on any nutrition-related topic, critically evaluating different viewpoints.
5.2 Demonstrate the ability to initiate, undertake and participate in all aspects of the research process:	Ability to develop a research proposal and to undertake the research accordingly.
5.2.1 the identification of a research problem and formulation of a research question	Ability to evaluate a nutrition/health problem and to identify the research question/s and the aims and objectives required to address the critical research question/s.
5.2.2 the design of an appropriate research project	To have the ability and appropriate knowledge to select the appropriate survey design when developing a research project. This will mean that the learner has knowledge of the various study designs, including the advantages and disadvantages of different designs.  To have the ability and a good understanding of the different ways of obtaining data in order to select and use the appropriate methods. This implies that the learner has a good knowledge of both quantitative and qualitative methods,  Ability to demonstrate which measures are put in place in order to ensure quality of data collected.
5.2.4 the presentation and dissemination of the results	The ability to enter data into a software programme. This means having a working knowledge of spreadsheets and basic statistical software packages for analyzing data, such as SPSS, Epi-Info SAS or STATA.  A working knowledge of basic statistical procedures, including selection of tests according to normality of the data.

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
	<p>Ability to demonstrate the ability to critically discuss the findings of the study and to be able to compare them with similar studies.</p> <p>Ability to plan and demonstrate a scientific presentation (oral or poster) for academic purposes.</p>
5.2.5 the writing of a research report	Ability to develop a research report, article and abstract on the study undertaken which will include all the phases of the study.
5.2.6 the identification and formulation of practical applications of the research results	Ability to critically evaluate the results of a research study and be able to translate them into appropriate and feasible recommendations.
<b>6 INTRA-PROFESSIONAL FOCUS CRITICAL CROSS-FIELD OUTCOMES</b>	
6.1 Demonstrate the ability to comprehend and apply standards of practice and ethics, as well as professional conduct.	<p>Ability to comprehend and apply prescribed standards of practice and ethic.</p> <p>Ability to perform tasks in a professional manner in the clinical and community set-up as well as in food service systems.</p>
6.2 Demonstrate the ability to comprehend and apply the principles of human rights in a nutrition context.	<p>Ability to perform professional tasks without prejudice to any person or group of people.</p> <p>Ability to promote nutrition and nutritional care are a basic human right.</p>
6.3 Demonstrate the ability to participate and work effectively in a team or a group.	<p>Ability to participate and work effectively in and with the health care team.</p> <p>Ability to work effectively with peer group in accomplishing complex tasks.</p>
6.4 Demonstrate the ability to manage and organise oneself responsibly and effectively.	Ability to manage and organise his/her activities responsibly and effectively.
6.5 Demonstrate the ability to collect, analyse, organise and critically evaluate information.	<p>Ability to apply the nutritional care process, including assessment, planning, intervention and evaluation.</p> <p>Ability to perform electronic data search and critical reviews of the literature.</p>
6.6 Demonstrate the ability to communicate effectively using visual, mathematical and/or language skills in the modes of oral and or written presentation.	<p>Ability to present talks to small group.</p> <p>Ability to present information in small groups using audiovisual and electronic media.</p>
6.7 Demonstrate cultural and aesthetic sensitivity in dealings with clients, colleagues and communities.	<p>Ability to show sensitivity for diversity in dealing with clients.</p> <p>Ability to function in a diverse group.</p>
6.8 Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.	Ability to solve problems in various contexts.
6.9 Demonstrate ethical and professional behaviour.	Ability to behave in a manner fitting to the profession and as may be prescribed by the

EXIT LEVEL OUTCOMES	ASSOCIATED ASSESSMENT CRITERIA
	Professional Board.
6.10 Lay the foundation of life-long learning and on-going competency.	Ability to perform self-study tasks.  Ability to take responsibility for own learning.

### INTERNATIONAL COMPARABILITY

This qualification compares favourably to similar qualifications in the international arena. The Association for Dietetics in South African is affiliated with the International Affiliation of Dietetics Associations which is proof of international professional recognition.

Dietetics training in South Africa started 40 years ago and great experience and capacity has been gained. This establishes South African dietetics training as the leader in SADC countries and also in Africa

Graduates can register in the UK, and also in the USA; Canada; Australia and New Zealand after presenting course outlines to the applicable bodies and/or writing entrance exams.

### INTEGRATED ASSESSMENT APPROPRIATELY INCORPORATED TO ENSURE THAT THE PURPOSE OF THE QUALIFICATION IS ACHIEVED

Throughout the qualification programme the following formative and summative assessment strategies are used to ensure that exit level and critical cross-field outcomes are achieved:

#### Formative assessment:

- Written assignments
- Practical assignments
- Literature reviews
- Tests
- Reports on dietetic practice in the field in clinical and community dietetics and food service
- Case-studies
- Class presentations
- Seminars
- Peers evaluation
- Simulations in structured learning environments

#### Summative assessment:

- Oral examinations
- Written examinations
- Practical examinations
- Supervisor's reports
- Report on research project
- Presentation of research results

### RECOGNITION OF PRIOR LEARNING

Recognition of prior learning is implemented through the policies governing RPL of individual institutions.

### ARTICULATION POSSIBILITIES WITH RELATED QUALIFICATIONS

This qualification provides credits when applying for access to certain other qualifications, namely:

- B Nutrition
- B Food Science
- B Consumer Science
- B Sc
- MBChB

- B Sc (Physiotherapy)
- B Occ Ther
- B Med Sci

This qualification serves as an entry point to the related qualifications:

- Honours programme in Nutrition or Physiological Sciences
- Master's Programme in Nutrition or Physiological Sciences
- MBA
- MPA

Horizontal articulation may be possible with other degree programmes in Faculties of Health, Natural and Agricultural Sciences, namely:

- B Nutrition
- B Food Science
- B Consumer Science
- BSc
- B Med Sci
- MBChB
- BSc Physiotherapy
- B Occupational Therapy

Vertical articulation with the following programmes is possible at most universities in South Africa:

- Honours degree programmes in Nutrition/Dietetics or Physiological Sciences
- Direct access to Masters degree programmes in Nutrition/Dietetics or Physiological Sciences
- MBA
- MPA

Students in the Health Sciences from other universities may apply for exemption of the specific modules that they have completed, but will still be subject to selection.

## MODERATION OPTIONS

Internal moderation must be available for all other NQF level 5.

External moderation must be available for students at NQF levels 6 and 7.

## RECOMMENDATION OF A MODERATING BODY

The Professional Board for Dietetics, which is also the Standards Generating Body, accredits Dietetics programmes every 5 years.

## CRITERIA FOR THE REGISTRATION OF ASSESSORS

Assessors must be registered with the relevant ETQA.

The minimum requirements for registered assessors of theoretical and practical learning are the following:

- Registration with the HPCSA or other relevant statutory body.
- At least a professional degree in Dietetics (NQF Level 7).
- A minimum of 2 years appropriate experience in the field being assessed.

Assessors who do not meet the above criteria may assess students under the supervision of a registered assessor.

## NOTES

Registration with the HPCSA as a student dietitian is a **statutory requirement** when students engage in providing services to individuals, groups and/or communities.

Following graduation a one-year community service period is a **statutory requirement** for full registration with the HPCSA.

**UNIT STANDARDS**

This qualification is not based on Unit Standards.

## APPENDIX C: LETTERS OF PERMISSION

06/04/2004 15:50 323-5601

THEMBA

PAGE 01/01

DEPARTMENT OF HEALTH  
DEPARTEMENT VAN GESONDHEID  
Private Bag X828  
PRETORIA, 0001



Republic of South Africa

UMNYANGO WEZEMPILO  
LEFAPHA LA MAPHELO  
Privaatsak X828  
PRETORIA, 0001

Republiek van Suid-Afrika

DEPARTMENT OF HEALTH  
Republic of South Africa

Fax : 012 312 0582  
E-mail : zulup@health.gov.za  
Telephone : 012 312 0513

Enquiry : MS PFF ZULU  
Reference : G8/16/5

Ms M Paterson  
C/o Prof P.J. Zacharias  
Dean: Faculty of Science and Agriculture  
University of KwaZulu-Natal  
Division Human Nutrition  
Private Bag X 01  
SCOTTSVILLE  
3209

Dear Ms Paterson

**RE: APPROVAL FOR A RESEARCH PROJECT**

Your letter addressed to the Department of Health on the matter above has been noted.

Your request for approval of a research project by the Director General has been granted. The Department would appreciate it if the results of the research are communicated with the Department of Health first, prior to dissemination to other stakeholders, particularly the media as this may be prejudicial to strategic plans and activities of the Department.

Your interaction with the Department is always appreciated.

Kind regards

*K. K. K.*  
ACTING DIRECTOR-GENERAL: HEALTH

DATE: 01/04/04



Fight HIV/AIDS-Not people with HIV/AIDS

PROVINCE OF KWAZULU-NATAL  
HEALTH SERVICES

ISIFUNDAZWE SAKWAZULU-NATALI  
EZEMPILO

PROVINSIE KWAZULU-NATAL  
GESONDHEIDSDIENSTE

PRIVATE BAG X 9051  
PIETERMARITZBURG  
3200

TELEPHONE : (033) 395-2542



330 LONGMARKET STREET  
PIETERMARITZBURG  
3201

ENQUIRIES: Miss NP Beeton  
EXTENSION: 2542  
REFERENCE: 9/2/3/R

2005-04-13

Mrs M Paterson  
Agricultural Sciences & Agribusiness  
Dietetics & Human Nutrition  
Private Bag X01  
Scottsville  
**PIETERMARITZBURG**  
3209

Dear Mrs Paterson

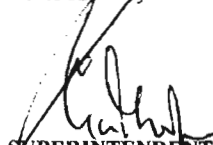
**REQUEST TO CONDUCT RESEARCH ON THE LEVEL OF JOB SATISFACTION, ATTITUDES TOWARDS THE COMMUNITY SERVICE YEAR ADEQUACY OF THE ENTRY KNOWLEDGE OF SOUTH AFRICAN DIETICIANS**

Your letter dated 06 April 2005 refers.

Please be advised that authority is granted for you to conduct a research regarding **the level of job satisfaction, attitudes towards the community service year adequacy of the entry knowledge of South African dieticians** at the institutions mentioned in your addendum to research request provided that;

- (a) Confidentiality is maintained;
- (b) The Department is acknowledged;
- (c) The Department receives a copy of the report on completion; and
- (d) The staff of the hospital are not disturbed and/or inconvenienced in their work and that patient care is not compromised.

Yours sincerely

  
1304.05  
**SUPERINTENDENT-GENERAL**  
**HEAD: DEPARTMENT OF HEALTH**  
NPB/mus m paterson research

## APPENDIX D: ETHICAL CLEARANCE - UNIVERSITY OF KWAZULU-NATAL



Mrs M Paterson  
Agricultural Sciences and Agribusiness  
(Dietetics and Human Nutrition)

Dear Mrs Paterson

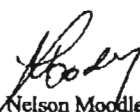
ETHICAL CLEARANCE: THE LEVEL OF JOB SATISFACTION, ATTITUDES  
TOWARDS THE COMMUNITY SERVICE YEAR ADEQUACY OF THE ENTRY  
KNOWLEDGE OF SOUTH AFRICAN DIETICIANS

With reference to your application in connection with the above, I wish to advise that  
ethical clearance has been granted provided that permission to conduct the project is  
obtained from the Department of Health.

I must apologise for the delay in responding to your application.

All the best in your research endeavours.

Yours faithfully

  
Nelson Moodley  
Manager: Research Division

6 April 2005

## APPENDIX E: LETTER REQUESTING PARTICIPANT CONSENT



School of Agricultural Sciences & Agribusiness

**Dietetics & Human Nutrition**

Private Bag X01 Scottsville 3209

Fax +27 (0)33 260 6270

e-mail [Paterson@ukzn.ac.za](mailto:Paterson@ukzn.ac.za)

Dear Colleague

We are currently registered for a Postgraduate Diploma in Dietetics at the University of Kwa-Zulu Natal and every year postgraduate dietetic interns are required to complete a research module. This year we will be acting as research assistants to Mrs Marie Paterson and will be conducting a research project concentrating on the facets of the community service year.

Due to regulations and ethical considerations we have provided the following information regarding this study. The title of this project is "Factors affecting the attitude, community nutrition knowledge and job satisfaction of dietitians completing community service in South Africa in 2005 and to assess whether the main objectives of the Department of Health have been met regarding community service". The Department of Health has granted approval for this research and we have included a copy of their letter for your information. Your input in this study would be to complete the questionnaire that should take you between twenty and thirty minutes.

On the reverse of this document is a copy of the informed consent. It would be greatly appreciated if you would read and if willing, to please sign the document and return it with the completed questionnaire. Please post the documentation using the enclosed stamped envelope.

Please would you also include your address for the coming year if you would like us to send you a formulae booklet.

Your willingness to participate in this study is much appreciated.

Please feel free to contact us if you should require additional information.

Kind regards

Lauren Reid, Brenda Saville and Kim Underwood

Undersigned Marie Paterson

**INFORMED CONSENT**

I hereby confirm that I have been informed by the postgraduate dietetic intern research group under the guidance of Marie Paterson about the nature, conduct, benefits and risks of their study on “Factors affecting the attitude, community nutrition knowledge and job satisfaction of dietitians completing community service in South Africa in 2005 and to assess whether the main objectives of the Department of Health have been met regarding community service”.

Ethics approval has been received from the University of KwaZulu-Natal, Research Office, Howard College. If you have any queries or concerns regarding the ethics of this study or your rights as a research subject, you may contact Prem Mohun at 031 2607224/4557.

- \* I have also received, read and understood the written information (letter of introduction) regarding this study.
- \* I am aware that the results of the study including personal details will be anonymously processed into a study report and will remain confidential.
- \* I understand that I may, at any stage, without prejudice withdraw my consent and participation in the study.
- \* I understand that I may contact Marie Paterson (033 2605431), the supervisor of the study at any time if I have questions about the research.
- \* I understand if I agree to participate, I will be given a signed copy of this document and the participant information letter, which is a written summary of the research.
- \* I understand what my involvement in the study means and I voluntarily agree to participate.

Research participant:

---

Printed name	Signature	Date
--------------	-----------	------

**APPENDIX F: QUESTIONNAIRE 2003 AT ENTRY**

**QUESTIONNAIRE FOR  
COMMUNITY SERVICE DIETITIANS**

**2003 AT ENTRY**

February 2003

Dear Colleague

### **QUESTIONNAIRE FOR COMMUNITY SERVICE DIETITIANS**

Please assist me by completing this questionnaire. Your details will be kept confidential.

There are three sections to this questionnaire. Section 1 deals with personal details that could possibly have a bearing on level of self-efficacy. Section 2 consists of a psychometric instrument which will measure the level of self-efficacy and section 3 which is a multiple choice question which will measure your level of community nutrition knowledge.

Thanks

Marie Paterson

**Section 1**

Please circle the appropriate block. Circle one block only unless otherwise specified.

1 How old are you?

20 -29	1
30 -39	2

2 Are you male or female?

Male	1
Female	2

3 Which language did you mainly speak at home when you were growing up?

IsiXhosa	1	SeSotho	2
Sepedi	3	SeTswana	4
TshiVenda	5	XiTsonga	6
SiSwati	7	IsiNdebele	8
Afrikaans	9	IsiZulu	10
English	11		
Other specify			

4 Are you?

Black		Indian	3
Coloured	2	White	4
Other, specify:			

5 What are your post school qualifications? You may circle **more than one** of the following qualifications that are applicable to you.

Minimum registration qualification such as BSc Diet and/or PG Dip Diet	
Post graduate qualification such as MSc or Honours degree	2
If you have a postgraduate qualification please specify:	

6 Where did you attend university for your first degree, postgraduate Diploma or UCT Honours? Circle one of the following universities that is applicable to you.

University of			
Cape Town	1	Potchefstroom	6
Medunsa	2	Pretoria	7
Natal	3	Stellenbosch	8
the North	4	Western Cape	9
Orange Free State	5	Outside RSA	10

SECTION 2

TABLE 1: THE SELF-EFFICACY SCALE.

Indicate the extent to which you would behave in the manner described by the following statements by circling the appropriate number 1-5 according to the following codes :

- 1= never true of me  
2= rarely true of me  
3= sometimes true of me
- 4= usually true of me  
5= always true of me

□

1	When I make plans, I am certain I can make them work.	1	2	3	4	5
2	One of my problems is that I cannot get down to work when I should.	1	2	3	4	5
3	If I can't do a job the first time, I keep trying until I can.	1	2	3	4	5
4	When I set important goals for myself, I rarely achieve them.	1	2	3	4	5
5	I give up in things before completing them.	1	2	3	4	5
6	I avoid facing difficulties.	1	2	3	4	5
7	If something looks too complicated, I will not even bother to try.	1	2	3	4	5
8	When I have something unpleasant to do, I stick to it until I finish it.	1	2	3	4	5
9	When I decide to do something. I go right to work on it.	1	2	3	4	5
10	When trying to learn something new, I soon give up if I am not initially successful.	1	2	3	4	5
11	When unexpected problems occur, I don't handle them well.	1	2	3	4	5
12	I avoid trying to learn new things when they look too difficult for me.	1	2	3	4	5
13	Failure just makes me try harder.	1	2	3	4	5
14	I feel insecure about my ability to do things.	1	2	3	4	5
15	I am a self -reliant person.	1	2	3	4	5
16	I give up easily.	1	2	3	4	5
17	I do not seem capable of dealing with most problems that come up in life.	1	2	3	4	5

Thanks for taking the trouble of completing this section.

Please go on to the community nutrition multiple choice questionnaire and answer by circling One statement that you think answers the question. Thanks

**SECTION 2: Community Nutrition Multiple Choice Questionnaire**

- 1) From a nutritional point of view, breast milk is excellent for the first three months, but supplementing from then on assures better growth.
  - a) True
  - b) False
- 2) The prophylactic dose of elemental iron routinely given to women in antenatal clinic is 120 mg.
  - a) True
  - b) False

*Indicate which is the most correct answer to the following multiple-choice questions*

- 3) One of the main reasons mother's discontinue breastfeeding is:
  - a) They have inadequate knowledge and insufficient confidence in their own abilities
  - b) They do not listen to nurses' advice
  - c) The mother is malnourished
  - d) They have flat nipples
- 4) The health worker's primary task in helping a mother breastfeed is to:
  - a) Provide treatment for sore nipples
  - b) Instill confidence in the mother
  - c) Give good nutritional advice
  - d) Correct the baby's position at the breast
- 5) The most important influence on the amount of prolactin secreted in the early stages of lactation is:
  - a) Suckling or other nipple stimulation
  - b) Maternal genetic factors
  - c) Rest and sleep
  - d) The size of the mother's breasts
- 6) Breastmilk contains anti-infective properties including
  - a) Lactoferrin
  - b) Secretory IgA
  - c) Lysozymes
  - d) All of the above
- 7) The main cause of inadequate milk production is:
  - a) Engorgement
  - b) Infrequent breast stimulation
  - c) Low fluid intake by the mother
  - d) Genetic factors of the mother
  - e) Breastfeeding too often
- 8) If mothers enquire how often babies should be breastfed, your reply should be:
  - a) "Every four hours"
  - b) "Let's discuss supply and demand, and how the breast work"
  - c) "No more than a five hour interval"
  - d) "Whenever the pressure in your breasts becomes uncomfortable"

- 9) What is the importance of colostrum?
- a) Protection against disease
  - b) Laxative
  - c) Immeasurable
  - d) All of the above
- 10) When would you give healthy full term babies complementary or supplementary fluids?
- a) For a jaundiced baby
  - b) If the weather is very hot
  - c) After a long and strenuous labour
  - d) None of the above
- 11) What is the most helpful information you can give to the mothers about their diet during lactation?
- a) Avoid spicy foods and curries
  - b) Drink 7 litres of fluids per day
  - c) Eat a variety of foods – everything in moderation
  - d) Avoid foods such as cabbages, tomatoes, pineapple and garlic
- 12) In what way can you empower mothers to continue exclusive breastfeeding for the first six months?
- a) Provide mothers with the necessary support and correct information
  - b) Have a written breastfeeding policy
  - c) Help mothers initiate breastfeeding within half an hour of birth
  - d) All of the above
- 13) Should HIV infected mothers be encouraged to breastfeed their babies?
- a) Yes
  - b) Maybe
  - c) The feeding method is ultimately the mother's own choice, provided this is an informed choice
  - d) No
- 14) After delivery the best treatment of the mother and the baby is:
- a) Keep them together in the same room (rooming-in) or same bed
  - b) Take the baby away to make sure that he is washed, weighed and immunized
  - c) Take the baby to the nursery so that the mother can get some rest
  - d) Take the baby to the nursery and give him glucose water to prevent dehydration
- 15) What is the golden rule of breastfeeding?
- a) The more often the baby suckles at the breast the more milk will be produced.
  - b) Babies need to be fed two and a half to three hourly
  - c) Mothers need good food and adequate rest
  - d) Babies need to be held close
- 16) Compared to cow's milk, human milk has all the characteristics listed below **except**:
- a) Higher lactose
  - b) Higher cholesterol
  - c) Higher protein
  - d) Generates a lower osmolar load

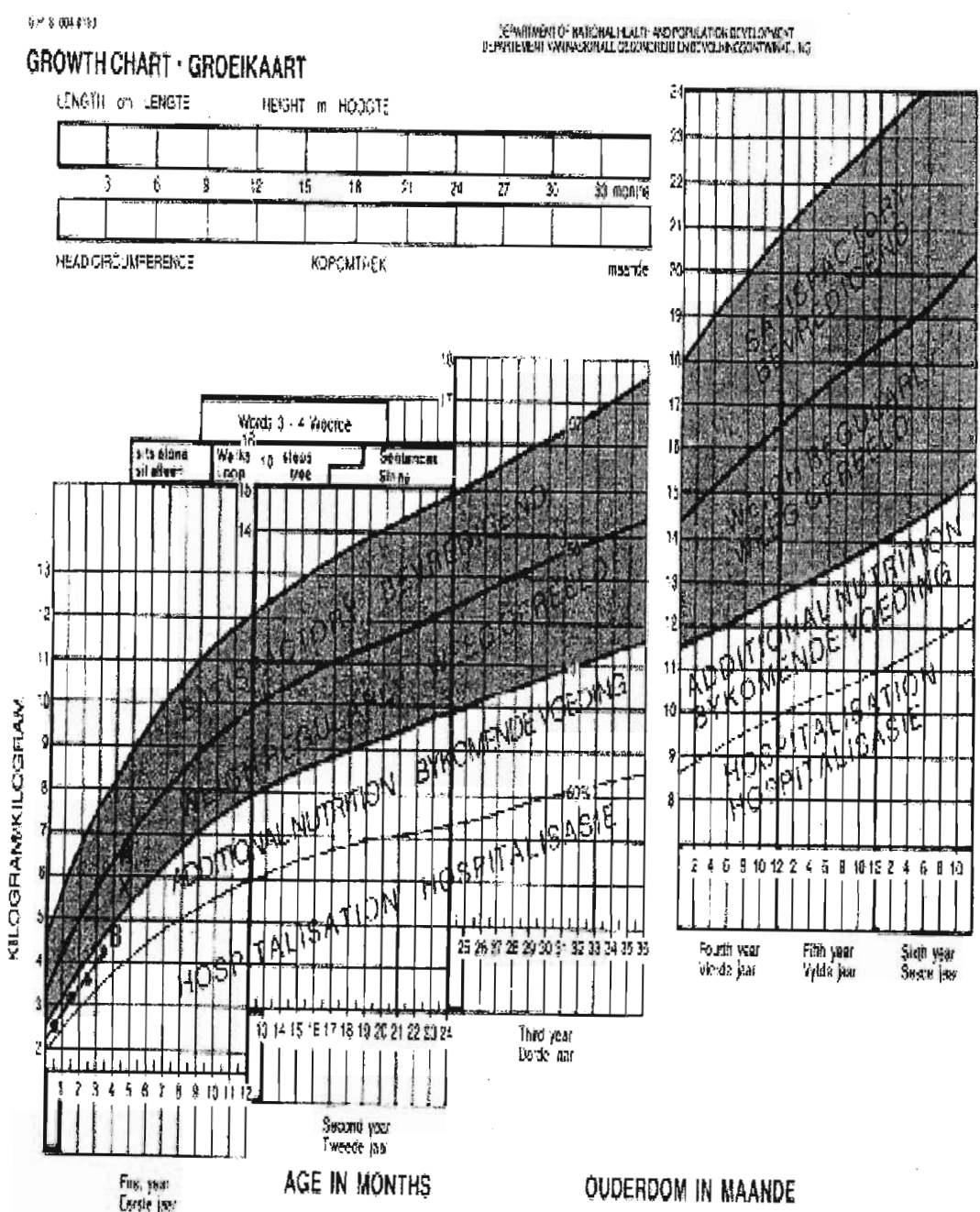
- 17) In relation to anatomy and physiology of lactation, all of the following are correct **except:**
- a) Lactiferous sinuses are under the areola
  - b) Myoepithelial fibers surround the alveoli
  - c) Prolactin is the hormone responsible for milk ejection
  - d) Milk removal is essential for milk production
- 18) After the onset of lactation, normal daily care should include:
- a) Bathing normally, but trying to avoid soaps, lotions or creams on the nipples
  - b) Letting the nipples be exposed to air after feedings
  - c) Good handwashing after using the toilet
  - d) Expressing breast milk and rubbing it on the nipples after feeding
  - e) All of the above
- 19) Milk production is increased by
- a) More frequent milk removal
  - b) Forcing fluids
  - c) Increasing energy intake
  - d) Vitamin D
- 20) Poor weight gain in the breastfed infant is most often caused by:
- a) Low fat content of milk
  - b) Inappropriate feeding routines
  - c) Poor maternal nutrition
  - d) Neglect
- 21) Management of breastfeeding in neo-natal jaundice includes:
- a) Water after breastfeeding – given by dropper
  - b) Frequent feedings at the breasts (8-12 times per 24 hours)
  - c) Stopping breastfeeding
  - d) Supplementing breastmilk with non-human milk
- 22) To assure an adequate quantity of milk in the breast, a nursing mother should be advised **NOT** to breastfeed more often than every:
- a) 1-1½ hours
  - b) 2 hours
  - c) 3 hours
  - d) None of the above
- 23) Some of the acceptable medical reasons for supplementation of breast milk are:
- a) Infants with inborn errors of metabolism
  - b) Infants whose mothers have had a caesarean section
  - c) All low birth weight infants
  - d) 1 and 3
  - e) None of the above
- 24) Expressed, cooled, human milk should be warmed:
- a) By heating gently in saucepan
  - b) Under warm, running water
  - c) In the microwave
  - d) All of the above

- 25) Some of the methods used to prevent mother to child transmission of HIV include:
- a) Use of condoms during pregnancy
  - b) Use of anti-retrovirals such as AZT
  - c) Formula feeding with artificial milk from birth
  - d) Pasteurising human milk
  - e) b and c
  - f) All of the above
- 26) The mother to child transmission rate of the HI virus through breast milk is approximately:
- a) 100%
  - b) 86%
  - c) 32%
  - d) 14%
- 27) The estimated prevalence of HIV is women attending antenatal clinics in KwaZulu-Natal is:
- a) 95%
  - b) 67%
  - c) 30%
  - d) 17%
- 28) There is strong evidence to link the following factors to increased risk of MTCT of HIV except for:
- a) HIV acquired during pregnancy
  - b) Vitamin A deficiency
  - c) Advanced disease
  - d) Prematurity
- 29) IMCI stands for:
- a) Integrated medical care initiative
  - b) Initial median community interpretation
  - c) Integrated management of childhood illnesses
  - d) Illness means careful implementation
- 30) The most common type of malnutrition found in young children in KwaZulu-Natal is:
- a) Wasting
  - b) Kwashiorkor
  - c) Stunting
  - d) Low weight for age
- 31) The most common type of Vitamin A deficiency found in children in KwaZulu-Natal is:
- a) Night blindness
  - b) Xerophthalmia
  - c) Keratomalacia
  - d) Low serum retinol levels
- 32) Iron deficiency anaemia in pregnancy is most commonly found in the following ethnic group in Kwazulu-Natal:
- a) Black
  - b) Indian
  - c) Coloured
  - d) White

- 33) The basis of many child survival programmes are the elements of GOBI-FFF. Which of the following is not included in the FFF's?
- a) Food supplementation
  - b) Family planning
  - c) Food hygiene
  - d) Female education
- 34) An acceptable weight gain during pregnancy is:
- a) Dependency on pre-pregnancy weight
  - b) Approximately 6,5 kg
  - c) At least 12,5 kg
  - d) At least 16 kg
- 35) Children who are exclusively breastfed:
- a) Grow more quickly than those who are formula fed
  - b) Grow at the same rate as those who are formula fed
  - c) Grow more slowly after 3 months than those who are formula fed
- 36) Out of the following list, the most common cause of childhood illness in KwaZulu-Natal is:
- a) HIV
  - b) Malaria
  - c) Diarrhoea
  - d) Measles
- 37) Protein requirements increase during pregnancy by approximately the following amount:
- a) 15%
  - b) 30%
  - c) 65%
  - d) 98%
- 38) The main reasons that women often do not take supplements given to them during pregnancy are:
- a) Many do not know why they have to take them
  - b) Most experience headaches after taking them
  - c) They do not like the taste of them
  - d) Some experience epigastric pain after taking them
  - e) a and d
  - f) None of the above
- 39) The following are principles of Primary Health Care:
- a) Equal treatment for all
  - b) Community participation
  - c) 24 hour access to all health care centres
  - d) Free treatment
  - e) All of the above
- 40) Which of the following is best way of preventing dehydration in a four month old child who has diarrhoea?
- a) IV fluid
  - b) Sugar-salt solution
  - c) Oral rehydration salts
  - d) Breastmilk
  - e) Lactose-free formula

- 41) The following can be said regarding the absorption of iron:
- a) Absorption of haem iron is increased by eating it with a drink of orange juice
  - b) Absorption of non-haem iron can be increased by eating it with chicken
  - c) Absorption of haem iron is decreased by drinking tea at the same time
  - d) Absorption of non-haem iron is enhanced by eating it with eggs
- 42) Carotene absorption can be increased by:
- a) Frying the food
  - b) Boiling the food
  - c) Eating the food with oil
  - d) Chopping the food into very small pieces
- 43) The best source of Vitamin A per 100 ml is
- a) Vegetable oil
  - b) Full cream milk
  - c) Mature breast milk
  - d) Colostrum
- 44) The newest recommendations regarding initiation of complementary feeding are:
- a) At about 6 months of age
  - b) At 4-6 months of age
  - c) From 3 months when a child cries a lot at night
  - d) When a child gets his first tooth
- 45) The most effective way to detect stunting is:
- a) Weight-for-age
  - b) Weight-for-height
  - c) Mid upper arm circumference
  - d) Height-for-age
- 46) One of the most important uses of the growth monitoring chart is:
- a) To screen children for the PEM scheme
  - b) For health workers to record developmental milestones of the child
  - c) For health workers to check on how the mother is feeding her child
  - d) For mothers to get feedback regarding how her child is growing
- 47) When filling in a growth-monitoring chart, the first box on the horizontal should be filled in as:
- a) January
  - b) The birth month of the child
  - c) 1
  - d) When the child first comes for weighing at the clinic
- 48) Acceptable growth is ascertained from the growth chart by the following:
- a) Child's weight is above the 50<sup>th</sup> centile line
  - b) Child's weight is between the 50<sup>th</sup> and 97<sup>th</sup> centile line
  - c) Child's weight increases every time he or she is weighed
  - d) Child's growth line is parallel with the centile lines

- 49) On the growth chart on the next page, the child represented by the cross at A:
- a) Is growing well
  - b) Is not growing well
  - c) Cannot tell how the child is growing by just one weight
  - d) Cannot tell how the child is growing by just one weight but must get extra food
- 50) On the growth chart on the next page, the child represented by the lines at B:
- a) Is growing well but should be monitored regularly
  - b) Is growing well but should start getting solid food
  - c) Is not growing well
  - d) Is not growing well and should start getting solid food



**APPENDIX G: QUESTIONNAIRE 2003 AT EXIT**

**QUESTIONNAIRE FOR  
COMMUNITY SERVICE DIETITIANS  
2003 AT EXIT**

## SECTION 1: DEMOGRAPHICS

Please circle the appropriate block. Circle one block only unless otherwise specified.

- 1 What is your date of birth

Day	Month	Year

- 2 Are you male or female?

Male	1
Female	2

- 3 Which language did you mainly speak at home when you were growing up?

IsiXhosa	1	SeSotho	2
Sepedi	3	SeTswana	4
TshiVenda	5	XiTsonga	6
SiSwati	7	IsiNdebele	8
Afrikaans	9	IsiZulu	10
English	11		
Other specify			

- 4 Are you?

Black		Indian	3
Coloured	2	White	4
Other, specify:			

- 5 What are your post school qualifications? You may circle **more than one** of the following qualifications that are applicable to you.

Minimum registration qualification such as BSc Diet and/or PG Dip Diet	
Post graduate qualification such as MSc or Honours degree	2
If you have a postgraduate qualification please specify:	

6    Where did you attend university for your first degree, postgraduate Diploma or UCT Honours?  
Circle **one** of the following universities that is applicable to you.

University of			
Cape Town	1	Potchefstroom	6
Medunsa	2	Pretoria	7
Natal	3	Stellenbosch	8
the North	4	Western Cape	9
Orange Free State	5	Outside RSA	10

7    What type of hospital have you been plected at?

Rural	1
District	2
Metro	3

**SECTION 2: Community Nutrition Multiple Choice Questionnaire****Breast feeding**

- 1 The health worker's primary task in helping a mother breastfeed is to:
  - a. Provide treatment for sore nipples
  - b. Instill confidence in the mother
  - c. Give good nutritional advice
  - d. Correct the baby's position at the breast
- 2 If mothers enquire how often babies should be breastfed, your reply should be:
  - a. "Every four hours"
  - b. "Lets discuss supply and demand, and how the breast work"
  - c. "No more than a five hour interval"
  - d. "Whenever the pressure in your breasts becomes uncomfortable"
- 3 Should HIV infected mothers be encouraged to breastfeed their babies?
  - a. Yes
  - b. Maybe
  - c. The feeding method is ultimately the mother's own choice, provided this is an informed choice
  - d. No
- 4 What is the golden rule of breastfeeding?
  - a. The more often the baby suckles at the breast the more milk will be produced.
  - b. Babies need to be fed two and a half to three hourly
  - c. Mothers need good food and adequate rest
  - d. Babies need to be held close
- 5 Compared to cow's milk, human milk has all the characteristics listed below **except**:
  - a. Higher lactose
  - b. Higher cholesterol
  - c. Higher protein
  - d. Generates a lower osmolar load
- 6 Poor weight gain in the breastfed infant is most often caused by:
  - a. Low fat content of milk
  - b. Inappropriate feeding routines
  - c. Poor maternal nutrition
  - d. Neglect
- 7 Some of the acceptable medical reasons for supplementation of breast milk are:
  - a. Infants with inborn errors of metabolism
  - b. Infants whose mothers have had a caesarean section
  - c. All low birth weight infants
  - d. 1 and 3
  - e. None of the above

HIV

- 8 Some of the methods used to prevent mother to child transmission of HIV include:
- Use of condoms during pregnancy
  - Use of anti-retrovirals such as AZT
  - Formula feeding with artificial milk from birth
  - Pasteurising human milk
  - b and c
  - All of the above
- 9 The mother to child transmission rate of the HI virus through breast milk is approximately:
- 100%
  - 86%
  - 32%
  - 14%
- 10 The estimated prevalence of HIV is women attending antenatal clinics in KwaZulu-Natal is:
- 95%
  - 67%
  - 30%
  - 17%
- 11 There is strong evidence to link the following factors to increased risk of MTCT of HIV **except** for:
- HIV acquired during pregnancy
  - Vitamin A deficiency
  - Advanced disease
  - Prematurity

Pregnancy

- 12 An acceptable weight gain during pregnancy is:
- Dependency on pre-pregnancy weight
  - Approximately 6,5 kg
  - At least 12,5 kg
  - At least 16 kg
- 13 Protein requirements increase during pregnancy by approximately the following amount:
- 15%
  - 30%
  - 65%
  - 98%
- 14 The prophylactic dose of elemental iron routinely given to women in antenatal clinic is 120 mg
- True
  - False
- 15 What is the recommended amount of folic acid to be supplemented to women of child –bearing age and pregnant women
- 200µg from around the time of conception to the end of the first trimester
  - 400µg from around the time of conception to the end of the first trimester
  - 200µg from the second trimester
  - 400µg from the second trimester

- 16 The main reasons that women often do not take supplements given to them during pregnancy are:
- a. Many do not know why they have to take them
  - b. Most experience headaches after taking them
  - c. They do not like the taste of them
  - d. Some experience epigastric pain after taking them
  - e. a and d
  - f. None of the above
- 17 Iron deficiency anaemia in pregnancy is most commonly found in the following ethnic group in Kwazulu-Natal:
- a. Black
  - b. Indian
  - c. Coloured
  - d. White

General nutrition

- 18 IMCI stands for:
- a. Integrated medical care initiative
  - b. Initial median community interpretation
  - c. Integrated management of childhood illnesses
  - d. Illness means careful implementation
- 19 The most common type of malnutrition found in young children in KwaZulu-Natal and RSA is:
- a. Wasting
  - b. Kwashiorkor
  - c. Stunting
  - d. Low weight for age
- 20 The basis of many child survival programmes are the elements of GOBI-FFF. Which of the following is not included in the FFF's?
- a. Food supplementation
  - b. Family planning
  - c. Food hygiene
  - d. Female education
- 21 Out of the following list, the most common cause of childhood illness in KwaZulu-Natal is:
- a. HIV
  - b. Malaria
  - c. Diarrhoea
  - d. Measles
- 22 The following is/are principle/s of Primary Health Care:
- a. Equal treatment for all
  - b. Community participation
  - c. 24 hour access to all health care centres
  - d. Free treatment
  - e. All of the above

- 23 After delivery the best treatment of the mother and the baby is:
- Keep them together in the same room (rooming-in) or same bed
  - Take the baby away to make sure that he is washed, weighed and immunized
  - Take the baby to the nursery so that the mother can get some rest
  - Take the baby to the nursery and give him glucose water to prevent dehydration
- 24 The following can be said regarding the absorption of iron:
- Absorption of haem iron is increased by eating it with a drink of orange juice
  - Absorption of non-haem iron can be increased by eating it with chicken
  - Absorption of haem iron is decreased by drinking tea at the same time
  - Absorption of non-haem iron is enhanced by eating it with eggs
- 25 The newest recommendations regarding initiation of complementary feeding are:
- At about 6 months of age
  - At 4-6 months of age
  - From 3 months when a child cries a lot at night
  - When a child gets his first tooth
- 26 The most effective way to detect stunting is:
- Weight-for-age
  - Weight-for-height
  - Mid upper arm circumference
  - Height-for-age

### Vitamin A

- 27 Carotene absorption can be increased by
- Frying the food
  - Boiling the food
  - Eating the food with oil
  - Chopping the food into very small pieces
- 28 The best source of Vitamin A per 100 ml is
- Vegetable oil
  - Full cream milk
  - Mature breast milk
  - Colostrum
- 29 The most common type of Vitamin A deficiency found in children in KwaZulu-Natal is:
- Night blindness
  - Xerophthalmia
  - Keratomalacia
  - Low serum retinol levels
- 30 What dosage of vitamin A is given to infant <6 months that are not breastfed
- 50,000IU
  - 100,000IU
  - 200,000IU
  - None of the above

- 31 Which disease/s is/are high risk for mortality of children with vitamin A deficiency?
- a. Diarrhoea
  - b. Measles
  - c. Respiratory infections
  - d. All of the above

### Growth monitoring

- 32 One of the most important uses of the growth monitoring chart is:
- a. To screen children for the PEM scheme
  - b. For health workers to record developmental milestones of the child
  - c. For health workers to check on how the mother is feeding her child
  - d. For mothers to get feedback regarding how her child is growing
- 33 When filling in a growth-monitoring chart, the first box on the horizontal should be filled in as:
- a. January
  - b. The birth month of the child
  - c. When the child first comes for weighing at the clinic
- 34 Acceptable growth is ascertained from the growth chart by the following:
- a. Child's weight is above the 50<sup>th</sup> centile line
  - b. Child's weight is between the 50<sup>th</sup> and 97<sup>th</sup> centile line
  - c. Child's weight increases every time he or she is weighed
  - d. Child's growth line is parallel with the centile lines

**SECTION 3: Attitudes and Opinions**

1. How would you describe your attitude regarding community service work this year

negative \_\_\_\_\_ positive \_\_\_\_\_

2. Compare your attitude regarding your community service work this year from the beginning of this year till now

	Positive	Negative
Beginning of the year		
End of year		

3a State three positive aspects of this year (why?) in order of importance

- 1
- 2
- 3

3b State three negative aspects of this year (why?) in order of importance

- 1
- 2
- 3

4 Indicate in your opinion the following questions described by the following statements

- 1 = excellent  
 2= good  
 3= poor  
 4= very poor

4.1	What is your opinion regarding the organisation of community service at your hospital	1	2	3	4
4.2	Rate the professional mentorship from your mentor dietitian	1	2	3	4
4.3	Rate the support of the hospital manager	1	2	3	4
4.4	Rate your professional development	1	2	3	4

5 Where do you see yourself next year?

**SECTION 4: Job Satisfaction Scale**

This is designed to provide information about how you feel about your work.

- 1 = strongly agree
- 2 = agree
- 3 = neither agree nor disagree
- 4 = disagree
- 5 = strongly disagree

Indicate how you feel about your job by circling the appropriate number.

1.1	I am satisfied with dietetics as a career.	1	2	3	4	5
1.2	I would like to change careers if an attractive opportunity arose.	1	2	3	4	5
1.3	I would encourage young people to consider Dietetics as a career.	1	2	3	4	5
1.4	If I had a chance to start over I would still choose Dietetics.	1	2	3	4	5

Thanks for taking the trouble of completing this questionnaire

**APPENDIX H: QUESTIONNAIRE 2004 AT ENTRY**

**QUESTIONNAIRE FOR  
COMMUNITY SERVICE DIETITIANS  
2004 AT ENTRY**

**SECTION 1: DEMOGRAPHICS**

Please circle or tick the appropriate block. Circle one block only unless otherwise specified.

1. What is your birth date?

Day	Month	Year

2. Are you male or female?

Male	1
Female	2

3. What is your home language?

IsiXhosa	1	SeSotho	2
Sepedi	3	SeTswana	4
TshiVenda	5	XiTsonga	6
SiSwati	7	IsiNdebele	8
Afrikaans	9	IsiZulu	10
English	11	Other (specify)	

4. Which ethnic group do you belong to?

Black	1	Indian	2
Coloured	3	White	4
Other (specify)			

5. What are your post school qualifications?

Minimum registration qualification such as BSc Diet and/or PG Dip Diet	1
Post registration qualification such as MSc or Ph degree	2
If you have a postgraduate qualification please specify:	

6. At which university did you qualify as a dietician?

University of			
Cape Town	1	Potchefstroom	6
Medunsa	2	Pretoria	7
Kwa-Zulu Natal	3	Stellenbosch	8
The North	4	Western Cape	9
Orange-Free State	5	Outside RSA	10

7. What type of health care facility have you been placed at?

Community health centre	1
District hospital	2
Regional hospital	3
Tertiary/specialised hospital	4
SA military health service	5

8. Do you qualify for a rural allowance?

YES	NO
-----	----

9. What province are you working in?

Eastern Cape	1	Northern Cape	6
Orange free state	2	Limpopo	7
Gauteng	3	North West	8
Kwa-Zulu Natal	4	Western Cape	9
Mpumalanga	5		

## **SECTION 2: COMMUNITY NUTRITION KNOWLEDGE**

### **PART A**

Circle the best answer to the following multiple-choice questions

#### Breastfeeding

- The health workers primary task in helping a mother to breastfeed is to:
  - Provide treatment to sore nipples
  - Instil confidence in the mother
  - Give good nutritional advice
  - Correct the baby's position to the breast
- If mothers enquire how often babies should be breastfed, your reply should be:
  - "Every four hours"
  - "If and as the infant demands"
  - "No more than five hour intervals"
  - "When ever the pressure in your breast becomes uncomfortable"
- Should HIV infected mothers be encouraged to breastfeed their babies?
  - Yes
  - Maybe
  - The feeding method is ultimately the mother's choice, provided this is an informed choice.
  - No
- What is the golden rule of breastfeeding?
  - The more often the baby suckles at the breast, the more milk will be produced
  - Babies need to be fed two and a half to three hourly
  - Mothers need good food and adequate rest
  - Babies need to be held close
- Compared to cows' milk, human milk has all the characteristics listed below, except:
  - Higher lactose
  - Higher cholesterol
  - Higher protein
  - Generates a lower osmolar load

6. Poor weight gain in breastfed infants is most often caused by:
  - a. Low fat content of milk
  - b. Inappropriate feeding at the breast (8-12 times per 24 hours)
  - c. Stopping breastfeeding
  - d. Supplementing breast milk with non-human milk
7. Some of the acceptable medical reasons for supplementation of breast milk are:
  - a. Infants with inborn errors of metabolism
  - b. Infants whose mothers have had a caesarean section
  - c. All low birth weight infants
  - d. a and c
  - e. None of the above

### HIV

8. Some of the methods used to prevent MTCT of HIV include:
  - a. Use of condoms during pregnancy
  - b. Use of anti-retrovirals such as AZT
  - c. Bottle feeding with artificial milk from birth
  - d. Pasteurising human milk
  - e. b and c
  - f. All of the above
9. The MTCT rate of the HI virus through breast milk is approximately:
  - a. 100%
  - b. 86%
  - c. 32%
  - d. 14%
10. The estimated prevalence of HIV women attending antenatal clinics in RSA is:
  - a. 95%
  - b. 67%
  - c. 30%
  - d. 17%
11. There is strong evidence to link the following factors to an increased risk for MTCT of HIV except for:
  - a. HIV acquired during pregnancy
  - b. Vitamin A deficiency
  - c. Advanced disease
  - d. Pre-maturity

### Pregnancy

12. An acceptable weight gain during pregnancy is:
  - a. Dependency on pre-pregnancy weight.
  - b. Approximately 6.5kg
  - c. At least 12.5kg
  - d. At least 16kg

13. Protein requirements increase during pregnancy by approximately the following amount:
- 15%
  - 30%
  - 65%
  - 98%
14. The prophylactic dose of elemental iron routinely given to women in antenatal clinic is 120mg
- True
  - False
15. What is the recommended amount of folic acid to be supplemented to women of childbearing age and pregnant women?
- 200µg from around the time of conception to the end of the 1<sup>st</sup> trimester
  - 400µg from around the time of conception to the end of the 1<sup>st</sup> trimester
  - 200µg from the second trimester
  - 400µg from the second trimester
16. The main reasons that women often do not take supplements given to them during pregnancy are:
- Many do not know why they have been given them
  - Most experience headaches after taking them
  - They do not like the taste of them
  - Some experience epigastric pain after taking them
  - a and d
  - None of the above
17. Iron deficiency anaemia in pregnancy is most commonly found in which ethnic group in KZN and RSA:
- Black
  - Indian
  - Coloured
  - White

#### General nutrition

18. IMCI stands for:
- Integrated medical care initiative
  - Initial median community interpretation
  - Integrated management of childhood illnesses
  - Illness means careful implementation
19. The most common type of malnutrition found in young children in KZN and RSA is:
- Wasting
  - Kwashiorkor
  - Stunting
  - Low weight for age

20. The basis of many child survival programmes are the elements of GOBI-FFF. Which of the following is not included in the FFF?
- Food supplementation
  - Family planning
  - Food hygiene
  - Female education
21. Out of the following list, which is the most common childhood illness in RSA?
- HIV
  - Malaria
  - Diarrhoea
  - Measles
22. The following is/are the principle/s of Primary Health Care:
- Equal treatment for all
  - Community participation
  - 24 hour access to all health care centres
  - Free treatment
  - All of the above
23. Which of the following is the best way of preventing dehydration in a four-month old baby who has diarrhoea?
- IV fluids
  - Sugar-salt solution
  - Oral rehydration salts
  - Breast milk
24. The following can be said regarding the absorption of iron:
- Absorption of haem iron is increased by eating it with a drink of orange juice
  - Absorption of non-haem iron can be increased by eating it with chicken
  - Absorption of haem iron is decreased by drinking tea at the same time
  - Absorption of non-haem iron is enhanced by eating it with eggs
25. The newest recommendations regarding the initiation of complementary feeding are:
- At about 6 months of age
  - At 4-6 months of age
  - From 3 months when a child cries a lot at night
  - When the child get his first tooth
26. The most effective way to detect stunting is:
- Weight-for-age
  - Weight-for-height
  - Mid upper arm circumference
  - Height-for-age

Vitamin A

27. Carotene absorption can be increased by:
  - a. Frying the food
  - b. Boiling the food
  - c. Eating the food with oil
  - d. Chopping the food into very small pieces
28. The best source of Vitamin A per 100 ml is:
  - a. Vegetable oil
  - b. Full cream milk
  - c. Mature breast milk
  - d. Colostrum
29. The most common type of vitamin A deficiency found in children in KZN and RSA is:
  - a. Night blindness
  - b. Xerophthalmia
  - c. Keratomalacia
  - d. Low serum retinol levels
30. What is the dosage of Vitamin A is given to infants <6 months of age that are not breastfed?
  - a. 50,000 IU
  - b. 100,000 IU
  - c. 200,000 IU
  - d. None of the above.
31. Which disease/s is/are a high-risk for mortality of children with Vitamin A deficiency?
  - a. Diarrhoea
  - b. Measles
  - c. Respiratory infections
  - d. All of the above

Growth monitoring

32. One of the most important uses of the growth chart is:
  - a. To screen children for the PEM scheme
  - b. For health workers to record development milestones of the child
  - c. For health workers to check how the mother is feeding her child
  - d. For mothers to get feedback regarding how her child is growing
33. When filling in the DOH growth-monitoring chart, the first box on the horizontal should be written in as:
  - a. January
  - b. The birth month of the baby's birth
  - c. The month the child first comes for weighing at the clinic
34. Acceptable growth is ascertained from the growth chart by the following:
  - a. Child's weight is above the 50<sup>th</sup> percentile line
  - b. Child's weight is between the 50<sup>th</sup> and the 97<sup>th</sup> percentile lines
  - c. Child's weight increase every time he or she is weighed
  - d. Child's growth line is parallel with the percentile line

**Part B**

1. What is your response to the following statements regarding professional development?

- 1 = strongly agree
- 2 = agree
- 3 = disagree
- 4 = strongly disagree

1.1	My level of knowledge is adequate to perform the community nutrition tasks required of me.	1	2	3	4
1.2	My community service work thus far has led to an increase in my community nutrition knowledge.	1	2	3	4
1.3	My community service work thus far has led to the development of new skills.	1	2	3	4
1.4	I have access to advice /information sources when needed.	1	2	3	4

**SECTION 3: LIVING CONDITIONS**

1. Please answer the following questions by circling your choice

1.1	Do you have adequate housing?	YES	NO
1.2	Do you have basic utilities (eg. running water, electricity, refuse collection)	YES	NO
1.3	Do you feel safe in your area?	YES	NO
1.4	Do you have access to recreational facilities?	YES	NO
1.5	Do you have access to transport?	YES	NO
1.6	Do you have access to adequate health services?	YES	NO
1.7	Are there adequate shopping facilities?	YES	NO

2. How do these living conditions affect your attitude to community service?

---



---

3. How do these living conditions impact on your job satisfaction?

---



---

**SECTION 4: WORK CONDITIONS**

1. Rate your response to the following statements.

- 1 = strongly agree
- 2 = agree
- 3 = disagree
- 4 = strongly disagree

4.1	Community service is well organised at my hospital.	1	2	3	4
4.2	I receive adequate mentorship from my mentor dietician.	1	2	3	4
4.3	I receive adequate support from the hospital management and other hospital staff	1	2	3	4
4.4	I am able to develop professionally	1	2	3	4
4.5	I was adequately orientated with regards to my work place.	1	2	3	4
4.6	I was adequately orientated with regards to my community service work within my province.	1	2	3	4
4.7	I have clearly defined work goals /roles.	1	2	3	4
4.8	I am accountable for the work that I do.	1	2	3	4
4.9	My salary is adequate.	1	2	3	4

2. How do these work conditions affect your attitude to community service?

---

3. How do these work conditions impact on your job satisfaction?

---

**SECTION 5: ATTITUDES**

1. What is your current attitude regarding your community service work this year?

- +Ve ☐
- Ve ☐
- Neutral ☐

2. State three positive aspects of this year and why?

- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) \_\_\_\_\_

3. State three negative aspects of this year and why?

- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) \_\_\_\_\_

4. Are you happy with your community service placement and why?

---



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5 Are there any other comments that you would like to make about community service

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---

## **SECTION 6: JOB SATISFACTION**

### **THE JOB SATISFACTION SCALE**

1. This is designed to provide information about how you feel about your work.

- 1 = strongly agree
- 2 = agree
- 3 = neither agree nor disagree
- 4 = disagree
- 5 = strongly disagree

Indicate how you feel about your job by circling the appropriate number.

1.1	I am satisfied with dietetics as a career.	1	2	3	4	5
1.2	I would like to change careers if an attractive opportunity arose.	1	2	3	4	5
1.3	I would encourage young people to consider Dietetics as a career.	1	2	3	4	5
1.4	If I had a chance to start over I would still choose Dietetics.	1	2	3	4	5

2. Are you able to make a personal contribution to the community in which you have been placed?

---



---

3. Where do you see yourself next year?

---



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Thank you for your time and co-operation.

Please indicate if you would like an updated copy of the Formula book. \_\_\_\_\_  
 If so please let us have your address for 2005.

**APPENDIX I: QUESTIONNAIRE 2004 AT EXIT**

**QUESTIONNAIRE FOR  
COMMUNITY SERVICE DIETITIANS**

**2004 AT EXIT**

**SECTION 1: DEMOGRAPHICS**

1. What is your birth date?

Day	Month	Year
-----	-------	------

The rest of the demographic information will be taken from the questionnaire you filled in earlier this year.

**SECTION 2: KNOWLEDGE****PART A**

Circle the best answer to the following multiple-choice questions

**Breastfeeding**

1. The health workers primary task in helping a mother to breastfeed is to:
  - a. Provide treatment to sore nipples
  - b. Instil confidence in the mother
  - c. Give good nutritional advice
  - d. Correct the baby's position to the breast
2. If mothers enquire how often babies should be breastfed, your reply should be:
  - a. "Every four hours"
  - b. "If and as the infant demands"
  - c. "No more than five hour intervals"
  - d. "When ever the pressure in your breast becomes uncomfortable"
3. Should HIV infected mothers be encouraged to breastfeed their babies?
  - a. Yes
  - b. Maybe
  - c. The feeding method is ultimately the mother's choice, provided this is an informed choice.
  - d. No
4. What is the golden rule of breastfeeding?
  - a. The more often the baby suckles at the breast, the more milk will be produced
  - b. Babies need to be fed two and a half to three hourly
  - c. Mothers need good food and adequate rest
  - d. Babies need to be held close
5. Compared to cows' milk, human milk has all the characteristics listed below, except:
  - a. Higher lactose
  - b. Higher cholesterol
  - c. Higher protein
  - d. Generates a lower osmolar load
6. Poor weight gain in breastfed infants is most often caused by:
  - a. Low fat content of milk
  - b. Inappropriate feeding at the breast (8-12 times per 24 hours)
  - c. Stopping breastfeeding
  - d. Supplementing breast milk with non-human milk
7. Some of the acceptable medical reasons for supplementation of breast milk are:
  - a. Infants with inborn errors of metabolism

- b. Infants whose mothers have had a caesarean section
- c. All low birth weight infants
- d. a and c
- e. None of the above

### HIV

- 8. Some of the methods used to prevent MTCT of HIV include:
  - a. Use of condoms during pregnancy
  - b. Use of anti-retrovirals such as AZT
  - c. Bottle feeding with artificial milk from birth
  - d. Pasteurising human milk
  - e. b and c
  - f. All of the above
- 9. The MTCT rate of the HI virus through breast milk is approximately:
  - a. 100%
  - b. 86%
  - c. 32%
  - d. 14%
- 10. The estimated prevalence of HIV women attending antenatal clinics in RSA is:
  - a. 95%
  - b. 67%
  - c. 30%
  - d. 17%
- 11. There is strong evidence to link the following factors to an increased risk for MTCT of HIV except for:
  - a. HIV acquired during pregnancy
  - b. Vitamin A deficiency
  - c. Advanced disease
  - d. Pre-maturity

### Pregnancy

- 12. An acceptable weight gain during pregnancy is:
  - a. Dependency on pre-pregnancy weight.
  - b. Approximately 6.5kg
  - c. At least 12.5kg
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- 13. Protein requirements increase during pregnancy by approximately the following amount:
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- 14. The prophylactic dose of elemental iron routinely given to women in antenatal clinic is 120mg
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- 15. What is the recommended amount of folic acid to be supplemented to women of childbearing

age and pregnant women?

- a. 200µg from around the time of conception to the end of the 1<sup>st</sup> trimester
- b. 400µg from around the time of conception to the end of the 1<sup>st</sup> trimester
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- a. Many do not know why they have been given them
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#### General nutrition

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- b. Kwashiorkor
- c. Stunting
- d. Low weight for age

20. The basis of many child survival programmes are the elements of GOBI-FFF. Which of the following is not included in the FFF?

- a. Food supplementation
- b. Family planning
- c. Food hygiene
- d. Female education

21. Out of the following list, which is the most common childhood illness in RSA?

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- b. Malaria
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26. The most effective way to detect stunting is:
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  - Weight-for-height
  - Mid upper arm circumference
  - Height-for-age

#### Vitamin A

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  - Keratomalacia
  - Low serum retinol levels

30. What is the dosage of Vitamin A is given to infants <6 months of age that are not breastfed?
- 50,000 IU
  - 100,000 IU
  - 200,000 IU
  - None of the above.
31. Which disease/s is/are a high-risk for mortality of children with Vitamin A deficiency?
- Diarrhoea
  - Measles
  - Respiratory infections
  - All of the above

Growth monitoring

32. One of the most important uses of the growth chart is:
- To screen children for the PEM scheme
  - For health workers to record development milestones of the child
  - For health workers to check how the mother is feeding her child
  - For mothers to get feedback regarding how her child is growing
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- January
  - The birth month of the baby's birth
  - The month the child first comes for weighing at the clinic
34. Acceptable growth is ascertained from the growth chart by the following:
- Child's weight is above the 50<sup>th</sup> percentile line
  - Child's weight is between the 50<sup>th</sup> and the 97<sup>th</sup> percentile lines
  - Child's weight increase every time he or she is weighed
  - Child's growth line is parallel with the percentile line

**Part B PROFESSIONAL DEVELOPMENT (Professional Practitioner Ranking scale)**

1. What is your response to the following statements:

- 1 = strongly agree
- 2 = agree
- 3 = disagree
- 4 = strongly disagree

1.1	My level of knowledge is adequate to perform the community nutrition tasks required of me.	1	2	3	4
1.2	My community service work thus far has led to an increase in my community nutrition knowledge.	1	2	3	4
1.3	My community service work thus far has led to the development of new skills.	1	2	3	4
1.4	I have access to advice/information sources when needed.	1	2	3	4

**SECTION: ATTITUDES – please ANSWER this section**

1. What is your current attitude regarding your community service work this year?

+Ve

-Ve

Neutral

☐

☐

☐

2. State three positive aspects of this year and why?

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

3. State three negative aspects of this year and why?

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

4. Are you happy with your community service placement and why?

\_\_\_\_\_

5. Are there any other comments that you would like to make about community service

\_\_\_\_\_

6. Indicate your opinion on the following questions described by the following statements by circling the appropriate number 1 – 4

1 = excellent  
2 = Good

3 = poor  
4 = very poor

6.1	What is your opinion regarding the organization of community service at hospital level?	1	2	3	4
6.2	Rate the professional mentorship from your mentor dietitian ( do not circle anything if this question is irrelevant)	1	2	3	4
6.3	Rate the support from the hospital manager	1	2	3	4
6.4	Rate your professional development so far this year	1	2	3	4
6.5	Rate your own professional contribution to your health based facility	1	2	3	4

**JOB SATISFACTION Please ANSWER this section**

**THE JOB SATISFACTION SCALE**

1. This is designed to provide information about how you feel about your work.

- 1 = strongly agree
- 2 = agree
- 3 = neither agree nor disagree
- 4 = disagree
- 5 = strongly disagree

Indicate how you feel about your job by circling the appropriate number.

1.1	I am satisfied with dietetics as a career.	1	2	3	4	5
1.2	I would like to change careers if an attractive opportunity arose.	1	2	3	4	5
1.3	I would encourage young people to consider Dietetics as a career.	1	2	3	4	5
1.4	If I had a chance to start over I would still choose Dietetics.	1	2	3	4	5

2 Are you able to make a personal contribution to the community in which you have been placed?

---



---

3 Where do you see yourself next year?

---

**SECTION: LIVING CONDITIONS**

**(Only complete this section if conditions have changed since you last completed the questionnaire)**

1. Please answer the following questions by circling your choice

1.1	Do you have adequate housing?	YES	NO
1.2	Do you have basic utilities (eg. running water, electricity, refuse collection)	YES	NO
1.3	Do you feel safe in your area?	YES	NO
1.4	Do you have access to recreational facilities?	YES	NO
1.5	Do you have access to transport?	YES	NO
1.6	Do you have access to adequate health services?	YES	NO
1.7	Are there adequate shopping facilities?	YES	NO

2. How do these living conditions affect your attitude to community service?

---

3. How do these living conditions impact on your job satisfaction?

---

**SECTION : WORK CONDITIONS**

**(Only complete this section if conditions have changed since you last completed the questionnaire)**

1. Rate your response to the following statements.

- 1 = strongly agree
- 2 = agree
- 3 = disagree
- 4 = strongly disagree

4.1	Community service is well organised at my hospital.	1	2	3	4
4.2	I receive adequate mentorship from my mentor dietician.	1	2	3	4
4.3	I receive adequate support from the hospital management and other hospital staff	1	2	3	4
4.4	I am able to develop professionally	1	2	3	4
4.5	I was adequately orientated with regards to my work place.	1	2	3	4
4.6	I was adequately orientated with regards to my community service work within my province.	1	2	3	4
4.7	I have clearly defined work goals /roles.	1	2	3	4
4.8	I am accountable for the work that I do.	1	2	3	4
4.9	My salary is adequate.	1	2	3	4

2. How do these work conditions affect your attitude to community service?

---

3. How do these work conditions impact on your job satisfaction?

---

Thank you for your time and co-operation.

Please indicate if you would like an updates for the Formula book. \_\_\_\_\_

Please include an address where this could be sent

**APPENDIX J: QUESTIONNAIRE 2005 AT ENTRY**

**QUESTIONNAIRE FOR  
COMMUNITY SERVICE DIETITIANS  
2005 AT ENTRY**

**SECTION 1: DEMOGRAPHICS**

Please circle or tick the appropriate block. Circle one block only unless otherwise specified.

1. What is your birth date?

2. Are you male or female?

Day	Month	Year

Male	1
Female	2

3. What is your home language?

IsiXhosa	1	SeSotho	2
Sepedi	3	SeTswana	4
TshiVenda	5	XiTsonga	6
SiSwati	7	IsiNdebele	8
Afrikaans	9	IsiZulu	10
English	11	Other (specify)	

4. Which ethnic group do you belong to?

Black	1	Indian	2
Coloured	3	White	4
Other (specify)			

5. At which university did you qualify as a dietician?

University of			
Cape Town	1	Potchefstroom	6
Medunsa	2	Pretoria	7
Kwa-Zulu Natal	3	Stellenbosch	8
The North	4	Western Cape	9
Orange-Free State	5	Outside RSA	10

9. Do you qualify for a rural allowance?

YES	NO
-----	----

10. What province are you working in?

Eastern Cape	1	Northern Cape	6
Orange free state	2	Limpopo	7
Gauteng	3	North West	8
Kwa-Zulu Natal	4	Western Cape	9
Mpumalanga	5		

11. How long would it take you to get to your previously established residence/ or the place you call "home"?

I live at home	1
Less than 1 hr	2
Less than ½ a day	3
Less than a day	4
A day or more	5

## **SECTION 2: COMMUNITY NUTRITION KNOWLEDGE**

Circle the best answer to the following multiple-choice questions.

### **Breastfeeding**

- The health workers primary task in helping a mother to breastfeed is to:
  - Provide treatment to sore nipples
  - Instil confidence in the mother
  - Give good nutritional advice
  - Correct the baby's position to the breast
- If mothers enquire how often babies should be breastfed, your reply should be:
  - "Every four hours"
  - "If and as the infant demands"
  - "No more than five hour intervals"
  - "When ever the pressure in your breast becomes uncomfortable"
- Should HIV infected mothers be encouraged to breastfeed their babies?
  - Yes
  - Maybe
  - The feeding method is ultimately the mother's choice, provided this is an informed choice.
  - No
- What is the golden rule of breastfeeding?
  - The more often the baby suckles at the breast, the more milk will be produced
  - Babies need to be fed two and a half to three hourly
  - Mothers need good food and adequate rest
  - Babies need to be held close
- Compared to cows' milk, human milk has all the characteristics listed below, except:
  - Higher lactose
  - Higher cholesterol
  - Higher protein
  - Generates a lower osmolar load
- Poor weight gain in breastfed infants is most often caused by:
  - Low fat content of milk
  - Inappropriate feeding at the breast (8-12 times per 24 hours)
  - Stopping breastfeeding
  - Supplementing breast milk with non-human milk

7. Some of the acceptable medical reasons for supplementation of breast milk are:
- Infants with inborn errors of metabolism
  - Infants whose mothers have had a caesarean section
  - All low birth weight infants
  - a and c
  - None of the above

#### HIV

8. Some of the methods used to prevent MTCT of HIV include:
- Use of condoms during pregnancy
  - Use of anti-retrovirals such as AZT
  - Bottle feeding with artificial milk from birth
  - Pasteurising human milk
  - b and c
  - All of the above
9. The MTCT rate of the HI virus through breast milk is approximately:
- 100%
  - 86%
  - 32%
  - 14%
10. The estimated prevalence of HIV women attending antenatal clinics in RSA is:
- 95%
  - 67%
  - 30%
  - 17%
11. There is strong evidence to link the following factors to an increased risk for MTCT of HIV except for:
- HIV acquired during pregnancy
  - Vitamin A deficiency
  - Advanced disease
  - Pre-maturity

#### Pregnancy

12. An acceptable weight gain during pregnancy is:
- Dependency on pre-pregnancy weight.
  - Approximately 6.5kg
  - At least 12.5kg
  - At least 16kg
13. Protein requirements increase during pregnancy by approximately the following amount:
- 15%
  - 30%
  - 65%
  - 98%

14. The prophylactic dose of elemental iron routinely given to women in antenatal clinic is 120mg
- True
  - False
15. What is the recommended amount of folic acid to be supplemented to women of childbearing age and pregnant women?
- 200µg from around the time of conception to the end of the 1<sup>st</sup> trimester
  - 400µg from around the time of conception to the end of the 1<sup>st</sup> trimester
  - 200µg from the second trimester
  - 400µg from the second trimester
16. The main reasons that women often do not take supplements given to them during pregnancy are:
- Many do not know why they have been given them
  - Most experience headaches after taking them
  - They do not like the taste of them
  - Some experience epigastric pain after taking them
  - a and d
  - None of the above
17. Iron deficiency anaemia in pregnancy is most commonly found in which ethnic group in RSA:
- Black
  - Indian
  - Coloured
  - White

#### General nutrition

18. IMCI stands for:
- Integrated medical care initiative
  - Initial median community interpretation
  - Integrated management of childhood illnesses
  - Illness means careful implementation
19. The most common type of malnutrition found in young children in RSA is:
- Wasting
  - Kwashiorkor
  - Stunting
  - Low weight for age
20. The basis of many child survival programmes are the elements of GOBI-FFF. Which of the following is not included in the FFF?
- Food supplementation
  - Family planning
  - Food hygiene
  - Female education
21. Out of the following list, which is the most common childhood illness in RSA?
- HIV
  - Malaria
  - Diarrhoea
  - Measles

22. The following is/are the principle/s of Primary Health Care:
- Equal treatment for all
  - Community participation
  - 24 hour access to all health care centres
  - Free treatment
  - All of the above
23. Which of the following is the best way of preventing dehydration in a four-month old baby who has diarrhoea?
- IV fluids
  - Sugar-salt solution
  - Oral rehydration salts
  - Breast milk
24. The following can be said regarding the absorption of iron:
- Absorption of haem iron is increased by eating it with a drink of orange juice
  - Absorption of non-haem iron can be increased by eating it with chicken
  - Absorption of haem iron is decreased by drinking tea at the same time
  - Absorption of non-haem iron is enhanced by eating it with eggs
25. The newest recommendations regarding the initiation of complementary feeding are:
- At about 6 months of age
  - At 4-6 months of age
  - From 3 months when a child cries a lot at night
  - When the child get his first tooth
26. The most effective way to detect stunting is:
- Weight-for-age
  - Weight-for-height
  - Mid upper arm circumference
  - Height-for-age

#### Vitamin A

27. Carotene absorption can be increased by:
- Frying the food
  - Boiling the food
  - Eating the food with oil
  - Chopping the food into very small pieces
28. The best source of Vitamin A per 100 ml is:
- Vegetable oil
  - Full cream milk
  - Mature breast milk
  - Colostrum
29. The most common type of vitamin A deficiency found in children in RSA is:
- Night blindness
  - Xerophthalmia
  - Keratomalacia
  - Low serum retinol levels

30. What is the dosage of Vitamin A is given to infants <6 months of age that are not breastfed?
- 50,000 IU
  - 100,000 IU
  - 200,000 IU
  - None of the above.

31. Which disease/s is/are a high-risk for mortality of children with Vitamin A deficiency?
- Diarrhoea
  - Measles
  - Respiratory infections
  - All of the above

### Growth monitoring

32. One of the most important uses of the growth chart is:
- To screen children for the PEM scheme
  - For health workers to record development milestones of the child
  - For health workers to check how the mother is feeding her child
  - For mothers to get feedback regarding how her child is growing
33. When filling in the DOH growth-monitoring chart, the first box on the horizontal should be written in as:
- January
  - The birth month of the baby's birth
  - The month the child first comes for weighing at the clinic
34. Acceptable growth is ascertained from the growth chart by the following:
- Child's weight is above the 50<sup>th</sup> percentile line
  - Child's weight is between the 50<sup>th</sup> and the 97<sup>th</sup> percentile lines
  - Child's weight increase every time he or she is weighed
  - Child's growth line is parallel with the percentile line

**SECTION 3: PROFESSIONAL DEVELOPMENT(Professional Practitioner Ranking Scale)**

1. What is your response to the following statements?

- 1 = strongly agree
- 2 = agree
- 3 = disagree
- 4 = strongly disagree

1.1	My level of knowledge is adequate to perform the community nutrition tasks required of me.	1	2	3	4
1.2	My community service work thus far has led to an increase in my community nutrition knowledge.	1	2	3	4
1.3	My community service work thus far has led to the development of new skills.	1	2	3	4
1.4	I have access to advice /information sources when needed.	1	2	3	4

**SECTION 4: LIVING CONDITIONS**

1. Please answer the following questions by circling your choice

1.1	Do you have adequate housing?	YES	NO
1.2	Do you have basic utilities (eg. running water, electricity, refuse collection)	YES	NO
1.3	Do you feel safe in your area?	YES	NO
1.4	Do you have access to recreational facilities?	YES	NO
1.5	Do you have access to transport?	YES	NO
1.6	Do you have access to adequate health services?	YES	NO
1.7	Are there adequate shopping facilities?	YES	NO

2. How do these living conditions affect your attitude to community service?

3. How do these living conditions impact on your job satisfaction?

**SECTION 6: WORKING CONDITIONS**

1. Rate your response to the following statements.

- 1 = strongly agree
- 2 = agree
- 3 = disagree
- 4 = strongly disagree

1.1	Community service is well organised at my hospital.	1	2	3	4
1.2	I receive adequate mentorship from my mentor dietician.	1	2	3	4
1.3	I receive adequate support from the hospital management and other hospital staff	1	2	3	4
1.4	I was adequately orientated with regards to my work place.	1	2	3	4
1.5	I was adequately orientated with regards to my community service work within my province.	1	2	3	4
1.6	I have clearly defined work goals /roles.	1	2	3	4
1.7	I have adequate access to the resources I need to fulfil my duties.	1	2	3	4
1.8	I am accountable and take responsibility for the work that I do.	1	2	3	4
1.9	My salary is adequate.	1	2	3	4
1.10	My hospital is well managed and well organised	1	2	3	4

2. How do these work conditions affect your attitude to community service?

3. How do these work conditions impact on your job satisfaction?

**SECTION 7: ATTITUDES**

1. What is your current attitude regarding your community service work this year?

+Ve

-Ve

Neutral

☐

☐

☐

2. State three positive aspects of this year and why?

a)

b)

c) \_\_\_\_\_  
\_\_\_\_\_

3. State three negative aspects in any of the year so far and why?

a) \_\_\_\_\_  
\_\_\_\_\_

b) \_\_\_\_\_  
\_\_\_\_\_

c) \_\_\_\_\_  
\_\_\_\_\_

4. Would you describe yourself as an enthusiastic person?

Yes	No	Sometimes
-----	----	-----------

5. Are you happy with your community service placement and why?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

6. Are there any other comments that you would like to make about community service

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**SECTION 8: JOB SATISFACTION**

**THE JOB SATISFACTION SCALE**

1. This is designed to provide information about how you feel about your work.

- 1 = strongly agree
- 2 = agree
- 3 = neither agree nor disagree
- 4 = disagree
- 5 = strongly disagree

Indicate how you feel about your job by circling the appropriate number.

1.1	I am satisfied with dietetics as a career.	1	2	3	4	5
1.2	I would like to change careers if an attractive opportunity arose.	1	2	3	4	5
1.3	I would encourage young people to consider Dietetics as a career.	1	2	3	4	5
1.4	If I had a chance to start over I would still choose Dietetics.	1	2	3	4	5

2. Are you able to make a personal contribution to the community in which you have been placed?

Yes	No	Sometimes
-----	----	-----------

3. What do you see yourself doing next year?

Thank you for your time and co-operation. All the best for 2005

Please indicate if you would like an updated copy of the Formula book. \_\_\_\_\_ if so please let us have the preferred postage address.

**APPENDIX K: QUESTIONNAIRE 2005 AT EXIT**

**QUESTIONNAIRE FOR  
COMMUNITY SERVICE DIETITIANS**

**2005 AT EXIT**

**SECTION 1: DEMOGRAPHICS**

1. What is your birth date?

Day	Month	Year
-----	-------	------

The rest of the demographic information will be taken from the questionnaire you filled in earlier this year.

**SECTION 2: KNOWLEDGE****PART A**

Circle the best answer to the following multiple-choice questions

**Breastfeeding**

1. The health workers primary task in helping a mother to breastfeed is to:
  - a. Provide treatment to sore nipples
  - b. Instil confidence in the mother
  - c. Give good nutritional advice
  - d. Correct the baby's position to the breast
2. If mothers enquire how often babies should be breastfed, your reply should be:
  - a. "Every four hours"
  - b. "If and as the infant demands"
  - c. "No more than five hour intervals"
  - d. "When ever the pressure in your breast becomes uncomfortable"
3. Should HIV infected mothers be encouraged to breastfeed their babies?
  - a. Yes
  - b. Maybe
  - c. The feeding method is ultimately the mother's choice, provided this is an informed choice.
  - d. No
4. What is the golden rule of breastfeeding?
  - a. The more often the baby suckles at the breast, the more milk will be produced
  - b. Babies need to be fed two and a half to three hourly
  - c. Mothers need good food and adequate rest
  - d. Babies need to be held close
5. Compared to cows' milk, human milk has all the characteristics listed below, except:
  - a. Higher lactose
  - b. Higher cholesterol
  - c. Higher protein
  - d. Generates a lower osmolar load
6. Poor weight gain in breastfed infants is most often caused by:
  - a. Low fat content of milk
  - b. Inappropriate feeding at the breast (8-12 times per 24 hours)
  - c. Stopping breastfeeding
  - d. Supplementing breast milk with non-human milk

7. Some of the acceptable medical reasons for supplementation of breast milk are:
- Infants with inborn errors of metabolism
  - Infants whose mothers have had a caesarean section
  - All low birth weight infants
  - a and c
  - None of the above

#### HIV

8. Some of the methods used to prevent MTCT of HIV include:
- Use of condoms during pregnancy
  - Use of anti-retrovirals such as AZT
  - Bottle feeding with artificial milk from birth
  - Pasteurising human milk
  - b and c
  - All of the above
9. The MTCT rate of the HI virus through breast milk is approximately:
- 100%
  - 86%
  - 32%
  - 14%
10. The estimated prevalence of HIV women attending antenatal clinics in RSA is:
- 95%
  - 67%
  - 30%
  - 17%
11. There is strong evidence to link the following factors to an increased risk for MTCT of HIV except for:
- HIV acquired during pregnancy
  - Vitamin A deficiency
  - Advanced disease
  - Pre-maturity

#### Pregnancy

12. An acceptable weight gain during pregnancy is:
- Dependency on pre-pregnancy weight.
  - Approximately 6.5kg
  - At least 12.5kg
  - At least 16kg
13. Protein requirements increase during pregnancy by approximately the following amount:
- 15%
  - 30%
  - 65%
  - 98%
14. The prophylactic dose of elemental iron routinely given to women in antenatal clinic is 120mg
- True
  - False

15. What is the recommended amount of folic acid to be supplemented to women of childbearing age and pregnant women?
- 200µg from around the time of conception to the end of the 1<sup>st</sup> trimester
  - 400µg from around the time of conception to the end of the 1<sup>st</sup> trimester
  - 200µg from the second trimester
  - 400µg from the second trimester
16. The main reasons that women often do not take supplements given to them during pregnancy are:
- Many do not know why they have been given them
  - Most experience headaches after taking them
  - They do not like the taste of them
  - Some experience epigastric pain after taking them
  - a and d
  - None of the above
17. Iron deficiency anaemia in pregnancy is most commonly found in which ethnic group in KZN and RSA:
- Black
  - Indian
  - Coloured
  - White

#### General nutrition

18. IMCI stands for:
- Integrated medical care initiative
  - Initial median community interpretation
  - Integrated management of childhood illnesses
  - Illness means careful implementation
19. The most common type of malnutrition found in young children in KZN and RSA is:
- Wasting
  - Kwashiorkor
  - Stunting
  - Low weight for age
20. The basis of many child survival programmes are the elements of GOBI-FFF. Which of the following is not included in the FFF?
- Food supplementation
  - Family planning
  - Food hygiene
  - Female education
21. Out of the following list, which is the most common childhood illness in RSA?
- HIV
  - Malaria
  - Diarrhoea
  - Measles

22. The following is/are the principle/s of Primary Health Care:
- Equal treatment for all
  - Community participation
  - 24 hour access to all health care centres
  - Free treatment
  - All of the above
23. Which of the following is the best way of preventing dehydration in a four-month old baby who has diarrhoea?
- IV fluids
  - Sugar-salt solution
  - Oral rehydration salts
  - Breast milk
24. The following can be said regarding the absorption of iron:
- Absorption of haem iron is increased by eating it with a drink of orange juice
  - Absorption of non-haem iron can be increased by eating it with chicken
  - Absorption of haem iron is decreased by drinking tea at the same time
  - Absorption of non-haem iron is enhanced by eating it with eggs
25. The newest recommendations regarding the initiation of complementary feeding are:
- At about 6 months of age
  - At 4-6 months of age
  - From 3 months when a child cries a lot at night
  - When the child get his first tooth
26. The most effective way to detect stunting is:
- Weight-for-age
  - Weight-for-height
  - Mid upper arm circumference
  - Height-for-age

#### Vitamin A

27. Carotene absorption can be increased by:
- Frying the food
  - Boiling the food
  - Eating the food with oil
  - Chopping the food into very small pieces
28. The best source of Vitamin A per 100 ml is:
- Vegetable oil
  - Full cream milk
  - Mature breast milk
  - Colostrum
29. The most common type of vitamin A deficiency found in children in KZN and RSA is:
- Night blindness
  - Xerophthalmia
  - Keratomalacia
  - Low serum retinol levels

30. What is the dosage of Vitamin A is given to infants <6 months of age that are not breastfed?
- 50,000 IU
  - 100,000 IU
  - 200,000 IU
  - None of the above.
31. Which disease/s is/are a high-risk for mortality of children with Vitamin A deficiency?
- Diarrhoea
  - Measles
  - Respiratory infections
  - All of the above

#### Growth monitoring

32. One of the most important uses of the growth chart is:
- To screen children for the PEM scheme
  - For health workers to record development milestones of the child
  - For health workers to check how the mother is feeding her child
  - For mothers to get feedback regarding how her child is growing
33. When filling in the DOH growth-monitoring chart, the first box on the horizontal should be written in as:
- January
  - The birth month of the baby's birth
  - The month the child first comes for weighing at the clinic
34. Acceptable growth is ascertained from the growth chart by the following:
- Child's weight is above the 50<sup>th</sup> percentile line
  - Child's weight is between the 50<sup>th</sup> and the 97<sup>th</sup> percentile lines
  - Child's weight increase every time he or she is weighed
  - Child's growth line is parallel with the percentile line

#### **Part B PROFESSIONAL DEVELOPMENT (Professional Practitioner Ranking scale)**

1. What is your response to the following statements:

- 1 = strongly agree  
 2 = agree  
 3 = disagree  
 4 = strongly disagree

1.1	My level of knowledge is adequate to perform the community nutrition tasks required of me.	1	2	3	4
1.2	My community service work thus far has led to an increase in my community nutrition knowledge.	1	2	3	4
1.3	My community service work thus far has led to the development of new skills.	1	2	3	4
1.4	I have access to advice /information sources when needed.	1	2	3	4

**SECTION: ATTITUDES – please ANSWER this section**

1. What is your current attitude regarding your community service work this year?

+Ve

-Ve

Neutral

☐

☐

☐

2. State three positive aspects of this year and why?

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

3. State three negative aspects of this year and why?

1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

4. Are you happy with your community service placement and why?

\_\_\_\_\_

\_\_\_\_\_

5. Are there any other comments that you would like to make about community service

\_\_\_\_\_

\_\_\_\_\_

Indicate your opinion on the following questions described by the following statements by circling the appropriate number 1 – 4

- 1 = excellent

2 = Good
- 3 = poor

4 = very poor

6.1	What is you opinion regarding the organization of community service at hospital level?	1	2	3	4
6.2	Rate the professional mentorship from your mentor dietitian ( do not circle anything if this question is irrelevant)	1	2	3	4
6.3	Rate the support from the hospital manager	1	2	3	4
6.4	Rate your professional development so far this year	1	2	3	4
6.5	Rate your own professional contribution to your health based facility	1	2	3	4

**JOB SATISFACTION Please ANSWER this section**

**THE JOB SATISFACTION SCALE**

1. This is designed to provide information about how you feel about your work.

- 1 = strongly agree
- 2 = agree
- 3 = neither agree nor disagree
- 4 = disagree
- 5 = strongly disagree

Indicate how you feel about your job by circling the appropriate number.

1.1	I am satisfied with dietetics as a career.	1	2	3	4	5
1.2	I would like to change careers if an attractive opportunity arose.	1	2	3	4	5
1.3	I would encourage young people to consider Dietetics as a career.	1	2	3	4	5
1.4	If I had a chance to start over I would still choose Dietetics.	1	2	3	4	5

2 Are you able to make a personal contribution to the community in which you have been placed?

---

---

3 Where do you see yourself next year?

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**SECTION: LIVING CONDITIONS****(Only complete this section if conditions have changed since you last completed the questionnaire)**

1. Please answer the following questions by circling your choice

1.1	Do you have adequate housing?	YES	NO
1.2	Do you have basic utilities (eg. running water, electricity, refuse collection)	YES	NO
1.3	Do you feel safe in your area?	YES	NO
1.4	Do you have access to recreational facilities?	YES	NO
1.5	Do you have access to transport?	YES	NO
1.6	Do you have access to adequate health services?	YES	NO
1.7	Are there adequate shopping facilities?	YES	NO

2. How do these living conditions affect your attitude to community service?

3. How do these living conditions impact on your job satisfaction?

**SECTION : WORK CONDITIONS****(Only complete this section if conditions have changed since you last completed the questionnaire)**

1. Rate your response to the following statements.

- 1 = strongly agree  
 2 = agree  
 3 = disagree  
 4 = strongly disagree

4.1	Community service is well organised at my hospital.	1	2	3	4
4.2	I receive adequate mentorship from my mentor dietician.	1	2	3	4
4.3	I receive adequate support from the hospital management and other hospital staff	1	2	3	4
4.4	I am able to develop professionally	1	2	3	4
4.5	I was adequately orientated with regards to my work place.	1	2	3	4
4.6	I was adequately orientated with regards to my community service work within my province.	1	2	3	4
4.7	I have clearly defined work goals /roles.	1	2	3	4
4.8	I am accountable for the work that I do.	1	2	3	4
4.9	My salary is adequate.	1	2	3	4

2. How do these work conditions affect your attitude to community service?

3. How do these work conditions impact on your job satisfaction?

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Thank you for your time and co-operation.

Please indicate if you would like an updates for the Formula book. \_\_\_\_\_

Please include an address where this could be sent

## APPENDIX L: LIST OF TOPICS USED IN FOCUS GROUP DISCUSSIONS

*How happy were you about the placement process for this year?*

*Rate on a scale of 1 – 5. With 1 = very unhappy to 5 = very happy*

How accurate was the understanding of people's view of the role of the dietitian at your facility? - Give reasons for your answer.

What are the formal lines of communication in the hierarchy at your facility? (i.e. who do you report to and who reports to you)

Is this the same for the other community health professionals (eg physiotherapists)

What are your informal lines of communication?

Why do you use these?

Which were helpful and obstructionist networks?

Were they all the same? I.e. how many agree/disagree with the points of view?

*What specific new skills were learned through formal means including on-the-job training?*

What new skills were learned through informal means?

Place yourself on the following skill level using the Dreyfus & Dreyfus (1980) 5-scale model -justify

What was the scope of the dietetic practice experienced so far this year?

In your opinion what help and constraints were there to achieving your objectives?

How would you overcome these constraints?

In your opinion did/were you able to give optimal service during your community service?

How would you rate your professional development this year?

Have there been any unexpected benefits?

Have there been any unexpected disasters?

*Develop a scale for measuring your professional development this year.*

*How would you rate yourself?*

*Those topics in italics were given as written answers*

**APPENDIX M: DETAILED RESULTS OF STATISTICAL ANALYSES**

Table 1: ANOVA to test the differences between variables in 2004 and 2005

Variable	Division of data	Sum of Squares	df	Mean Square	F	Sig.
Two universities: UKZN or other university	Between Groups	.770	1	.770	4.254	**0.050
	Within Groups	4.345	24	.181		
	Total	5.115	25			
Community nutrition knowledge at entry	Between Groups	474.074	1	474.074	2.408	0.135
	Within Groups	4331.481	22	196.886		
	Total	4805.556	23			
Age at the start of the year	Between Groups	47.504	1	47.504	2.004	0.170
	Within Groups	568.840	24	23.702		
	Total	616.344	25			
Community nutrition knowledge at exit	Between Groups	116.667	1	116.667	.840	0.371
	Within Groups	2638.889	19	138.889		
	Total	2755.556	20			
Job satisfaction at exit	Between Groups	6.881	1	6.881	.597	0.449
	Within Groups	218.929	19	11.523		
	Total	225.810	20			
Two languages: English or other	Between Groups	.059	1	0.059	.542	0.469
	Within Groups	2.595	24	0.108		
	Total	2.654	25			
Population group	Between Groups	.622	1	.622	.540	0.466
	Within Groups	50.704	44	1.152		
	Total	51.326	45			

Table 2: ANOVA to test the difference between 2003 cohort and 2004 – 2005 cohort

Variable	Division of data	Sum of Squares	df	Mean Square	F	Sig.
Community nutrition knowledge at entry	Between Groups	2189.394	1	2189.394	12.821	0.001
	Within Groups	7172.222	42	170.767		
	Total	9361.616	43			
Community nutrition knowledge at exit	Between Groups	1775.894	1	1775.894	12.697	0.001
	Within Groups	5455.000	39	139.872		
	Total	7230.894	40			
Two universities: UKZN or other university	Between Groups	1.639	1	1.639	7.461	0.009
	Within Groups	9.665	44	0.220		
	Total	11.304	45			
Job satisfaction at exit	Between Groups	45.689	1	45.689	3.805	0.058
	Within Groups	468.360	39	12.009		
	Total	514.049	40			
Two languages: English or other	Between Groups	.622	1	0.622	3.801	0.058
	Within Groups	7.204	44	0.164		
	Total	7.826	45			

Table 3: Comments made by 2004 -2005 cohort regarding lack of resources

1	Not getting the stuff I need quickly. Usually we have to wait at least 3 months before we get our ordered items like feeds. Stores here is a nightmare.
2	STORES, STORES, STORES, - have to constantly sit on their heads to get something
3	Water supply. After rains, water from the tap is dirty and brown; Have to bring water from home
4	Not having a variety of feeds available
5	Limited equipment and funding.
6	Sometimes, as a result of inadequate resources etc, I am not entirely satisfied but on the whole enjoy work.
7	Limited resources (internet, translators)
8	Financial constraints
9	Funds always limited
10	Having no office, no stationary (sic) no desk or a place to work from
11	Resources are sometimes scarce
12	As there is a great lack of transport to get to all the rural hospitals; I am rarely able to do my job - it is not very satisfactory at all!!
13	Transport is a very big problem because can't get to the hospitals there I actually have to work
14	In my case I did assessments in the district and identified needs but the lack of transport prevents me from doing my duties!! It's very frustrating!!!
15	I try but resources and help from other professionals are few
16	Lack of resources makes it difficult to be a good dietetic advocate,
17	A great deal - difficult to have a sense of achievement when basic resources are absent
18	Lack of resources to perform basic dietetic services
19	Lack of management understanding and support for nutrition
20	It is very difficult, personally and emotionally to be dealing with such sick and poor patients everyday and knowing that you cannot give them optimal treatment (because of working conditions).
21	Lack of resources such as an office, access to a computer food fundi etc
22	No office of my own for 3 months
23	Government politics and lack of resources
24	Need support and access to literature (eg via internet)
25	Lack of transport, I have to service 6 clinics but I do not have use of a vehicle
26	No dietetic supervision, no access to the internet so it hard to keep up with current information.
27	No resources (car-transport stationery) to do my job fundamentally?
28	Feel restricted because of lack of resources
29	Inadequate resources to us in practice
30	Have no access to certain resources ie e-mail or printer (very frustrating can't keep up-to-date).
31	Greatly impact on my attitude - feel very frustrated that I do not have the equipment eg height sticks to adequately assess patients. I have a limited budget to for feed - makes me very negative - How am I supposed to do my job? However it has forced me to improvise and be creative which is never a bad thing.
32	Certain resources being unavailable make taking/participating in activities not appealing
33	Budget constraints No money to buy feeds, height sticks or a scale

Table 4: Cross tabulation and chi-square analysis of attitude to community service at entry and at exit -2003

		Attitude to CS at exit		Total
		negative	positive	
Attitude to CS work at entry	Negative	5% (n=1)	55% (n=11)	60% (n=12)
	Positive	20% (n=4)	20% (n=4)	40% (n=8)
Total		25% (n=5)	75% (n=15)	100% (n=20)
		Exact Sig. (2-sided)		Exact Sig. (1-sided)
Fisher's Exact Test		0.058		0.058

Table 5: Job satisfaction mean at exit 2003 cohort; one sample t-test (Paterson 2000, p79)

Job satisfaction at exit	Test Value = 12.63					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Mean =13.65 (±3.57)	1.277	19	0.217	1.020	-0.652	2.692

Table 6: Cross tabulation and chi-square analysis of attitude to community service at entry and at exit 2004-2005 cohort

		Attitude to CS at exit		Total
		negative	positive	
Attitude to CS work at entry excluding neutral	Negative	9.1% (n=1)	0% (n=0)	9.1% (n=1)
	Positive	0% (n=0)	90.9% (n=10)	90.9% (n=10)
Total		9.1% (n=1)	90.9% (n=10)	100% (n=11)
		Exact Sig. (2-sided)		Exact Sig. (1-sided)
Fisher's Exact Test		0.091		0.091

Table 7: One sample t-test comparing exit levels of job satisfaction of 2004-2005 CSDs with SA Registered dietitians (Paterson 2000, p79)

Mean of job satisfaction at exit 15.76 (± 3.36)	Test Value = 12.63					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Job satisfaction at exit	4.271	20	0.00	3.132	1.602	4.661

Table 8: Chi-square analysis of the attitude of CSDs at entry and the university attended

combined cohorts

		University attended: UKZN vs other university		Total
		KZN	Other	
Attitude at start of year excluding neutral	Negative	5	10	15
	Positive	19	8	27
Total		24	18	42
	Value	df	Asymp. Sig. (2-sided)	
Pearson Chi-Square	5.401	1	0.020	

Table 9: Change of Community nutrition knowledge over time and between 2003 vs 2004-2005 cohort

Within subject effects	Type III Sum of Squares	df	Mean Square	F	Sig.
Time scale start & end of year	2215.326	1	2215.326	32.023	0.000
Time scale start and end of year: 2003 vs 2004-2005 cohort	166.179	1	166.179	2.402	0.130
Between- subjects effects	Type III Sum of Squares	df	Mean Square	F	Sig.
2003 vs 2004-2005 cohort	3935.223	1	3935.223	17.668	<0.001

Table 10: Independent sample t-test job satisfaction at exit by positive attitude to community service at entry and exit 2004-2005 cohort

	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Differenc e	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Job satisfaction at exit and attitude at entry	-2.725	15	0.016	-4.857	1.783	-8.656	-1.059
Job satisfaction at exit and attitude at exit	-3.365	12	0.006	-6.917	2.056	-11.395	-2.438

Table 11: Cross tabulation and independent sample t-test job satisfaction influence of positive self-rated professional development 2004-2005 cohort

	Self rated professional development conflated	n	Mean	Std. Deviation	Std. Error Mean		
Job satisfaction at exit	Poor	7	13.7143	3.9881	1.5074		
	Good	14	16.7857	2.5774	.6888		
	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Job satisfaction at exit	-2.145	19	0.045	-3.071	1.432	-6.068	-0.075

Table 12: Cross tabulation and independent sample t-test influence of professional development on exit levels of job satisfaction combined cohorts

	Self rated professional development conflated			n	Mean	Std. Deviation	Std. Error Mean
Job satisfaction at exit	poor			10	12.7000	4.13790	1.30852
	good			31	15.3871	3.19038	.57301
	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Job satisfaction exit rating	2.153	39	0.038*	2.6871	1.24825	5.21191	0.16228

\* Significant  $p < 0.05$

Table 13: Chi-square analysis of self rated professional development and support of hospital manager

Self-rated professional development conflated	Support of hospital manager conflated		Total
	Negative	Positive	
Poor	3	0	3
Good	5	12	17
Total	8	12	20
	Exact Sig. (2-sided)		Exact Sig. (1-sided)
Fisher's Exact Test	0.049		0.049

Table 14: Chi-square analysis positive influence of rural allowance on self-rated professional development 2004-2005 cohort

Self-rated professional development (single statement) conflated	Rural allowance		
	Yes	No	Total
Poor	3	4	7
Good	12	2	14
Total	15	6	21
Fisher's exact test	Exact Sig. (2-sided)		Exact Sig. (1-sided)
	0.120		0.064

## APPENDIX N: THEMES FROM TRANSCRIPT ANALYSIS

Created: 21/10/2005 - 12:28:27

Modified: 21/10/2005 - 12:28:27

Number of Nodes: 44

- 1 (1) /Placement issues from previous year
- 2 (2) /recommendations
- 3 (3) /what happens in other provinces & pr
- 4 (4) /obstructions and constraints
- 5 (4 1) /obstructions and constraints/lack of preparedness
- 6 (4 1 1) /obstructions and constraints/lack of preparedness/by employer
- 7 (4 1 2) /obstructions and constraints/lack of preparedness/by employee
- 8 (4 2) /obstructions and constraints/cultural barriers
- 9 (4 3) /obstructions and constraints/lack of supervision and support
- 10 (4 4) /obstructions and constraints/work-role overload
- 11 (4 5) /obstructions and constraints/lack of facilities and resources
- 12 (4 6) /obstructions and constraints/breakdown in communication
- 13 (4 7) /obstructions and constraints/no home in team-professional isolation
- 14 (4 8) /obstructions and constraints/lacking understanding of professional
- 15 (4 8 1) /obstructions and constraints/lacking understanding of professional/by permanent dietitians
- 16 (4 8 2) /obstructions and constraints/lacking understanding of professional/by others
- 17 (4 9) /obstructions and constraints/lack of recognition or professional utilisation
- 18 (4 10) /obstructions and constraints/lack understanding dietitians' role
- 19 (4 10 1) /obstructions and constraints/lack understanding dietitians' role/by others
- 20 (4 10 2) /obstructions and constraints/lack understanding dietitians' role/themselves
- 21 (4 11) /obstructions and constraints/bureaucratic problems-poor hospital 2
- 22 (4 12) /obstructions and constraints/lack detailed info on placement
- 23 (4 13) /obstructions and constraints/salary-remuneration
- 24 (4 14) /obstructions and constraints/family and travel issues
- 25 (4 15) /obstructions and constraints/ARV
- 26 (4 16) /obstructions and constraints/extended geographic area of work
- 27 (4 17) /obstructions and constraints/problems in remote areas
- 28 (4 18) /obstructions and constraints/lack of promotion prospects
- 29 (5) /professional development
- 30 (5 1) /professional development/loss of skills
- 31 (5 2) /professional development/New skills acquired
- 32 (5 2 1) /professional development/New skills acquired/formally
- 33 (5 2 2) /professional development/New skills acquired/informally
- 34 (5 3) /professional development/self-rated professional development
- 35 (5 4) /professional development/professional support
- 36 (5 5) /professional development/recommendations
- 37 (5 6) /professional development/self determination
- 38 (5 7) /professional development/scope of practice
- 39 (5 8) /professional development/could have given better service
- 40 (6) /route to professional development
- 41 (6 2) /route to professional development/Lines of communication
- 42 (6 3) /route to professional development/other support systems
- 43 (6 6) /route to professional development/other benefits
- 44 (6 7) /route to professional development/clarity around the dietitian's role

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## Running before we walk: How can we maximise the benefits from community service dietitians in KwaZulu-Natal, South Africa?

Marie Paterson<sup>a,\*</sup>, J. Maryann Green<sup>b</sup>, Eleni M. Maunder<sup>c</sup>

<sup>a</sup> Discipline of Dietetics and Human Nutrition, University of KwaZulu-Natal, Private Bag X01, Scottsville 3209, South Africa

<sup>b</sup> Discipline of Community Resources, University of KwaZulu-Natal, Private Bag X01, Scottsville 3209, South Africa

<sup>c</sup> School of Agricultural Science and Agribusiness, University of KwaZulu-Natal, Private Bag X01, Scottsville 3209, South Africa

### Abstract

**Introduction and aim:** The Department of Health in South Africa, instituted compulsory community service (CS) as one strategy to overcome the chronic shortage of health professionals in underserved and rural areas. A number of articles have listed the reasons for the lack of willingness of health professionals to practice in rural areas. Amongst others they listed the lack of career opportunities, the recruitment of students into health professions from incongruous backgrounds, inappropriate training, bureaucratic problems, poorly equipped hospitals and social isolation. The aim of this study was to examine and explore the factors affecting the professional development of dietitians during CS.

**Methods:** Thirteen of the 15 community service dietitians (CSDs) currently (2005) undertaking CS in KwaZulu-Natal participated in focus group discussions. Each member of the group was also required to answer a short written questionnaire before the discussions to establish whether there was congruence between the written answers and the verbal discussions. The large group was divided into two sub groups and each session lasted one and a half hours. A list of topics was discussed by each group. The sessions were taped and transcribed and further analysed using the qualitative analysis programme, "QSR NVivo".

**Results:** Analysis of the transcripts revealed a number of thematic areas and included the evaluation of the placement process, obstructions and constraints, the developmental progress of the CSD and means of enhancing professional development. The discussion on placement process was not contentious, with only three CSDs having reservations about the process. Many obstructions and constraints to service delivery and professional development were revealed and included the lack of supervision and support, the lack of preparedness of the institutions receiving CSDs and the lack of clarity of the CSDs' perception of community service, unhappiness of some CSDs being placed a long way from home, work and role overload, not being part of a team, lack of understanding the CSDs role and the under utilisation of their services. Developmental progress of the CSDs was enhanced by some positive aspects which included the social interactions experienced in the community setting, learning new skills and support that they received from other community service professionals.

**Discussions and recommendations:** Comparison of the written answers with verbal discussions showed the same results. A number of issues raised in this study have been recorded by other authors. It is recommended that the issue of supervision and support be addressed so that the professional development of CSDs is enhanced. The lack of preparedness of the receiving institutions is a problem that is relatively easy to address and should be made a priority. The training institutions also need to be more proactive in preparing dietetic students for CS.

\* Corresponding author. Tel.: +27 33 2605431; fax: +27 33 2606270.

E-mail address: [paterson@ukzn.ac.za](mailto:paterson@ukzn.ac.za) (M. Paterson).

**Conclusions:** Compulsory community service as a method of addressing the problems of underserved population has merit. To maximise the benefits the DOH would do well to heed the recommendations by ensuring that there are structures in place to provide adequate resources for and support and supervision of CSDs.

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**Keywords:** Dietetics; Community service; Professional development; Rural health policy; Health care reform

## 1. Introduction

### 1.1. Aims and objectives of community service

The Department of Health (DOH) in South Africa introduced a one year compulsory community service (CS) for dietitians in South Africa in 2003. At the time of this project, the service was in its third year. The principal objective of CS was to overcome both service delivery problems in under-served areas including rural areas and to attract and retain professionals in these areas [1]. Further objectives were listed in a letter addressed to medical interns about to embark on community service in 2000. These objectives included the improvement of the health status of all South Africans and in the process it was suggested that health professionals would be provided a chance to improve their skills, knowledge, critical thinking and behaviour, thereby producing competent professionals. Newly qualified dietitians are guaranteed jobs and opportunities to gain valuable experience during CS. The aim of this study was to investigate the effect of CS on the professional development of dietitians and to explore constraints and obstructions experienced by community service dietitians (CSDs) during CS.

### 1.2. Problems previously encountered in rural placements—South Africa

Specific reasons for rural health services experiencing problems with recruiting and retaining suitable staff<sup>1</sup> in rural areas have been emphasised [2,3]. These reasons were, amongst others, the lack of a rural career structure, recruitment of undergraduate students into health professions from incongruous backgrounds,

inappropriate undergraduate training, and academic isolation, problematic bureaucracy, work overload, poor working conditions and transport problems especially with transferring patients to regional hospitals. Similar problems during compulsory CS, namely inappropriate undergraduate training, lack of workplace support mechanisms and poor management of human resources have also been reported in the medical profession [4]. Reid also recommended that there be at least one senior doctor for medical CS placement for the purposes of adequate supervision. De Vries and Marincowitz [5] listed the additional problems for the qualified female doctor of the poor road networks, obsolete equipment, inaccessible laboratory facilities and social isolation.

The government has opted to use compulsory CS as one strategy to overcome the chronic staff shortages in rural areas but it would also be prudent to try to address the listed constraints, to gain the full benefits of compulsory CS. Most of these listed problems predated the introduction of compulsory CS for dietitians in 2003.

### 1.3. A model for professional development

The DOH has stated that professional development is one of the goals of CS. In order to assess this, one of the models of professional development is presented in this article and was used in this project as a self-measure for CSDs. Dreyfus [6] proposed the Dreyfus and Dreyfus five-stage model (Box 1) [7] in the development of the professional from that of a “novice” through the levels of an “advanced beginner”, proceeding to being “competent”, developing to being “proficient” to finally becoming an “expert”.

Direct support and supervision by a qualified dietitian would enhance the chances of professional development because practice on its own, without input to identify and improve weaknesses would result in failure to perform maximally [8]. Direct supervision would

<sup>1</sup> These include health professionals such as clinical psychologists, dentists, dietitians, doctors, environmental health officers, occupational therapists, pharmacists, physiotherapists, radiographers, and speech and hearing therapists.

**Box 1: Details of the Dreyfus and Dreyfus: Novice to expert five-stage model [6]**

*Novice*—Aware of elemental rules and performance is adjudged according to adherence to these rules.  
*Advanced beginner*—Marginally acceptable level of coping through real life situations and can incorporate more sophisticated rules.  
*Competent*—Has learned to make hierarchical decisions and is aware of situational elements but would still waste time on irrelevant options.  
*Proficient*—Has an in-built (intuitive) ability to recognise situations and apply solutions—not dependent on elemental rules (not guessing).  
*Expert*—Can do the job based on mature practiced understanding and has built up a mental collection of distinguishable situations and solutions.

opment of dietitians and to explore constraints and obstructions experienced by community service dietitians during CS.

**2. Methods**

*2.1. Focus groups*

To ascertain the effect of CS on the professional development of CSDs and the constraints and obstructions encountered during CS in KwaZulu-Natal (KZN) in 2005, 13 of the 15<sup>2</sup> CSDs from KZN participated in 2 focus group sessions. Verbal permission to conduct the study was obtained from the subjects. Although quantitative data have been collected from this group previously, additional and detailed information of a qualitative nature was sought to pinpoint problems and highlight successes. Focus group methodology has the advantage of synergist interactions [10]. This form of data collection is suitable for a homogenous group of people such as the CSDs where false and excessive views are removed by the dynamics of the group. The CSDs were divided into two groups of nine and four and the discussion facilitated by the primary author. The neutrality of the facilitator, who was in charge of the postgraduate intern training at one of the institutions which trained some of the CSDs in this study; and who was not employed by the Department of Health, ensured an open and frank discussion. A more equitable division of the group could not be obtained because of circumstances beyond the researchers' control. Both sessions lasted about one and a half hours. Notes were taken by a third party and the discussion was recorded on tape. The tape was transcribed and transferred into the computer programme "QSR NVivo" for qualitative analysis. Appendix A contains the topics that were discussed during the interview. Participants were required to answer one of the questions (How happy were you about the placement process for this year?) in writing beforehand to determine if there were radical differences of opinion between verbal and written responses. Ethical clearance from University of KwaZulu-Natal

also be in line with the recommendations made by Reid [4]. Not only is practice important in progressing through the Dreyfus and Dreyfus levels but for an individual to develop beyond the stage of the advanced beginner they need to become emotionally involved in their tasks; where success or failure become important [8]. Dreyfus [6] states that it is natural for an individual to experience a range of emotions from fear and disappointment to elation and joy while becoming competent (level 3). Benner [9] who based her work on the Dreyfus and Dreyfus model found that nurses were more likely to suffer from burn out if they were emotionally detached from their work. It follows therefore that dietitians too would also need to become emotionally involved with their work so that they too could develop professionally to the level of competence.

*1.4. Aim of study*

The aim of this study was to investigate the effect of CS on service delivery and the professional devel-

<sup>2</sup> One CSD was appointed in a difficult placement and was interviewed separately at a later stage. The data was excluded to reduce bias because of these exceptional circumstances. For unknown reasons the other CSD failed to attend the discussions.

and permission from the Director General of KZN DOH were obtained to conduct this research with KZN CSDs.

### 3. Results

The following themes were identified from the transcripts for analysis: the placement process, obstructions and constraints, the progress of the professional development of the CSD and means of enhancing professional development.

#### 3.1. Theme: placement process

The majority of the CSDs ( $n=10$ ) were neutral to very happy about the placement process, with three expressing dissatisfaction with the process. Dissatisfaction by these three arose around the lack of detailed information regarding the type of placement being advertised especially for those CSDs applying from outside the province. Another problem raised was that there are three institutions training dietitians in the Western Cape, but only five positions were offered in that province for 2005. The CSDs from the Western Cape felt it was unfair that they should be placed so far from their homes.

#### 3.2. Theme: obstructions and constraints

The largest theme was obstructions and constraints and is presented in Table 1.

Text boxes giving CSD's actual quotes have been included to highlight the themes. Coded initials have been used to protect sources.

##### 3.2.1. Structural and facility problems

This set of problems relate to the facility in which the CSD has been placed. These problems are also of a structural nature which could be ascribed to organisation of the CS programme.

**3.2.1.1. Lack of supervision and support.** There is a distinct lack of direct supervision of the CSDs by qualified dietitians. Not one of the 15 CSDs in KZN was placed under the direct supervision of a registered dietitian in 2005. In addition to this, a number of these dietitians are not even supervised by the managers in

Table 1

Obstruction and constraints facing community service dietitians

##### Structural and facility problems

- Lack of supervision and support
- Lack of preparedness of the receiving institution and by the CSDs themselves
- Lack of basic facilities and resources
- Bureaucratic problems and poor hospital administration
- Breakdown in communication

##### Problems with professional role

- Lack of understanding of CSDs' role by others
- Under-utilisation of dietetic services and lack of recognition
- Not being part of a team

##### Nature of the job

- Work/role overload and extended geographic work area
- Anti retroviral (ARV) programme overload
- Cultural barriers
- Problems of remote areas
- Lack of promotional prospects and remuneration
- Family and travel issues

their own institution. A number of CSDs stated that their managers have no idea about what they do or even whether they are at work or not. The KZN Nutrition Directorate implemented a mentorship programme but only one CSD mentioned this programme in a positive light. Some did not know who their mentors were and many felt that there was a lack of understanding by the permanent/mentor dietitians about the specific problems the CSDs face when working in a rural area, because the permanent dietitians had not experienced CS themselves.

#### Comment by BE

At the District office, the District Manager is my supervisor but I've seen him once this year so I actually ... I report to the Programme's manager. She signs all my forms that need to be signed and I suppose my immediate supervisor is the nutritionist but when she's leaving they don't actually know. I organize with the hospitals with the Medical manager, but at the District office there's no one.

#### Comment by DN

He wouldn't have a clue about whether I was there or not.

**Comment by MP**

Well I haven't gotten in touch with my mentor, actually I don't know who she is, I haven't been able to find out who she is.

219 3.2.1.2. *Lack of preparedness.* There were two com-  
220 ponents of this aspect. One was on the part of the  
221 receiving institution<sup>3</sup> hosting the CSD and the other  
222 was on the part of the CSDs themselves.

223 (1) *Lack of preparedness by receiving institution:*  
224 CSDs were concerned about the lack of prepared-  
225 ness for their arrival at their receiving institutions.  
226 Some institutions were not even expecting them  
227 and others made no effort to receive them or pre-  
228 pare them for the type of work that they were to  
229 be performing. It seemed that very little had been  
230 done by way of orientation of the CSDs by their  
231 institutions and that the institutions were loath to  
232 invest time in someone who would be leaving at  
233 the end of the year.

234 (2) *Lack of preparedness by the community service*  
235 *dietitian:* There appears to be some misunderstand-  
236 ing on the part of the CSDs themselves as to what  
237 CS is.<sup>4</sup> A number of them showed greater concern  
238 about losing their clinical skills rather than being  
239 pleased about the gains they were making in com-  
240 munity nutrition and administration skills. Others  
241 have no concept that CS is about delivering a ser-  
242 vice in a rural or under-served area.

**Comment made by BD**

And at the beginning of the year, the per-  
manent staff .... It must be frustrating for

them getting a new bunch of people every  
year and they don't want to sit and explain  
to everybody and they not going to be that  
enthusiastic now they've got new people  
who don't know what they doing but ...  
ag but I think they could have helped a lot  
more, and people who are involved like  
I was saying ... ah kind of involved with  
community, the paed's wards matrons ....  
I only really met them after a couple of  
months. They could have come at the  
beginning of the year and said, "Listen this  
is what we need from you, these stats."  
But they didn't. They kinda just waited for  
us to ... (Interviewer: to make contact with  
them). It think we need a little more orien-  
tation about that kind of thing would make  
our jobs a lot easier.

**Comment by KF**

I just want to add a short ... one thing  
I've realized is, that KZN's one of the only  
provinces that really push this rural issue.  
If you speak to com serve 's from other  
universities, and I realize most of you are  
from Maritzburg so maybe you don't have  
friends in other positions or maybe you  
do ... but obviously we're the only two  
from Cape Town, so all the people that  
were from our university are in built up  
cities. They were in Johannesburg, Pre-  
toria, even like Kimberley. I mean it's not  
a big place but it's a city. None of them,  
we're the only ones, and I'm not even  
that rural. I'm 40 km out of Durban. I'm  
really lucky. But it's only KZN that pushes  
this rural issue that you must work fully  
out from home. There's no water. The  
other provinces don't do it, so why? And  
I know there's a need for it but why? It's  
not fair you know. You rather then apply  
in another province and know that I'm at  
least in civilization.

<sup>3</sup> Receiving institution: community service facility.

<sup>4</sup> Community service is the delivering of services to previously under-served communities which would probably be a rural institution. The focus would be on primary health and promotive and preventative care. In the case of the dietitian this would include the key performance areas of disease specific nutrition support, promotion of breastfeeding, food service management, nutrition education, household food security, micronutrient intervention, growth promotion, the anti-retroviral programme and the management of severe acute malnutrition.

3.2.1.3. *Lack of basic facilities and resources.* A large area of discontent was the lack of basic facilities and resources. CSDs stated that they did not even have basic facilities such as a desk, an office, stationery or a telephone. This had a subsequent effect in that they missed out on training opportunities because they did not receive faxes or messages on time. Others did not have the basic "tools of the trade" such as scales and stadiometers and access to enteral and formulae feeds. Others were expected to service a large geographic area but had difficulty accessing transport to visit the outlying hospitals; they were not allowed to drive state vehicles because they were considered to be contract workers. Their allocated drivers would often be late, the distances to be covered great and they found that it was virtually impossible to provide a service to all the hospitals within their jurisdiction.

#### Comment by BE

Um, no. Because of budget constraints, I didn't have a scale for like .... I still don't have a scale. I didn't have a height stick um .... It's just basic equipment, there's no budget. We couldn't get feeds um I was one person having to set up a department and not knowing anything about nothing and so it was a bit hard .... I think now it's getting better. But there is still a problem with staff not being able to let go of things ... so it makes it more difficult for you to do your job because sometimes you order something and nothing's happened. You write letters to management to tell them nothing .... They're just wasting the feeds, they basically just throwing it away and there's nothing you can do about it, 'cause management is not doing anything about it. So what do you do? So you just ... lose your mind.

3.2.1.4. *Bureaucratic problems and poor hospital administration.* CSDs mentioned they had problems with their salaries and medical aid payments. Another problem area was the stores' managers who did not place orders timeously or had too much stock on hand

that had expired and had to be discarded. Complaints to the hospital management did not result in any remedial action being taken. Some CSDs learned that they had to get actively involved themselves if they wanted orders placed or tasks completed.

#### Comment by JN

I just think one of the most obstructionist networks in Government is people just don't do what you ask them to do. It's just that I've just learnt that ... and I've learnt not to get frustrated because no matter how many times you say something, no matter how many times you repeat something, physically if you're not there to stand and order the feed yourself and phone and say "Is it coming?" it doesn't get done. If you don't go somewhere and do it yourself, things just don't get done. I don't know that's just how life works. I've never worked before, it's my first working experience ever, but it's just very frustrating. (Interviewer: and that seems to me like I see lots of nods ... yes?)

3.2.1.5. *Breakdown in communication.* CSDs found that due to poor communication structures they did not always receive the appropriate instructions. The implementation of the management of severe acute malnutrition was one area that CSDs should have been involved in and some missed the opportunity of attending this workshop and were then informed about it afterwards. They were nevertheless instructed to implement the system even though their knowledge of the process was passed on to them via a third party. Another area that was not well communicated was the completion of statistical records which still appears to be problematic. In addition, CSDs are expected to adopt a multi-sectoral approach in some aspects of their work and to collaborate with departments outside the DOH. One CSD experienced a real problem when approaching another department and talked about the "stonewalling" effect when she tried to elicit assistance with clinic gardens.

**Comment by BL**

Our district is very badly run. Our Projects Manager—you can never get hold of her and when you do, she's not helpful at all. (Interviewer: yes) We just battle along to try and get anything done ... so everything takes extra long because your support network's then cut. Like for example, I'm trying to organize a clinic garden which I've been trying to do since January and our agricultural department is across the road from us, is not interested in helping (Interviewer: yes) They just don't understand and I don't know its because I am English, I can't speak the language but they just don't seem to get what I'm asking and when they do come out and help me, they give me the wrong things and when I do go to the HOD, he's also not very helpful so I find this whole stone-walling effect the whole time.

vices available previously, the nursing and other staff members had learned to cope on their own. CSDs had to employ extra effort to get staff members to utilise the dietetic services. They expressed frustration at the lack of appreciation of the work they had undertaken in very trying circumstances. They also felt no-one cared whether they worked to the best of their abilities and that there was a lack of recognition or reward for a job well done.

**Comment by MP**

Um ... At our hospital I think we they have a fairly good understanding of what a dietitian does, because we have a dietitian for 3 months, prior to me being there. But ah ..., the biggest problem was for me to get the doctors to actually call for me. They didn't find a need for me. They knew what I was there to do but they didn't call for me. The nurses didn't call for me either so ah ... my biggest problem getting them to send me referrals and you know ... (Interviewer: and their knowledge of what you did you said was quite good?). Yes they knew that if they had a malnourished patient they needed a dietitian to be there. They knew for, that if they were giving nasogastric feeds, they needed me there to calculate feeds. They knew that they needed me there for burns patients as well. And um ... well if they had overweight outpatient, the doctor just won't send but she would tell the patient, "Well, you need a low fat diet, you need um ..." if the patient was diabetic, "You must now stay away from sugar," you know but she would never send the patient to me.

*3.2.2. Problems with professional role*

This set of results reflected the problems associated with the profession of dietetics within the province of KZN. There seemed to be a lack of understanding by some regarding the role CSDs should play in CS and where they belonged in the hierarchy within the facility in which they were placed.

*3.2.2.1. Lack of understanding of CSDs' role by others.*

The role of the dietitian seemed to be appreciated by the management in most hospitals but the CSDs had to explain their role to staff working in the community health centres (CHCs). Some of the CSDs complained that other staff members such as the nurses and especially the CS doctors were not aware of the role of the CSD. Some CSDs were proactive and sent out questionnaires and other documentation explaining their role.

*3.2.2.2. Under-utilisation of services and lack of recognition.*

Another area that CSDs experienced problems was to get staff members to use their services. It appeared that because there had been no dietetic ser-

*3.2.2.3. Not being part of a team.* One aspect that was raised a number of times was the CSDs felt that they lacked being in a team. They mentioned "rehabilitation" as an area that the other therapists took part in and were perplexed that they were excluded from these activities. There appeared not to be another health team in which they could play an active role.

**Comment by DN**

I just want to ask why don't we fall under that whole rehab .... I mean ... I mean like what's the difference between an audiologist, speech therapist, occupational therapist and physio? I mean they're all together and then there's the Dietitian? I don't understand that. (Interviewer: I think that that's a good question and that maybe its something that we'd want to address.) Because they're always having these rehab meetings and they'd go off on Fridays and go and have rehab meetings. I think well, I'm also part of the hospital and I'm also part of the team but I'm not ....

3.2.3. *Nature of the job*

Most of the CSDs were placed in rural areas and there was some of the discussion around the problems of working in rural areas. These discussions were grouped together under the title of the "nature of the job".

3.2.3.1. *Work/role overload and extended geographic work area.* CSDs commented about work and role overload. They felt there was much that they had to do and often too much work for one person to complete satisfactorily. Those CSDs working in the CHCs, found the expectation that they should be covering a large area and travelling far distances on very poor roads, was unrealistic and ineffective. It was also noted that those CSDs who were placed in non-hospital venues wanted to be in the hospital environment where they appeared to be more comfortable.

**Comment by MP**

No I haven't. I've ... I've ... in fact it's exactly what BH said that Um ... I have to be everywhere at the same time and I find myself doing, not a full assessment of the patient you know, just looking for what the patient needs and that's it and writing out the pink sheets you need to go over that.

3.2.3.2. *ARV programme overload.* Virtually all the CSDs noted that the only role seen for them by others was in the ARV programme. Some felt there was too much work to do in this programme and a need for additional assistance here so they could attend to other duties as well.

**Comment by MP**

At the moment I'm expected to do work in the ARV clinic, together with everything else. The biggest problem I have there, is that we don't have enough help. Um ..., we have, like currently I think, over 800 patients in the ARV program and there are patients that haven't started on ARVs. The biggest problem there, is that I don't have someone to help me to do the initial screening, so it ... it, there's not enough people working there to help us.

3.2.3.3. *Problems of working in remote areas.* A few mentioned the problems associated with working in rural areas such as the driver getting lost for three hours, being stuck in the mud and the hospital being without water for a number of days. One CSD stated that it was all very well placing CSDs in remote areas but that by the time they had organised supplies and other facilities required to deliver a reasonable service they had come to the end of their contract and it was time for them to leave.

3.2.3.4. *Cultural barriers.* Another constraint raised by CSDs was that of their lack of understanding of the culture in which they were working which also included problems of communication. The CSDs were all females and either White or of Indian extraction whose home language was English with one CSD who spoke Afrikaans. Some CSDs mentioned difficulties in communicating with patients who were mostly Zulu-speaking Africans. These difficulties included language and misunderstanding the cultural context, protocol and hierarchies that existed within the African culture. Some CSDs had access to translators and others said they had been learning to speak Zulu.

3.2.3.5. *Lack of promotional prospects and remuneration.* A few CSDs were concerned about their salaries and mentioned if they knew that they would be employed on a higher level they would be willing to stay and work after their CS year. Others mentioned that knowing there were no additional benefits in remaining in a position in their rural placement they would rather go elsewhere after completing CS.

3.2.3.6. *Family and travel issues.* Some CSDs were unhappy about being separated from family and friends and being far from home. They claimed that this affected their motivation and made them feel isolated and abandoned. Most of these CSDs were from other provinces and had been forced to apply outside their provinces because of the lack of positions for them locally. Some CSDs also talked of social isolation and feelings of having been ‘dumped’ in a rural area.

3.3. *Theme: progress of professional development of the CSD*

This theme was subdivided into further areas of: self-rated development, skills gained and lost, scope of practice, quality of service provided, self determination and creation of permanent dietitian posts.

3.3.1. *Self-rated development*

CSDs were asked to rate their own professional development. Nine of the thirteen rated themselves as competent on the Dreyfus and Dreyfus scale, one rated herself between the advanced beginner and competent and one each rated themselves as an advanced beginner

and as a novice (Fig. 1). The loss of skills was one area that a number of CSDs saw as a constraint to professional development.

**Comment by BL—competent**  
Have learnt how to cope and have developed a lot throughout the year and learnt how to make decisions.

**Comment by BE—advanced beginner**  
I am just starting off and learning as I go along. Not yet able to make very wise decisions Experience level is not well developed yet.

3.3.2. *Skills gained and lost*

The area of new skills gained that was mentioned most often was that of the ARV programme. Other new skills learned were Vitamin A programme, severe acute malnutrition management, kangaroo mother care and a number of administrative and management skills. The area of concern regarding skills loss was the lack of practice in clinical nutrition where CSDs saw a lot less of the more complicated disease conditions because the seriously or critically ill patients were sent to the larger hospitals and therefore placed outside the range of the CSDs’ practice.

3.3.3. *Scope of practice*

CSDs were involved in the paediatric wards dealing with malnourished children. They were used extensively in the ARV programme. They were also involved

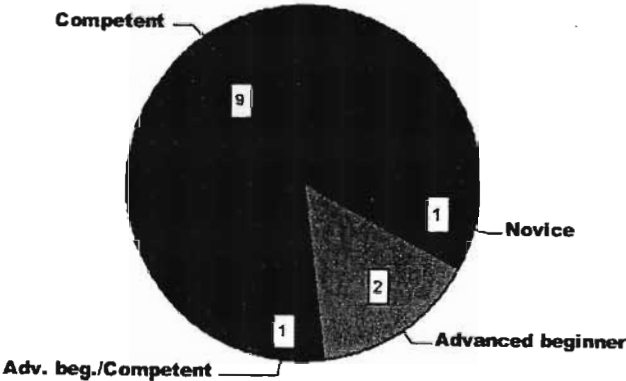


Fig. 1. Actual numbers of community service dietitians who rated their development in the Dreyfus and Dreyfus model [6].

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in health education, food service management, poverty alleviation and administrative tasks such as ordering and distribution of enteral and formulae feeds. This shows that the CSDs have been exposed to a fairly wide range of tasks and experiences.

#### 3.3.4. *Quality of service provided*

When asked whether they had given a service to the best of their ability most answered that if they had better support and if the hospital were better managed, they would have been able to achieve a great deal more. The problem of distances was also listed as an obstacle to giving better service. Another CSD was concerned about the lack of input by the district manager and how it impacted on her work.

#### **Comment by KF**

I wouldn't say it was optimal, I'd say it was good; I've been able to give a good service. I've seen a lot of patients. At least I know I make a difference in people's lives, but it's not what it should be, not 100%, and again it's not because I'm lazy or I don't want to do it, it's just the circumstances won't allow it.

#### 3.4. *Theme: means of enhancing professional development*

##### 3.4.1. *Self determination*

CSDs found they had to prioritise their services to achieve optimum efficiency and a number of them made comments regarding these decisions. Some said that they focussed on children. One CSD commented that she had learned to cope and make decisions. Some had educated other professionals on the role of dietitians. One learned to make adjustments to her counselling skills and to simplify messages to make them understandable to all. Another CSD talked about learning to be practical and to translate theory into practice.

##### 3.4.2. *Coping mechanisms and collaboration with other health professionals*

Many of the CSDs mentioned the formal and informal support systems that they had utilised. They

mentioned the extensive reliance on the KZN Nutrition Directorate who had given them support and helped them with some of the problems. CSDs also used other health professionals. Physiotherapists, occupational therapists, social workers, ward sisters and hospital management were mentioned as sources of support and information. One CSD mentioned a procedure manual that she found particularly useful. This had been compiled by other health professionals in the previous year and contained all relevant administrative information.

##### 3.4.3. *Clarity of the dietitians' role*

CSDs appreciated working in hospitals where there was an understanding of the role of the dietitian. Four out of the five pioneer<sup>5</sup> placements were in CHCs. These pioneer CSDs had to explain and justify their position in the CHCs and intimated that they would rather have worked in a hospital where they were not expected to travel so extensively and where they would have better access to resources. One CSD said that there should more clarity in the application information regarding the role of CSDs in the CHC. It would have been useful for the DOH to list the specific duties of CSDs in CHCs compared to those tasks undertaken in hospitals.

#### **Comment by BS**

I mean I feel like I've actually wasted my year as a dietitian when I could have been in a hospital such as E that actually needs another dietitian where in the community health centre ... I mean it's great to learn about a new culture which I'm happy about. I've learnt their ... why they do these certain things so I understand them when they do go to a hospital and I am with them at E once or twice a week now but maybe more like once a week, but I'm getting that interaction on the clinical side ....

<sup>5</sup> Pioneer placements indicated new posts where neither CSDs nor dietitians had previously been employed.

3.4.4. Other unpredicted benefits

One advantage mentioned was that where CSDs were placed in remote areas they were not able to return home every weekend as in the case where a number of CSDs either lived at home or were able to go home every weekend. The CSDs in remote areas built up friendships and attachments to other community health professionals and were appreciative of this opportunity.

**Comment by BD**

I think more for us it's been more of a social aspect of where we're staying. We didn't expect to see as much. It's not work related but it does impact on your work because if your not happy where you're staying you're not going to be working as affectively, AG and I've seen a lot and we stay in a beautiful area. (Interviewer: Yes ... so that kind of social aspect has been and interaction with other individuals?) Ya I've formed a lot of close relationships at my hospital because we all live together and we're all working together.

3.4.5. Creating permanent dietitian posts in rural areas

It was recommended that there is a need for permanent posts for dietitians in hospitals that have been allocated CSDs. Some said there was far too much work for a single individual and that the appointment of a permanent dietitian would alleviate the problems.

**Comment by KF**

I just want to say I really think that, head office, or I don't know who's responsible, must push the hospitals to open positions for permanent dietitians. At the moment I'm sure most hospitals rely on CSDs. They're like well "We don't pay their salaries, we've got their service, at least we got someone every year to do CSD" ... but you can't, one dietician can not manage the whole hospital, plus ARVs plus

2 clinics in the area. It's impossible that they rely, you know, they don't open the positions because then they don't have to pay the salaries, and someone, don't know who's responsible, must push them to open a permanent dietitian and a CSD in most of the hospitals, especially these people some of them do 4 or 5 clinics and 3 hospitals or whatever, there should be more than one person doing that.

3.5. Summary of findings

A model portraying the effect of the obstructions and constraints on the development of the CSDs based on the responses in the focus group discussion, is shown in Fig. 2. The full potential of services that could be given by CSDs is restricted because of the "structural and facility problems" such as a lack of supervision and support; "problems with professional role" such as a lack of understanding of the CSD's role and "Nature of the Job" such as work or role overload. Some of these obstructions and constraints are difficult to resolve but there are a number of them that could be addressed by improving management and communication within the health system.

4. Discussion and recommendations

The written answers to questions administered before the discussions, agreed with the findings of the topic in the discussions. Many of the issues raised by the CSDs are problems that have already been raised by other professionals working in rural areas. CS provides work and experience to newly qualified dietitians and brings nutrition expertise and knowledge into the rural and under-served areas. The focus group discussions revealed important aspects of CS which were similar to the findings in the literature. The most important was the lack of supervision and support [4]. In its haste to implement CS, the DOH has failed to make provision for the direct supervision of dietitians by members of their own profession, especially in the remote rural placements. Many CSDs have had to cope on their own, often even without the supervision of a non-dietitian.

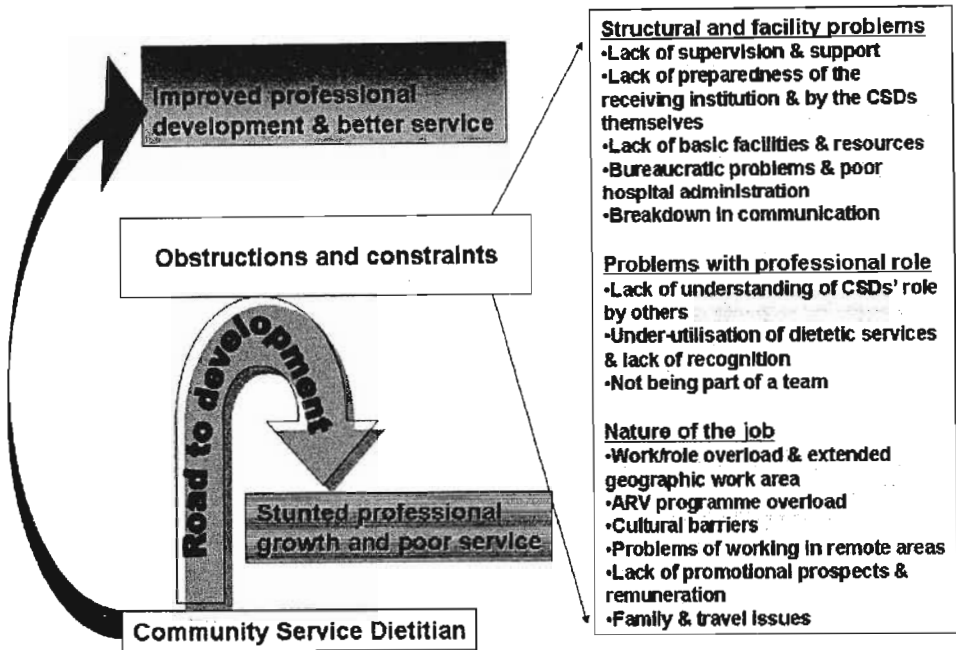


Fig. 2. Model depicting the obstructions and constraints to optimal development and service delivery during community service.

They have gained valuable experience during their CS and have learned to become resourceful and proactive.

Very little has been published on CSDs, but Professor Gounden [12], maintains that this problem could be overcome by gearing the curriculum to allow newly qualified physiotherapists to work without supervision in remote locations. No suggestions of how this could be achieved were put forward. In view of van der Wiel et al.'s [8] observation, a lack of supervision would be detrimental to the development of the professional and logically to any profession where the first few years of practice sets the foundation for future actions. Also, bad habits, poor attitudes and a lack of work ethic may be permanently instilled and become difficult to correct without a role model. The Dreyfus and Dreyfus five-stage model describes the process of professional development [6] and Benner expects a nurse to reach the competent stage after three years of practical experience [9]. Most of the CSDs rated themselves as competent after only one year. This could be interpreted as CSDs overrating themselves because they did not have appropriate role models to compare themselves against and this further emphasizes the point that CSDs should only be placed in institutions which have

full time dietitians, also referred to below. Supervision and support were essential for doctors undertaking CS and this would be true for CSDs at the level they were operating [8,13]. By ignoring this aspect the DOH is "running before it walks" and by placing CSDs in a "sink or swim" environment, CSDs are reluctant to make careers in the rural areas.

It appeared during the focus group discussion that for dietitians, the placement process was perceived generally to be satisfactory. This contradicted the findings in the literature where the process used to allocate CS professionals to their community placements was viewed as being contentious [11]. Other problems mentioned by the CSDs and also encountered by the medical profession were transport problems, poorly managed districts and hospitals, cultural and language barriers, lack of resources and isolation [3–5,14]. This group was particularly disadvantaged in that none were from the same cultural and language group as their patients and would have had to make a greater effort to communicate effectively with them. Specific to the CSDs was the lack of understanding of their role in CS, not being part of a team, problems with transport and being restricted, in the opinion of others, to only having a role in the ARV programme and nowhere

else. The anomaly has arisen where CSDs felt that they were overworked in some areas because their full professional expertise and potential was ignored by other health professionals.

It is important for the DOH to identify those problems that can be addressed. These would be the problems of support and supervision, the lack of preparedness within facilities and the lack of basic amenities and resources for CSDs to reach their full potential. Those districts and/or institutions, which are not willing to make an effort to host CS professionals, should not be allocated CS professionals until they have made provision for them in terms of basic facilities, supervision and support, access to suitable equipment and budgetary allowances.

Within the year 2002, the DOH managed to create and place 994 allied health professionals [1]. The creation of new posts by government are known to be difficult to achieve in a short period of time but the commitment of the DOH to implement CS demonstrated that where there was a political will, posts could be created within a year. We would therefore argue that if the DOH wants to fulfil its aspiration of attracting and retaining health professionals in rural areas, that a system of creating double posts, meaning one CS post and one permanent post, at CS placement institutions be followed. The permanent post should also be at a higher post level in order to retain the services of the now experienced CSD. In this way one could address the objective of retaining staff who are interested in continuing in a rural placement and simultaneously provide suitable supervision for the new CSDs. Appropriate supervision of the CSD would be in accordance with the recommendation for the medical profession that there be at least one qualified doctor to oversee the work of two CS doctors [4]. Pioneer placements should be staffed by experienced dietitians in cases where double posts have not been created.

It is also unrealistic to expect an inexperienced junior member of staff to tackle the problem of communication in the multi-sectoral approach as mentioned in the "breakdown of communication". Multi-sectoral negotiations should be properly organised by more senior members of the Nutrition Directorate, higher up in the structure of the DOH, for CSDs to be able to utilise these resources. It is important that the receiving institutions be ready to receive CS professionals because it is very unsettling for CS workers to have to

make their own way without the support of management.

The training institutions also need to be more proactive in preparing the dietetic student for CS. There seemed to be a misunderstanding on the part of the CSDs about the purpose of CS which needs to be addressed before they qualify as dietitians. A recommendation would be that during their undergraduate training, the students be placed with CSDs or dietitians working in rural areas so that dietitians-in-training can gain insight into the realities of CS. Discussion should be held with dietetic students about how they perceive CS and there should be a component on the management of CHC within the management modules in undergraduate studies. Current CSDs should also be invited to address dietetic students about their experiences in CS.

The issue of continuity between CS years was not raised in the discussion but logically would be an important constraint. There is no hand-over period between incoming and out-going CSDs. A suggestion here is that the out-going CSDs leave a report which contains their goals, what they have achieved and with recommendations and advice for the incoming CSD. In this manner out-going CSDs would also have an opportunity to reflect on their CS year which would enhance their opportunity for professional development and would contribute to continuity of service and assist the incoming CSD. A simple procedure manual with basic information on how to order various items, how to complete leave forms and who to contact in case of problems should be made available to all CSDs by the receiving institution, at the beginning of their CS year.

It was interesting to note that CSDs did feel strongly that their efforts should be recognised. This implies they had developed an emotional attachment to their work which could be interpreted that the majority who rated themselves as competent were in accordance with the Dreyfus and Dreyfus professional development scale [6]. It is also important to recognise the efforts of CSDs to perform optimally. Some form of incentive should be offered to those CSDs who have shown extraordinary dedication in their community work. Furthermore it would be beneficial in terms of human resources to encourage the CSDs to remain in the community after CS by offering them permanent posts at a higher level with better salaries and better career structures in rural areas.

Recommendations for further research would include obtaining the view of other health professionals such as doctors and nurses as well as of hospital managers and mentors of CSDs.

## 5. Conclusions

The DOH has implemented the system of compulsory CS as a method of addressing the problems of under-served areas and community service. This process is irreversible but the system does have advantages, provided it is properly managed. Many of the factors affecting service delivery and the professional development of dietitians were identified during the focus group discussions. To avoid the problem of trying to run before we walk, the DOH would do well to heed the recommendations by ensuring that the district where the CSD is placed is well managed and functioning properly. Adequate preparation, supervision and support for CSDs would conserve knowledge and experience, retain expertise and maximise the benefits of CS.

## Appendix A. List of topics used in focus group discussions

How happy were you about the placement process for this year? Rate on a scale of 1-5. With 1 = very unhappy and 5 = very happy.

How accurate was the understanding of people's view of the role of the dietitian at your facility? Give reasons for your answer.

What are the formal lines of communication in the hierarchy at your facility? (i.e. who do you report to and who reports to you) Is this the same for the other community health professionals (e.g. physiotherapists)?

What are your informal lines of communication? Why do you use these?

Which were helpful and obstructionist networks? Were they all the same? That is how many agree/disagree with the points of view?

What new skills were learned through informal means?

Place yourself on the following skill level using the Dreyfus and Dreyfus (1980) 5-scale model—justify.

What was the scope of the dietetic practice experienced so far this year?

## Appendix A (Continued)

In your opinion what help and constraints were there to achieving your objectives?

How would you overcome these constraints?

In your opinion did/were you able to give optimal service during your community service?

How would you rate your professional development this year?

Have there been any unexpected benefits?

Have there been any unexpected disasters?

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