HEALTHCARE NEEDS OF EMPLOYEES AND THEIR FAMILIES LIVING IN THE KRUGER NATIONAL PARK IN SOUTH AFRICA

by

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HEALTHCARE NEEDS OF EMPLOYEES AND THEIR FAMILIES LIVING IN THE
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ABSTRACT

This study addresses the healthcare needs of employees and their families living in the Kruger National Park (KNP). A quantitative, explorative, descriptive research design was used to interview respondents who comprised of 75 male and female employees with children of various ages.

The findings revealed that physical, psychological, environmental, socio-cultural, and behavioural needs of the employees and their families living in the KNP is probably unattainable as healthcare services are poorly distributed throughout the KNP, being mostly concentrated in the main camp of Skukuza.

A number of respondents indicated that they required consultations about psychological and socio-cultural stresses in their lives. These services are not available in the KNP.

Key concepts: Dimensions of health, healthcare, healthcare needs assessment, Kruger National Park, Primary healthcare, comprehensive healthcare, occupational healthcare.
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- To the Divuseni home based care team of Skukuza for their assistance with the completion of the questionnaires/interviews.
Dedication

dedicate this study
to all my patients who once lived with me in this vast and wonderful paradise:
The Kruger National Park.

May you forever Rest in Peace.
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<td>AIDS</td>
<td>Acquired Immune Deficiency Syndrome</td>
</tr>
<tr>
<td>ANC</td>
<td>African National Congress</td>
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<tr>
<td>Anc</td>
<td>Ante-natal care</td>
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<tr>
<td>ART</td>
<td>anti-retroviral treatment</td>
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<td>DoHSS</td>
<td>Department of Health and Social Services</td>
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<td>DHS</td>
<td>district health system</td>
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<td>FP</td>
<td>family planning</td>
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<tr>
<td>HIV</td>
<td>Human Immuno-deficiency Virus (HIV)</td>
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<td>KNP</td>
<td>Kruger National Park</td>
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<tr>
<td>MCH</td>
<td>maternal and child health</td>
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<tr>
<td>MEC</td>
<td>Member of the Executive Council</td>
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<td>Medunsa</td>
<td>Medical University of South Africa</td>
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<td>MHS</td>
<td>Municipal health services</td>
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<td>MoH</td>
<td>Minister of Health</td>
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<tr>
<td>MS Excel program</td>
<td>Microsoft Office Excel word 2007 edition software</td>
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<tr>
<td>NDOH</td>
<td>National Department of Health</td>
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<td>NHS</td>
<td>National Health System</td>
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<td>NGOs</td>
<td>non-government organisations</td>
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<td>PHC</td>
<td>primary healthcare</td>
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<td>PMTCT</td>
<td>prevention of mother to child transmission</td>
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<td>RDP</td>
<td>Reconstruction and Development Programme</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<td>SANParks</td>
<td>South African National Parks</td>
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<td>SA</td>
<td>South Africa</td>
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<tr>
<td>STIs</td>
<td>sexually transmitted infections</td>
</tr>
<tr>
<td>TB</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>UNISA</td>
<td>University of South Africa</td>
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<tr>
<td>USSR</td>
<td>Union of the Soviet Socialist Republic</td>
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<tr>
<td>VCT</td>
<td>voluntary counselling and testing</td>
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<td>WHO</td>
<td>World Health Organization</td>
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CHAPTER 1

ORIENTATION TO THE RESEARCH

“When health is absent; wisdom cannot reveal itself; art cannot become manifest; strength cannot fight; wealth becomes useless; and intelligence cannot be applied.”
(Herophilus 300BC in De Haan 2008:3).

1.1 INTRODUCTION

We are living in an era of rapid social, economic and environmental changes. These rapid changes are compounded by a number of threats, not only directly to the health of people but to their physical and mental wellbeing as well (De Haan 2008:9). In conjunction with this, healthcare services throughout Africa are hard-pressed to provide meaningful comprehensive primary healthcare (PHC) services, especially with the disease burden of HIV/Aids (Clark 2008:122).

In 1948 the World Health Organization (WHO) defined health as “a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity”. Many definitions followed, but this definition remains one of the most accepted as it also acknowledges the psychosocial aspects of health, in addition to the physical ones (De Haan 2008:3).

Achieving health and remaining healthy is an ongoing process. Optimal health can only be maintained with effective healthcare strategies in place. Healthcare is the prevention, treatment, and management of illness and the preservation of mental and physical wellbeing through the services offered by a national health system based on PHC (Dennill, King & Swanepoel 2004:119).
The term “health” is also be defined by Brainy Media (2009:1) as “a state of being whole, sound, or whole in body, mind or soul; especially, the state of being free from physical disease or pain”. The WHO’s definition of health has gradually changed to read: “Health is a level of economically productive life that would permit people to maintain health” (Vlok 2006:7). Overall health is achieved through a combination of physical, mental, emotional and social wellbeing, referred to by Johnson (2010:1) as the *health triangle*.

The health status of a community refers to the problems affecting their health and the totality of the healthcare provided to the community. Health status is the result of the interaction between the biological characteristics of the people, factors in the physical environment, the lifestyle of the group and the healthcare system as displayed in figure 1.1.

![Figure 1.1 Interaction of health status](image)

The health status of a community and its healthcare needs are interconnected and interrelated. According to Clark (2008:119) global healthcare systems are increasingly being challenged by growing healthcare needs and financial constraints, limiting services’ potential to strengthen the health sector infrastructure and human resources. Meeting these challenges requires governments to develop global healthcare policies and programmes. Components of such programmes should include aid to improve healthcare services and healthcare infrastructures in a country (Clark 2008:119).
Vlok (2006:26) stated that the WHO declared a global strategy defined at the Alma Alta conference in the Union of the Soviet Socialist Republic (USSR) in 1978, for “Health for all by the year 2000”. The central goal of the “health for all” movement was the provision of basic healthcare to all people of the world by the year 2000. Its three main objectives were promotion of healthy lifestyles, prevention of preventable conditions, and providing healthcare for existing conditions (Clark 2008:119). PHC was adopted as the major strategy for achieving these objectives.

The challenge facing the South African healthcare system is to design a healthcare service that can reach the majority of the people, who depend on public healthcare services (Dennill et al. 2004:35). PHC is seen as the key element in the plan to transform the healthcare services in South Africa (SA). A comprehensive and integrated package of essential PHC services, made available to the entire population, would provide a solid foundation for a single unified healthcare system. The vehicle for delivery of the PHC service package is the district health system (DHS) (Peterson 2001:7).

A comprehensive approach to attain and maintain optimal healthcare for people requires that factors, which may affect health are identified. Therefore, authorities responsible for the planning and provision of a comprehensive healthcare service for all, have to determine what the healthcare needs of communities are, before healthcare services can be planned. The assessment of healthcare needs is one of the basic steps in this process (De Haan 2008:4).

According to Dennill et al. (2004:2), the concept of PHC encompasses a political philosophy that calls for radical changes in both the design and content of traditional healthcare services. It advocates an approach to healthcare based on principles that allow people to receive care that enables them to lead socially and economically productive lives. The achievement of a desirable state of health by all members of a community will, however, only be possible if the necessary health services and facilities are available to satisfy the healthcare needs of everyone concerned, and if all the individuals in the community utilise these facilities effectively.
On the other hand, occupational healthcare is required by law and according to the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) an employee has the right to work in a safe working environment. According to Hattingh and Acutt (2007:1) the relationship between work and health is a two way process where the working environment may affect the health of the worker and the worker’s state of health may have an impact on his or her ability to perform the tasks for which he/she is employed. An occupational health service should therefore incorporate into its design a holistic health programme that will anticipate physiological and psychosocial manifestations of disease (Hattingh & Acutt 2007:2).

According to Hattingh and Acutt (2007:18) the overall objectives of an occupational health service is embodied in five principles, derived from the ‘health for all’ concept:

- The protection and prevention principle: protecting workers’ health from hazards at work.
- The adaptive principle: adapting work and the work environment to the capabilities of workers, accommodating environmental circumstances such as extreme temperatures and humidity. Chronic conditions such as uncontrolled Diabetes Mellitus could influence the employees’ performance levels in the workplace if symptoms such as irritability, faintness, weakness, headaches, and visual disturbances should occur.
- The health promotion principle: promoting the physical and psychosocial well-being of workers will be improved by the implementation of continuous health education programmes on relevant issues and topics, such as the prevention and management of chronic diseases.
- The curative and rehabilitative principle: consequences of occupational hazards, accidents and injuries, and occupational-related diseases could be minimised by supplying protective clothing in the workplace and adhering to prescribed safety standards and procedures. First aid stations must be available and fully equipped at all times, to deal with any emergency.
• The PHC principle: providing general healthcare services for workers and their families at the workplace, or at nearby facilities (Hattingh & Acutt 2007:18), implying that workers should be able to reach PHC services.

PHC and occupational healthcare services are irrevocably bound together, as a sick employee cannot work, no matter how safe or pleasant the workplace (Thompson 1999:3).

The Kruger National Park (KNP) is one of the oldest and most highly acclaimed national parks in the world. It covers almost 20,000 square kilometers (km²), and extends 360 kilometers (km) from north to south and on average 60 km from east to west. To the west and south of the KNP are two South African provinces, namely the Limpopo and the Mpumalanga provinces. To the north is Zimbabwe, and to the east is Mozambique. It is now part of the great Limpopo Transfrontier Park, a peace park that links the KNP with the Gonarezhou National Park in Zimbabwe, and with the Limpopo National Park in Mozambique (Braack 2006:105).

The KNP boasts a wide variety of game and birdlife in its various habitats and attracts thousands of visitors from all over the world. To maintain international standards of ecotourism and conservation requires not only a highly skilled and qualified workforce, but also the necessary healthcare systems to provide optimal sustainable comprehensive healthcare services to all the employees and their families living in the KNP. The KNP is regarded (Thompson 2004:1) as a modern organisation and has a large, geographically fragmented personnel component exceeding 3000 people, posing challenges to deliver sustainable comprehensive healthcare services to all staff members and their families in the KNP.

The authorities responsible for the existing health services are the Department of Health and Social Services (DoHSS), divided between two provinces (Limpopo and Mpumalanga) making service delivery inconsistent. Because of long distances from north to south, healthcare services are not equally distributed throughout the KNP, and
this can result in the deterioration of the health status of some employees and families living in certain parts of the KNP.

This study focused on the KNP and the health and healthcare needs of employees and their families living in the KNP in order to facilitate improvements in healthcare service delivery.

1.2 BACKGROUND TO THE RESEARCH PROBLEM

In 1926 the KNP was declared as South Africa’s biggest national park, named after Paul Kruger, a previous president of the Transvaal Republic (Pienaar 2007:465). The KNP is comparable in size to Israel, and is approximately as large as Wales, being 360 km long and on average 60 km wide. Bordering the KNP to the west are several private game reserves and in the north eastern part of the park is the Transfrontier Park that crosses borders with Mozambique allowing game to roam through 2.3 million hectares of prime wilderness area (Braack 2006:105).

The Lebombo mountains form the eastern border to Mozambique. The Malelane mountains form another natural barrier in the south while several large rivers drain eastwards through the KNP, and then through Mozambique to reach the Indian Ocean, providing constant water supplies. Two of these rivers form natural boundaries; the Limpopo river in the north and the Crocodile river in the south (Braack 2006:6). (See Annexure B1: main rivers in the KNP). There are five major rivers in the KNP that historically flow all year round. These rivers are the Crocodile, the Sabie, the Olifants, the Letaba and the Luvuvhu. All these rivers start far outside the KNP, and as they enter they carry with them the pollutants of the developed world that lies beyond the KNP’s western bounders. The health of the KNP’s rivers not only depends on the amount of water, but also the quality of the water. The Department of water affairs and forestry and the rangers of the KNP collect water samples every two weeks from at least two points in each major river for laboratory analyses (http://www.krugerpark.co.za/krugerpark-times-3-14-kruger-rivers-23334.html).
According to Braack (2006:8), the KNP has very hot and humid summers with daily temperatures often exceeding 38°C, and cool dry winters. The KNP is a summer rainfall area with an annual average rainfall of 500mm, falling between September and March. The dry winter season is the ideal time to visit this region as there is less chance of contracting malaria and the days are milder (http://www.kruger2canyons.com/learningcentre/kruger/climate).

Malaria-bearing (anopheles) mosquitoes thrive in the moist hot climate in the KNP. Malaria is endemic throughout the KNP but peaks during the wet summer months (see Annexure B2: classification of malaria areas in South Africa). Malaria is a debilitating, but not necessarily a fatal, disease. However, falciparum malaria can lead to fatal complications, if not treated effectively timeously. It is therefore essential that visitors take one of several recognised courses of prophylactic tablets. To ensure a care-free stay in the endemic malaria area, a 24 hour phone-in line is available. This telephone service (082 234 1800) provides the current malaria status, prevention, prophylaxis, symptoms and signs of malaria (Ferreira 1999:1).

Prevention of malaria, especially for residents of malaria areas, includes the following aspects:

- Awareness of malaria and malaria risk areas.
- Knowing that mosquitoes most commonly bite between dusk and dawn could help prevent bites. Wearing long sleeved clothing and long trousers with socks, when going out at night, and avoiding dark colours (which attract mosquitoes) could also reduce the chances of being bitten by mosquitoes. Malaria is distinctly seasonal in South Africa, with the highest risk being during the wet summer months (October to May) (http://www.doh.gov.za/docs/guidelines/malaria).
- Measures to avoid mosquito bites: always apply insect repellent to exposed skin at night. Sleep under mosquito-proof bed net.
- Spray the insides of houses with insecticide spray.
• Install gauze screens in front of outside doors and on windows of houses.

• Standing water near houses that cannot be drained should be treated with larvicides.

• Apply effective non-toxic long-acting insecticides onto the interior walls of houses.

• Personal measures to minimise the risk of mosquito bites should be sustained by residents of malaria areas.

• Being aware that the symptoms of malaria may initially resemble a non-specific flu-like illness with one or more of the following: fever, rigours, headaches, sweating, fatigue, myalgia, abdominal pain, and diarrhoea, loss of appetite, coughing, nausea and vomiting (http://www.malaria.org.za/malaria).

The most important aspect in the diagnosis of malaria is a high index of suspicion in both endemic and non-endemic areas. Test any person resident in or returning from a malaria area and who presents with fever (usually 10-21 days after exposure). The progression to severe falciparum malaria is rapid and early diagnosis and effective treatment is crucial to reduce malaria mortality and morbidity rates.

There are 147 mammal species, 507 species of birds, 114 types of reptiles, 34 different amphibians, and 49 fish species and over 2000 different plants which combine to make the KNP one of the most highly-acclaimed global wildlife reserves. Vegetation in the KNP can be divided into different areas: from Mopani shrub veldt in the north–eastern region, Red grass, Buffalo grass, Knob-thorn, Leadwood and Marula, south of the Olifants river, Red Bush Willow and Mopani in the western half, north of the Olifants river, and Acacia thorn trees, Red Bush Willow, and Marulas west, central and south of the Olifants river (Braack 2006:6). This beautiful vast and varied plant life in the KNP causes many allergies; from irritating hay fever to more serious chronic conditions like asthma (see Annexure B3: vegetation in the KNP).

There are 12 rest camps in the KNP implying that the employees are distributed throughout the entire KNP (see Annexure B4: main rest camps). Many bushveld
camps, bush lodges, camping areas, picnic spots, and concession areas are situated in the KNP. Some employees working and living in these remote regions also need healthcare services. There are nine entrance gates that are the only links to the nearest referral hospitals for curative care (see Annexure B5: entrance gates and distances to referral hospitals).

The KNP is divided into four regions for budgetary and administrative purposes. Each region has a regional manager. The different regions are: southern region (Marula), central region (Nyakani), northern region (Nxanatseni South), far northern region (Nxanatseni North). See Annexure B6: regions in KNP (http://www.sanparks.org/images/parks/kruger/conservation/scientific/maps/map-images/regions.jpg). The KNP is approximately 456km from Johannesburg and 1868km from Cape Town (http://www.sanparks.org/parks/kruger/get-there/distances.php). Figure 1.2 shows the position of the KNP in South Africa.

Figure 1.2  Position of KNP in South Africa
Source: http://www.sanparks.org/park/kruger
1.2.1 Population of the Kruger National Park (KNP)

The population of employees and families of the KNP amount to approximately 4 000 people. Less than one third of these employees contribute to medical aid schemes, enabling them to visit private doctors/institutions. The majority of the KNP’s workers depend on the government’s clinic for their healthcare services (Thomson 2004:2). See Annexure B7: population graphs of the KNP.

The population of KNP is divided into different categories:

- Employees and families of the South African National Parks (SANParks)
- Employees and families of the Compass Group (restaurants)
- Employees and families of Tiger’s Eye Retail (shops)
- Employees and families of Vuswha (transport section)
- Employees and families of the Department of Agriculture (animal health; state veterinary surgeons)
- Employees and families of the Department of Education (primary and nursery school)
- Employees and families of First National Bank
- Employees and families of Telkom (post office)
- Employees and families of the South African National Police Service (SANPS)
- Employees and families of the South African National Defence Force (SANDF)

1.2.2 Health services in the KNP

A major objective of public healthcare in South Africa is to develop a district-based health service focused on the delivery of PHC services. The PHC package has been developed to promote the rendering of comprehensive PHC services (Macdonald 2004:284).
Health services in the KNP are provided by government clinics and private doctors. From 1976 to 1988 only a part time government health clinic was available providing mainly family planning (FP) services, ante-natal care (Anc), and treatment of sexually transmitted infections (STIs). Since 1989 a full time post for one professional nurse has been established.

The professional nurse was based at Skukuza and rendered services at Skukuza with quarterly visits to the other main camps in the KNP. During these visits Vivo kits, containing emergency medicines and emergency equipment, for use in case of fires and/or explosions, were checked (Joubert 2007:488). Healthcare services rendered included family planning, ante-natal care (Anc) and treatment of STIs as well as health education.

In October 1990 a team from the Medical University of South Africa (Medunsa) undertook an extensive survey to assess the state of oral health of the personnel of the larger rest camps. This led to the institution of the Medicos oral health service at Skukuza in October 1992. This was made possible through a donation of a fully equipped caravan by the Colgate Palmolive Foundation in collaboration with services rendered by staff members of Medunsa as a community outreach programme (Joubert 2007:489). Transport was provided by Comair. The service was limited to weekends at Skukuza camp, with mobile dental health services once a year to the other main rest camps in the KNP (see Annexure B4: main rest camps). By 2001 the Medicos oral health project was completed and all dental equipment removed by Medunsa. The Department of Health in Mpumalanga is in the process of implementing a dental service at Skukuza clinic as an outreach service from Themba hospital, which is the nearest government hospital; approximately 115 km from the KNP (see B7: distances to hospitals).

With the implementation of newly drawn provincial borders in 1994 the KNP was divided into two provinces. The DoHSS from the Mpumalanga and Limpopo provinces are respectively responsible for providing healthcare services in the KNP.
The southern region of the KNP falls in the Mpumalanga province, Ehlanzeni district. The northern region lies within the Limpopo province, with the Olifants river as border between the two provinces (see Annexure B1: main rivers in KNP).

Since 1996 a major change took place in the character and organisation of health services in Mpumalanga. These changes are in accordance with policy guidelines from the National Department of Health (NDOH) and involve:

- decentralisation of services to the regions and districts to bring the services close to the people
- the adoption of the district health system as the vehicle for healthcare delivery in the province
- that PHC is the preferred strategy for delivery of universal healthcare to individuals, families and communities
- stakeholders in the planning and delivery of health services to the communities through meaningful community participation; and
- providing a health service that cares for, and is responsive to, clients’ needs (Mpumalanga health 2003:9).

There is one fixed PHC clinic situated in the Skukuza camp in the southern region with monthly mobile clinic visits to all main camps in the south, namely Satara, Lower-Sabie, Berg en Dal, Pretoriuskop, and the picnic site and ranger section at Tshokwane.

A PHC service in Skukuza renders a comprehensive health service five days per week. Staff members responsible for the health service, comprise one operational manager, three PHC trained professional nurses, two enrolled auxiliary nurses, two enrolled nurses, one administration clerk, one malaria officer and one cleaner. The PHC service is rendered according to the PHC package prescribed by the NDOH (Peterson 2001:7).
The vehicle for the PHC package is the DHS. All health centres form a platform for the delivery of this package within a DHS (Peterson 2001:1).

The priority areas include:

- Child health and in particular infectious diseases
- Sexually transmitted infections and HIV/Aids
- Tuberculosis (TB)
- Reproductive health: ANC, family planning and maternal health.
- Chronic diseases such as hypertension, Diabetes Mellitus.
- Trauma and injuries.
- Disabilities.

There are guidelines and protocols in place at every health facility for all the specific indicators. Health professionals have to follow the prescribed protocols when rendering these services.

A multidisciplinary approach is regarded as being one of the strategies for the implementation of PHC (Dennill et al. 2009:7). A medical officer forms part of the multidisciplinary team and one of the two doctors at Skukuza is a session doctor for DoHSS and visits the Skukuza clinic five days per week. The doctor visits the mobile clinic service points at three monthly intervals to renew prescriptions for chronic medications. The distances covered for these visits are approximately 260 km in the southern region and 700km round trip to the far northern region.

The medical doctors support the PHC services in Skukuza. The only private practice with two doctors is situated in Skukuza camp/personnel village. Out of the estimated 4 000 KNP employees and their families less than one third visit the private doctors in Skukuza (Thomson 2004:2). Most people depend on the government PHC clinic for their healthcare services.
Healthcare services in the northern region are rendered by a mobile clinic from the Department of Health (Limpopo province) once a month. This health service is rendered from Phalaborwa hospital to Olifants, Letaba and Mopani rest camps and from Malamulele hospital to Shingwedzi and Punda Maria rest camps (see Annexure B7: distances to referral hospitals). This fragmentation of authority and delivery of health services in KNP inhibits the implementation of a comprehensive healthcare service for the entire area.

In 1998 a study was conducted on the necessity of establishing an occupational health service in the KNP. According to Thomson (1998:1) who conducted the study, it is a well-established principle in the Occupational Health and Safety Act, 1993 (Act no 85 of 1993) that an employee has a right to work in a safe working environment. The employer has an obligation to ensure that employees are not excessively exposed to safety hazards.

Company policy is directly responsible for the scope of services offered in industry (Hattingh & Acutt 2007:18). Objectives and responsibilities of an occupational health service can only be as good or as bad as the company policy allows. Successful health programmes require a commitment from management. A high quality health programme should be based on the philosophy of health promotion, the needs of the organisation and the health needs of the employees (Hattingh & Acutt 2003:18).

In 2003 an occupational healthcare service was established with the appointment of an occupational health nurse by SANParks. Between 2003 and 2006 many employees in the KNP underwent first aid training. More occupational health trained staff members were appointed but there was a high turnover rate of personnel, leaving no occupational health trained professional nurses in the KNP during 2010.

The private practitioners of Skukuza set up well-equipped Advanced Life Support (ASL) medical bags for use in case of medical emergencies in all rest camps (Ferreira & Odendaal 2007:1). All ASL emergency bags are controlled and maintained by the
doctors on a quarterly base. Training to the KNP management in all rest camps, regarding the use of the ASL bags, are provided by the doctors during their quarterly visits to the camps. These ASL bags have proven to be of enormous value in assistance with emergencies such as attempted suicide, myocardial infarction, acute asthma attacks, acute allergic reactions, motor vehicle accidents and strokes (Ferreira & Odendaal 2007:1).

The estimated distance the doctors have to travel from the southern region to the northern region is about 700km round trip, with a speed limit of 60 km per hour, implying that a doctor’s actual travel time on this round trip is 11.7 hours.

The PHC package delivered at Skukuza clinic comprises:

- Anc
- prevention of mother to child transmission (PMTCT) of HIV/AIDS
- post natal care
- cervical cancer screening
- reproductive health
- mental health
- chronic care
- screening for malaria and providing malaria treatment
- treatment of STIs using the syndromic approach
- voluntary counseling and testing (VCT) for HIV/AIDS or currently referred to as HIV counseling and testing (HCT)
- CD4 count and referral for anti-retroviral treatment (ART)
- Tuberculosis (TB)
- HIV/AIDS and TB collaboration
- minor ailments
• child health
• laboratory services.

1.3 RATIONALE OF THE RESEARCH

The KNP is located in the Limpopo and Mpumalanga provinces, with fragmentation of healthcare service delivery. The KNP covers a large area with long distances to transport ill or injured patients to the nearest healthcare service. Patients referred to hospital need to travel up to 115 km to the nearest hospital (see Annexure B7: distances to hospitals). The speed limit inside the KNP is 50km per hour on the tarred roads. Speeding can cause motor vehicle accidents due to the danger of wild roaming animals on the roads. Some employees have chronic conditions that need regular monitoring. These chronic conditions include hypertension, cardio-vascular diseases and diabetes mellitus. Unless these chronic conditions are managed effectively, potentially life-threatening situations could arise. Most KNP employees and their families rely on the only permanent PHC clinic located at Skukuza. The service at Skukuza has a limited number of personnel and the services are basic. Employees in the KNP are often exposed to unique occupational health hazards such as the possibilities of being attacked by wild animals, exposed to veldt fires and zoonoses. Malaria is an endemic condition in the KNP and is treated as an occupational disease. The employees and families living in the KNP are isolated and need sustainable comprehensive healthcare services. The absenteeism rates for KNP employees are high, as indicated in table 1.1.

Table 1.1 Update on sick people

<table>
<thead>
<tr>
<th>Year</th>
<th>Quarter</th>
<th>Number of sick people</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>January to March</td>
<td>409</td>
</tr>
<tr>
<td></td>
<td>April to June</td>
<td>524</td>
</tr>
<tr>
<td></td>
<td>July to September</td>
<td>571</td>
</tr>
<tr>
<td></td>
<td>October to December</td>
<td>531</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>2035</td>
</tr>
<tr>
<td>Year</td>
<td>Quarter</td>
<td>Number</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>2009</td>
<td>January to March</td>
<td>653</td>
</tr>
<tr>
<td></td>
<td>April to June</td>
<td>596</td>
</tr>
<tr>
<td></td>
<td>July to September</td>
<td>600</td>
</tr>
<tr>
<td></td>
<td>October to December</td>
<td>480</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>2329</strong></td>
</tr>
</tbody>
</table>

Source: (Shabangu 2009) [e-mail to Riekie] Sherlocks@saparks.org

The prevalence of HIV/Aids is demonstrated in figure 1.3. HIV/Aids patients need anti-retroviral treatment (ART) from healthcare services in the KNP. Referral of these patients to ART service points outside the KNP causes interruptions of their work, wastes man hours and is inconvenient and costly for the patient concerned.

1.4 PROBLEM STATEMENT

Many challenges exist in the healthcare delivery system in the KNP such as the fragmentation of health services between two provinces and a number of hospitals, many people who depend on the PHC clinic, long distances sick people need to travel to receive healthcare, limited available healthcare services and few healthcare professionals.

An available, accessible, affordable and acceptable comprehensive PHC service, planned according to the needs of the employees and their families, could enhance the wellbeing of the KNP’s employees and their families, within the unique circumstances of the KNP. Before such services could be implemented the healthcare needs of the KNP’s employees and their families should be identified. No research findings on the needs of the KNP’s employees and their families could be located. As soon as the needs of these people have been established PHC services could be instituted to meet these identified needs.

From this problem statement and the background information about the KNP, the following research questions were formulated.
1.4.1 Research questions

The main research question was:

*What was the healthcare needs of the employees and their families living in the KNP?*

This question was then divided into the following sub-questions:

- What were the dimensions of health needs: physical, psychological, environmental, socio-cultural, and behavioural health needs of the employees and their families living in the KNP?
- What were the dimensions of healthcare systems: how available, accessible, affordable, acceptable were the health services in the KNP, and how often were they utilised by the employees and their families living in the KNP?
- What were the dimensions of healthcare needs: primary, secondary, tertiary preventative health care needs of the employees and their families living in the KNP?
- What were the dimensions of nursing care needs: specific healthcare needs of the employees and their families living in the KNP?

1.5 AIM OF THE RESEARCH

The overall aim of the study was to determine the healthcare needs of the employees and their families living in the KNP, in order to enhance these persons’ healthcare services and their general state of wellbeing.

1.6 RESEARCH OBJECTIVES

The objectives of the study were to explore and describe the dimensions of:
• **health needs**, including the physical, psychological, environmental, socio-cultural, and behavioural healthcare needs of the employees and their families living in the KNP

• **healthcare systems**, implying the availability, accessibility, affordability, acceptability and use of healthcare services in the KNP and surrounding areas

• **healthcare needs**, addressing primary, secondary, tertiary prevention of disease and promotion of health of the employees and their families living in the KNP

• **nursing care needs** which could meet specific healthcare needs of the employees and their families living in the KNP.

1.7 SIGNIFICANCE OF THE STUDY

Polit and Beck (2008:70) explain that “a crucial factor in selecting a problem to be studied is its significance to nursing especially nursing practice.” The significance should contribute meaningfully to nursing knowledge. Some of the questions that should be asked regarding the significance are: Is the problem an important one? Will patients or the broader health community or society benefit? (De Vos, Strydom, Fouché & Delport 2007:116).

It was important to conduct the research to determine the healthcare needs of the employees and their families living in the KNP. Based on the information gathered by this scientific research, recommendations could be made for implementing more effective health care services in the KNP. Since enhanced healthcare services could help to reduce employees’ absenteeism rates it could also improve the KNP’s employees’ general wellbeing.

1.8 OPERATIONAL DEFINITIONS

The following operational definitions in alphabetical order were used in the study:
1.8.1 Assessment of healthcare needs

According to Polit and Beck (2008:327) a needs assessment is a study in which researchers collect data to estimate the needs of a group, community or organisation.

The aim of such a study is to determine whether there is a need for special services or interventions or a programme to meet the needs of those who are supposed to benefit from it. Because resources are seldom limitless, information that can help to establish healthcare priorities could be valuable. Needs assessments often use a survey approach, involving collecting data from a sample of the group whose needs are being assessed (Polit & Beck 2008:327). In this study the term healthcare needs refers to the healthcare needs of the KNP’s employees and their families.

1.8.2 Comprehensive PHC

According to Dennill et al. (2004:17), comprehensive PHC is not an alternative to healthcare delivery; it is a strategy for the development and improvement of a community’s health. The emphasis of comprehensive programmes is on the specific community rather than on a programme which can be replicated and instituted in any community. The term comprehensive PHC refers to a health service which was designed to address a wide variety of determinants of health (Clark 2008:120). For the purpose of the study the term ‘comprehensive PHC’ refers to the provision of health services that would address the unique and wide variety of healthcare needs of employees and their families who live in the KNP.

1.8.3 Employee

According to the Labour Relations Act, 1995 (Act No 66 of 1995), an employee is regarded as any person, except an independent contractor, who works for the state or another person and who is entitled to receive remuneration (Hattingh & Acutt 2007:86).
In this study the term “employee” refers to the individuals who worked and lived in the KNP during the data collection phase of this study which was during October and November 2009.

### 1.8.4 Families

A family is a primary social group, a small community, in any society, typically consisting of a man and a woman, or any two individuals who wish to share their lives together in a long term committed relationship with one another, raising children and usually residing in the same home ([http://www.venusproject.com/definition/family](http://www.venusproject.com/definition/family)). In this study the term ‘family’ refers to the dependents (spouses and children and other family members) of the employees who live in the KNP and who have the right to use the available healthcare services on a regular basis.

### 1.8.5 Health

According to De Haan (2008:3) the WHO defines health as ‘a state of complete physical, mental and social wellbeing, and not merely the absence of disease and infirmity’.

The Merriam-Webster dictionary defines health as ‘the condition of being sound in body, mind, or spirit; especially: freedom from physical disease or pain’ ([http://www.merriam-webster.com/dictionary/healthcare](http://www.merriam-webster.com/dictionary/healthcare)).

In this study *health* is defined as the physical and mental wellbeing of the KNP’s employees and their families. The social wellbeing of the employees and their families will be studied as part of their sport and recreational needs, educational needs, lack of social gatherings and housing needs.
1.8.6 Healthcare

Healthcare refers to all the health services that are available to the community. Health services may be either personal or non-personal. Personal health services include antenatal clinics, community health centres and clinics, private practitioner care and hospital care. Non-personal health services include water supplies and purification, smoke pollution control, housing schemes, sanitation, immunisation and birth control in the interest of the community. Services should be provided according to the needs of the people (Vlok 2006:7).

De Haan (2008:26) describes healthcare as the responsibility of a team of health practitioners, health workers, the community and the patient. The community members are required to be involved in the process of nurturing an environment that promotes optimal health for them.

According to the Merriam-Webster dictionary healthcare can be defined as ‘efforts made to maintain or restore health especially by trained and licensed professionals (http://www.merriam-webster.com/dictionary/health).

In this study the term healthcare refers to the available, accessible, affordable, acceptable and comprehensive healthcare that can be provided to the employees and their families who live in the KNP that has been planned according to their particular needs and which could be provided within the unique circumstances in the KNP and resources of SANParks.
1.8.7 Kruger National Park (KNP)

The KNP is the largest national park in South Africa and is located in the north-eastern part of the country on the Mozambique border (http://www.encyclopedia2.thefreedictionary.com/kruger). In this study KNP refers to the study area where the healthcare needs of the employees and their families who live in the KNP have been studied.

1.8.8 Occupational healthcare

The discipline of occupational healthcare is concerned with the relationship between work and employees, being concerned with

- the promotion and maintenance of the highest degree of physical mental and social wellbeing of workers in all occupations
- the prevention among workers of ill health caused by their working conditions
- the protection of workers in their employment from risks resulting from factors adverse to health
- the placing and maintenance of the worker in an occupational environment adapted to his/her physiological state (Hattingh & Acutt 2007:14).

In this study occupational healthcare is defined according to the Occupational Health and Safety Act, 1993 (Act no 85 of 1993) as the healthcare an employee should receive. Occupational health and PHC have the same elements, and could be used reciprocally.

1.8.9 Primary healthcare (PHC)

The definition of the concept as determined at Alma Alta is:
“Primary healthcare is essential care based on practical, scientifically sound and socially acceptable methods and technology, made universally accessible to individuals and families in the community through their full participation and at the cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination. It forms an integral part both of the country’s health system, of which it is the central function and main focus, and of the overall social and economic development of the community. It is the first level of contact of individuals, the family and the community with the national health system, bringing healthcare as close as possible to where people live and work, and constitutes the first element of a continuing healthcare service” (Dennill et al. 2009:2).

In this study PHC referred to the available, accessible, affordable, acceptable, comprehensive healthcare that should be provided to the employees of the KNP and their families who live in the KNP and that have been planned according to their healthcare needs.

1.9 RESEARCH DESIGN AND METHOD

Research designs are based on the level of knowledge (and therefore the level of theory) about the topic being studied. Research designs can be categorised according to the degree of control each offers over the research situation (Brink & Wood 1998:5).

According to Polit and Beck (2008:66) a research design is an overall plan for obtaining answers to the questions being studied and for handling some of the difficulties encountered during the research process. The terms qualitative and quantitative refer both to the method of data collection and the type of data collected. The distinguishing feature is whether the data to be collected are already enumerated, whether it can be collected and enumerated, or whether the data must remain verbal descriptions. Data that are structured in the form of numbers or that can immediately be transposed into numbers are considered quantitative. Data that cannot be structured in the form of
numbers are considered to be qualitative data (Brink and Wood 1998:5). For this study a quantitative, explorative, descriptive research approach has been followed to study the healthcare needs of the KNP’s employees and their families.

1.9.1 Quantitative research

The quantitative method of research refers to an investigation of phenomena that lend themselves to precise measurement and quantification, often involving a rigorous and controlled design (Polit & Beck 2008:729). The quantitative method was seen as being the most suitable paradigm for exploring and describing the healthcare needs of the KNP’s employees and their families.

1.9.2 Explorative research

This is the type of research that is conducted with the aim of gaining some understanding about a specific situation or phenomenon. Explorative research can be conducted to obtain basic information about an area of interest (De Vos et al. 2007:106). In this study, the researcher explored the healthcare needs of the KNP’s employees and their families as no information about recent surveys of these persons’ healthcare needs could be detected.

1.9.3 Descriptive research

Descriptive research has as its main objective the accurate portrayal of the characteristics of persons, situations or groups, and/or the frequency with which certain phenomena occur (Polit & Beck 2008:752). In this study the healthcare need of the KNP’s employees and their families would be described.
1.9.4 The conceptual framework of the research

A conceptual or theoretical framework is often used to organise research in a logical manner. The framework for this research is based on the dimensions model of community health nursing in which the needs of the sample of the research population have been explored and described. The dimensions model incorporates the nursing process and public health concept of levels of prevention. However the model also includes the determinants-of-health perspective on the factors that influence health and illness in populations and addresses relevant nursing activities or interventions within the dimensions of nursing that affect a population’s health status (Clark 2008:69). The dimensions model consists of three elements: the dimensions of health, the dimensions of healthcare and the dimensions of nursing practice (Clark 2008:69). This same framework is used for the organisation of information in chapters 2, 4 and 5 as well as the questions in the interview schedule and has been discussed in more detail in chapter 3.

1.9.5 Research population

According to Stommel and Wills (2004:297) a research population is the universe of all the units or elements to which a study’s research findings could be generalised. The term is also used to refer to an entire group about which information is desired. This group may consist of individuals with common characteristics as determined by the researcher.

In this study the population consisted of the KNP’s employees and their families. The research population consisted of a total of approximately 4 000 people. As the direct measurement of the entire population would have been impracticable, time-consuming and very expensive, a sample of the research population had to be selected for participating in this study.
1.9.6 Sampling method

According to Stommel and Wills (2004:297), a sample is defined as any subset of cases or observations drawn from a larger population of cases or observations. Thus sampling is the process of selecting a particular subset from a larger population or universe to represent the population as it is impossible to study the entire population.

The researcher selected the stratified random sampling method to ensure that all the unique characteristics of the employees and their families would be represented in the sample. Stratified random sampling is a straightforward extension of simple random sampling where members of the target population are divided into strata (subgroups), according to the same defined characteristics (Stommel & Wills 2004:304). The sampling method has been discussed in more detail in chapter 3.

One rest camp from each region in the KNP was selected randomly. The names of all camps in the southern region were written on golf balls to facilitate the easy mixing of names. One camp from the southern region was drawn and the name recorded.

The same method was followed in the selection process of the central, northern and far northern regions. The concession areas, bushveld camps and ranger sections were selected in a similar way. The researcher selected rest camps from different regions in the KNP, because their needs and circumstances may vary.

A contributing factor might be that at present health services are provided under the authority of two different provinces. A list of names of each category of workers was obtained from the management of the KNP. The names of the employees from each category of the selected camps were then given a number and the numbers were written on golf balls. The same method of random selection was followed for the individual respondents, as in the selection of the rest camps. The researcher selected one
respondent from each category of employees in each selected camp to participate in the study. This process was repeated until 75 individuals had been selected.

1.9.6.1 The sample size

There is no simple formula to explain how large a sample should be in a given quantitative study. However, the sample should be as large as possible (Polit & Beck 2008:348). The larger the sample, the more representative of the population it is likely to be. However, due to time and financial constraints, the researcher could only involve 75 KNP employees from the different employment ranks and sites.

1.9.7 Data collection approach

Data form the basis of discussion and interpretation in statistics. According to Brink (2007:26), the term generally refers to the set of measurements collected by the researcher in the course of the study or, to the numerical results of a study. Stommel and Wills (2004:363) refer to data collection as the gathering of all information that is relevant to the research questions or hypothesis. Data were collected by conducting structured interviews with the selected KNP employees.

1.9.7.1 The interview

A good deal of information could be gathered by questioning or interviewing people (Polit & Beck 2008:369). In order to yield meaningful information relevant to the research questions, and because many of the respondents were illiterate, or could not speak fluent English, an interview schedule was used. The interview method is considered to yield high response rates and the interviewer has the chance to clarify matters that the respondent might not understand. The service of an interpreter was also obtained to assist with interviews where the respondents could not understand English or needed some terms clarified in their own languages.
The interview schedule

The interview schedule consisted of mainly closed-ended questions, but some open-ended questions were used to allow respondents to express their views in their own words. Pre-existing instruments and the literature were studied and then the research instrument was compiled by the researcher. The interview schedule was pre-tested to identify any questions that might have been difficult to understand, to determine whether the sequencing of the items was sensible, and the time needed to conduct a structured interview was realistic.

The interview schedule consisted of the following sections:

Section A: Covered the demographic data of the respondents.

Section B: Covered the dimensions of health, namely the physical, psychological, environmental, socio-cultural, and behavioural health needs of the KNP’s employees and their families.

Section C: Covered the availability, accessibility, affordability, acceptability and use of health services in the KNP and surrounding areas.

Section D: Covered the dimensions of healthcare, namely primary, secondary, tertiary prevention of disease and promotion of health of the KNP’s employees and their families.

Section E: Covered the dimension of nursing, for instance specific healthcare needs of the KNP’s employees and their families, which could be met by nurses.

The interview schedule was submitted to the supervisors at the University of South Africa (UNISA) who critically reviewed it. It was also submitted to a statistician, as well as to the management of the KNP for approval. Thereafter it was pre-tested in the study area. The interview schedule’s structure, pre-test and the interview process has been discussed in more detail in chapter 3.
1.9.7.2   Data analysis

According to Waltz, Strickland and Springer (2005:404), data analysis refers to a set of techniques that are used to identify patterns for recording. As used in quantitative research, data analysis involves the systematic and objective reduction or simplification of recorded language to a set of categories to represent the presence, frequency, intensity, or meaning of selected characteristics. It is used for identifying, measuring, describing, and making inferences about specified characteristics within written text.

The services of a statistician were obtained to enter the data into the computer making use of Microsoft Office Excel word 2010 edition software. Basic statistics were calculated by the statistician and presented in tables and graphs.

1.10   RELIABILITY AND VALIDITY

Research findings are insignificant unless it can be proven that the processes applied were reliable and valid, and that the research instrument has been tested for reliability and validity.

1.10.1   Reliability

Polit and Beck (2008:764) state that reliability is the degree of consistency or dependability with which an instrument measures an attribute. In addition reliability is concerned with the accuracy of a measure in presenting the true score of subjects being assessed on a particular dimension (Brink & Wood 1998: 47). If the instrument is reliable, the results will be comparable each time the test is repeated (Polit & Beck 2008:764). Even if multiple researchers should use the research instrument in other studies under the same conditions it should yield the same results. The instrument should be consistent and dependable.
The use of a well-planned structured interview schedule ensured that the same data could be collected from all the respondents which facilitated the analysis, comparison and discussion of the findings. The interview schedule used for data collection was structured to comply with the research objectives. The researcher obtained knowledge from the literature review to develop the research instrument. Literature and experts in the field were consulted to determine whether the instrument would be suitable and reliable and would yield the appropriate data.

1.10.2 Validity

Once the reliability of an instrument has been established, the question of validity arises. According Brink (2007:161) validity reflects the authenticity of the test. The research instrument should measure what it is supposed to measure.

The interview schedule was tested for face validity by two supervisors at the UNISA and during the pre-testing of the instrument. Reliability and validity has been discussed in more detail in Chapter 3.

1.11 LIMITATIONS

Polit and Beck (2008:73) state that limitations of a study are for instance sample deficiencies, design problems and weaknesses in data collection. The limitations of this study might be language orientation. Not all the respondents were able to complete the questionnaires due to the fact that they were not proficient in English (or were illiterate). The researcher therefore had to conduct personal interviews and communicate with the respondents with the assistance of an interpreter. The researcher took precautions to ensure accuracy in the data collection, analysis and presentation processes.

Other limitations have been addressed in chapter 5.
1.12 AN OVERVIEW OF THE ETHICAL CONSIDERATIONS

Stommel and Wills (2004:373) are of the opinion that ethics is an academic discipline, based in the philosophic and social sciences that are concerned with both descriptive and prescriptive questions of morality. According to Polit and Beck (2008:753), ethics focus on moral values that are concerned with the degree to which research procedures adhere to professional, legal and social obligations concerning the study participants or respondents. During this study, special attention was given to the following ethical aspects:

- the respondents’ rights to self-determination
- the promotion of respect and privacy of respondents and institutions
- informed consent was obtained from each interviewee.

Permission was asked to conduct the research and obtained from the:

- Ethics and Research Committee of the Department of Health Studies, UNISA (See Annexure A1 and A3: ethical clearance from the university of South Africa).
- Executive Manager of the KNP. (See Annexure A 2: permission from the KNP);
- Respondents themselves. (See Annexure C2: for an example of the informed consent form used with the data collection tool).

The ethical principles applied in this research have been discussed in more detail in Chapter 3. The research proposal was submitted to the Executive Manager of KNP and written consent was granted (Mkhize 2008), as reflected in Annexure A 2: permission from the KNP.

1.13 OUTLINE OF STUDY

This research report has been divided into the following chapters:

Chapter 1: Introduction and overview of the study
Chapter 2: Literature review
Chapter 3: Research methodology
1.14 SUMMARY

This chapter gave an overview of the research which included *inter alia* the background to and motivation for the study, the research problem, and the rationale underlying the study, operational definitions, methodology and data collection and ethical considerations.

In the background of the study a variety of figures and maps were included to illustrate the geographical position and layout of the research site. Employees’ demographics were also provided, as well as the health status of employees according to the available statistics. A comprehensive background of the KNP was given in this chapter. Health status of Skukuza PHC clinic displayed in graphs according to indicators of the District Information Health Systems (DIHS) will be discussed in detail in chapter 2.

The KNP’s employees and their families have rights to access basic healthcare services that are cost-effective, accessible, and available and have been planned according to their unique needs and circumstances in the KNP.

Chapter 2 discusses the information obtained in the literature on PHC and healthcare needs of people.
CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Chapter 1 provided an overview and background of the problem, as well as the rationale for the study.

Chapter 2 discusses the literature review undertaken for the study. Stommel and Wills (2004:339) describe a literature review as a written summary and evaluation of the information gleaned from literature searches. According to Polit and Beck (2008:757) a literature review is a critical summary of research on a topic of interest, often prepared to put a research problem in to context. In order to understand the concept PHC, a review of the related literature was undertaken.

Regardless of the specific use of the results of a literature search, to obtain an adequate understanding of the state of knowledge about a given topic, the researcher must consider three key dimensions (Stommel & Wills 2004:340).

- What is known about the topic? A description of the current state of knowledge of the area under discussion. As part of research reports, formal literature reviews commonly record more detailed discussions of specific prior studies, usually to highlight specific findings relevant to the current study (Stommel & Wills 2004:339).

- What is not known about the topic? What is not known about the phenomenon is often referred to as a research gap, or gap in knowledge. In research articles, knowledge gaps are typically set in contrast to statements of what is known about a topic, because explicit identification of the knowledge gaps provides a “natural” lead into, and justification for, the current study (Stommel & Wills 2004:340).
What needs to be known about the topic? Research aims, questions, and hypothesis in a particular research study can be, and often are, based on gaps in knowledge that need to be addressed. In addition, they may also be derived from “statements of need” that reflect the clinical significance and priority of the research (Stommel & Wills 2004:340).

The development of PHC and why PHC is seen as an answer to the healthcare needs of South Africans and employees in the KNP. The current healthcare system in the KNP, viewed against the healthcare system of SA, and needs assessment is the focus of this chapter. The content has been discussed within a framework provided by the elements of the Health Dimensions Model (Clark 2008:69). This discussion is introduced by addressing the concepts of a universally acceptable definition of health.

### 2.2 HEALTH AND HEALTH STATUS

According to the World Health Organization (WHO) the term “health” is defined as a ‘state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity’. Later, this unattainable definition of health has been substituted by a more reasonable definition to read: ‘A level of economically productive life that would permit people to maintain health’ (Vlok 2006:7). The term “health” is also defined as: ‘The state of being hale, sound, or whole in body, mind or soul; especially, the state of being free from physical disease or pain’ (http://www.brainyquote.com/health).

Overall health is achieved through a combination of physical, mental, emotional, and social wellbeing, which, together is commonly referred to as the “Health Triangle”.

Optimal health can only be maintained with effective healthcare strategies in place. Healthcare comprises the prevention, treatment, and management of illness and the preservation of mental and physical wellbeing through the services offered by the medical, nursing and allied health professions (http://www.who.int/about/definition). Achieving health and remaining healthy is an on-going process.
Health is increasingly recognised as a global phenomenon that crosses national boundaries, because events in one country could affect the health status of people in other countries (Clark 2008:117). The determinants of health have become increasingly important in the fight against ill health. These determinates can be categorised as

- psychosocial environmental factors including family, community, culture and the effects of social exclusion
- socio-economic factors including employment and education.
- quality and access to services related to childcare, transportation, education, leisure, healthcare and social services
- public policy factors relating to the economy, welfare programmes, crime, transportation, and health
- physical environmental factors including factors related to air and water quality, housing transportation, noise and waste disposal
- behaviours and lifestyle determinants including diet, tobacco and alcohol use, exercise, and risk taking behaviours.
- maternal health and maternal nutrition are the two major preconception/in-utero factors that could influence the health of infants and children
- biological determinants including age, sex and genetics (Clark 2008:118).

Attaining and maintaining health can be a complicated process. Health and disease are closely linked to the environment in which people live and work. The health status of the people will be affected by their lifestyles, the type of dwelling in which they live, the food they have access to or can afford to buy, and the environmental conditions under which they live. Cultural practices can also affect people’s health. All these factors are determined by the society in which a person lives and by his/her particular position within that society. Social divisions occur in all societies and these gaps result in the underprivileged usually being more prone to disease and ill health compared to those who are more privileged (De Haan 2008:4).
However, higher social and economic status often means living a ‘good life’, with unhealthy eating and other habits that could result in lifestyle diseases such as hypertension and diabetes mellitus. This comprehensive approach to attaining and maintaining health is referred to as the Psycho-Social-Environmental Model of Health, as illustrated in figure 2.1 (De Haan 2008:4).

![Figure 2.1 Health is the product of a number of factors](source: De Haan 2008:4)

Any deficit in one area such as the environment could have an effect on the health status of the individual which in turn will become a healthcare need.

### 2.3 PRIMARY HEALTHCARE

During the 1970s healthcare throughout the world was in turmoil, with fragmented health systems. According to Dennill et al. (2009:2) the tendency was towards costly treatment for a few ill people rather than promotive and basic healthcare for many. Because of inadequate healthcare the WHO (WHO 6-12 September 1978) declared a global strategy defined at the Alma Alta conference, USSR, known as ‘Health for all by the year 2000’ (Vlok 2006:26). This global strategy is used for monitoring progress towards health for all by a definite date and has since dominated both global health policies and programmes (Dennill et al. 2009:2).
The central goal of the “health for all” movement was the provision of basic healthcare to all people of the world by the year 2000. Its three main objectives were promotion of healthy lifestyles, prevention of preventable conditions, and treatment of existing conditions (Clark 2008:119).

The PHC approach can also be seen as a philosophy as it requires traditional healthcare systems to institute considerable changes in both their structure and content. It emphasises the need for health and other sectors to work together at multiple levels to facilitate general social and economic development of which PHC is a vital part; and it argues for a community based and decentralised approach to health and healthcare so that people’s lives could be socially and economically productive (Draper & Louw 2007:49).

Implicit in this approach is the need to view health not only from a biological perspective, but also from a ‘bio-psycho-social’ perspective. This perspective acknowledges the biological, psychological, and social dimensions of health and illness and aims to understand the whole patient rather than just the disease process (Draper & Louw 2007:49).

PHC is about more than shortening waiting times, or getting staff to be more polite. Health workers have to care for people through the course of their lives, as individuals and as members of families and communities whose health must be protected and enhanced, and not as body parts with symptoms or disorders that require treatment but holistically (World Health Report 2008:43).

Vlok (2006:26) says that PHC is much more than ‘first contact’ care, or a person’s points of entry into a comprehensive community healthcare system, it is the first element of a continuing healthcare process.
Table 2.1 summarises the differences between primary care and care provided in conventional settings, such as clinics or hospital outpatient departments, or through the disease control programmes that shape many health services in resource-limited settings (World Health Report 2008:43).

PHC differs from conventional healthcare due to its people-centred approach.

Table 2.1 Aspects of care that distinguish conventional healthcare from people-centred primary care

<table>
<thead>
<tr>
<th>Conventional ambulatory medical care in clinics or outpatient departments</th>
<th>Disease control programmes</th>
<th>People-centred primary care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus on illness and cure</td>
<td>Focus on priority diseases</td>
<td>Focus on health needs</td>
</tr>
<tr>
<td>Relationship limited to the moment of consultation</td>
<td>Relationship limited to programme implementation</td>
<td>Enduring personal relationship</td>
</tr>
<tr>
<td>Episodic curative care</td>
<td>Programme-defined disease control interventions</td>
<td>Comprehensive, continues and person centred care</td>
</tr>
<tr>
<td>Responsibility limited to effective and safe advice to the patient at the moment of consultation</td>
<td>Responsibility of disease-control targets among the target population</td>
<td>Responsibility for the health of all in the community along the life cycle; responsibility for tackling determinants of ill-health</td>
</tr>
<tr>
<td>Users are consumers of the care they purchase</td>
<td>Population groups are targets of disease-control interventions</td>
<td>People are partners in managing their own health and that of their community</td>
</tr>
</tbody>
</table>


According to Dennill et al. (2009:2) the concept PHC encompasses a political philosophy that calls for radical changes in both the design and content of traditional healthcare services. It advocates an approach to healthcare based on principles that allow people to enable them to lead socially and economically productive lives (Dennill et al. 2009:2).
Dennill et al. (2009:2) describe the definition of the concept PHC as determined at Alma Alta as follows:

“Primary healthcare is essential care based on practical, scientifically sound and socially acceptable methods and technology, made universally accessible to individuals and families in the community through their full participation and at the cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination. It forms an integral part both of the country’s health system, of which it is the central function and main focus, and of the overall social and economic development of the community. It is the first level of contact of individuals, the family and the community with the national health system, bringing healthcare as close as possible to where people live and work, and constitutes the first element of a continuing healthcare service”.

2.3.1 The basic components of PHC

PHC consists of eight basic components, namely:

- education about prevailing health problems and methods of preventing and controlling them
- the promotion of food supply and proper nutrition
- an adequate supply of safe water and basic sanitation
- maternal and child healthcare, including family planning and care of high-risk groups
- immunisation against major infectious diseases
- prevention and control of locally endemic diseases
- appropriate treatment of common diseases and injuries
- the provision of essential drugs (Dennill et al. 2009:3).

The challenge facing health systems, also the South African health system, was to design a health service delivery system which could reach the majority of the people, who depend on the public sector for their basic healthcare needs. PHC was seen as
the key element in the plan to transform the health services in South Africa. A comprehensive and integrated package of essential PHC services made available to the entire population would provide a solid foundation for a single unified health system. The vehicle for delivery of the PHC service package was the district health system (DHS) (Peterson 2001:7).

A comprehensive approach to attain and maintain optimal health for people requires that we identify the factors that may affect health.

2.3.2 PHC in South Africa

In 1986 the South African government formulated a national health plan, with the objective of meeting the health needs of all the people of South Africa (SA). The plan was based on the Alma-Ata principles of comprehensive PHC and gave a firm political commitment to the implementation of such a service. The emphasis was on the prevention of diseases and the promotion of health through community centred services which advocate community participation and a multidisciplinary approach (Dennill et al. 2009:34).

The importance of PHC was taken a step further in 1989 when the national health policy council accepted the following resolution: “... the only way to provide an affordable health service to all the people of SA, is by means of a partnership between the state and the private sector based on the national health services plan, with the emphasis on PHC” (Dennill et al. 2009:35).

In May 1991 the government’s intention to provide PHC to all the people was made clear in the National Health Service delivery plan. It stated that during the period 1990-1995 an affordable, comprehensive health service should be developed, which would be planned according to priorities identified by communities themselves. The plan recommended the following:
• reorganisation of health services to regional and local level with the local authorities taking responsibility for most PHC services
• that health services be democratised and community participation be advocated
• the right of admission of all population groups to public hospitals (Dennill et al. 2009:36).

Objectives were identified to meet these recommendations; a strategy and a process of implementation were adopted, considering the constraints of each step; methods of monitoring and evaluating progress; and strategies for addressing each element of PHC were determined (Dennill et al. 2009:36).

These strategies were

• to make information, concerning the prevailing health problems and the methods of preventing and controlling them, available to the population
• to promote the provision of food and proper nutrition
• to ensure an adequate supply of safe water and basic sanitation
• to ensure the provision of maternal and child health services
• to ensure immunisation against the major infectious diseases
• to prevent and control local endemic diseases
• to appropriately treat common diseases and injuries
• to ensure the provision of essential medicine

For health services to be appropriately planned and developed, information of the health status of the community and the country must be collected and made available (De Haan 2008:6). The diagrammatic presentation in figure 2.2 demonstrates how people are able to attain optimal health through a network of services and related factors.
Figure 2.2  Diagrammatic presentation of the network of services and other factors which together can enable people to attain optimal health

Source: De Haan 2008:8

2.4  NATIONAL HEALTH PLAN FOR SA

The African National Congress’ (ANC) final draft of its health plan was made available to the public in May 1994. The health plan was based on the belief that every individual has the right to achieve optimal health. The government is responsible for ensuring that health services are available to all South Africans and the ANC is committed to using the PHC approach as the underlying philosophy to attain this restructuring of the health system. A National Health System was established under a single government structure to co-ordinate all aspects of healthcare in SA. This reconstruction involved the complete transformation of the whole delivery system (Dennill et al. 2009:42).

PHC from then onwards formed part of both SA’s National Health System (NHS) and of the overall social and economic development of the community, known as the Reconstruction and Development Programme (RDP) (Vlok 2006:30). The main aim was the improvement of women’s legal, educational and employment status together with lowering the rates of infant mortality, maternal mortality and morbidity and teenage pregnancies. Social welfare was recognised as being closely linked to health and as having
major roles to play in improving health status. The areas of overlap of these two disciplines include violence, alcoholism and care of the elderly.

The main aims of the NHS in alphabetical order are

- accident, emergency and rescue services
- chronic diseases
- control of communicable diseases
- drug policy
- environmental health
- HIV/Aids and STIs
- laboratory services
- maternal and child health (MCH)
- mental health
- nutrition
- occupational health
- oral health
- rehabilitation
- research
- rural health
- women’s health

The diagrammatic presentation in figure 2.3 explains the organogram of the SA healthcare system.

Figure 2.3 Organogram of SA’s Health system
Source: De Haan 2008:22
2.4.1 Principles that form the basis of the healthcare plan

The following principles are applicable.

- Equity: health for all includes social and economic development. The need for employment, education, adequate housing, water, sanitation and electricity are all vital if “health for all” is to be attained.
- Right to health: each individual has the right to attain optimal health and the government must provide the environment in which this can be achieved.
- PHC approach: comprehensive PHC as identified by the WHO (WHO 1987), forms the basis of this approach
- A single, comprehensive, equitable and integrated national health system must be created making healthcare available to the people.
- Co-ordination and decentralisation of services: clinics and healthcare centres will be the first contact with patients. Authority and control over the funding will be decentralised to the lowest level possible compatible with rational planning and the maintenance of good quality care.
- Priorities: the groups regarded as being the most vulnerable, such as mothers and children, the disabled, the underserved in rural areas and those with debilitating conditions such as Aids, tuberculosis, and chronic illnesses, will be given priority care.
- Promotion of health: health education will be considered as being important especially with regard to sexuality, child spacing, oral health, substance abuse and environmental health.
- Respect for all: a charter of patient’s rights will be introduced to ensure the right of all people to be treated with dignity and respect.
- A health information system: appropriate and reliable information is essential for good planning and management. This will improve the efficiency of the service (Dennill et al. 2004:42).
2.4.2 South Africa’s National Health System

According to the National Health Act (No 61 of 2003), a decentralised District Health System, based on PHC, is the vision for health services in South Africa (Hall, Ford-Ngomane & Baron 2005:44).

A district health system based on PHC is a self-contained segment of the national health system.

The main reason for the existence of the department of health is to ensure access for everyone to optimal healthcare. To achieve this, the government must

- create, monitor and change the framework of service delivery when necessary
- be a major provider of services.

The aim of changes in the healthcare system after 1994 was to decentralise management and introduce district health systems. This planned structure allowed for a continuum of healthcare with a well co-ordinated referral system with easy logical movement between primary, secondary and tertiary health services. To achieve this goal a multidisciplinary health team approach to healthcare is necessary. Both public and private providers must be included with adequate inputs from support services, such as laboratory services and pharmaceutical suppliers, are also essential (Dennill et al. 2004:43).

2.4.2.1 National level

The National Health Authority is the body which, under the direction of the Minister of Health (MoH), is responsible for the provision, development and co-ordination of all healthcare services in South Africa. The National Health Authority allocates the health budget and is responsible for health policy and legislation. Academic hospitals are accountable to the National Health Authority, but will be encouraged to generate their own funds where possible.
The academic hospitals form a vitally important part of the health referral system, as well as offering facilities for research and human resource development and training. These institutions commanded a large proportion of the health budget and rationalisation is likely to make less funds available to primary healthcare services (Dennill et al. 2004:45).

2.4.2.2 Provincial level

There are nine provinces in South Africa and each provincial authority is responsible for all aspects of healthcare required by the people of that province. The Member of the Executive Council (MEC) for health in each province must ensure the implementation of the national health policy, as well as norms and standards in the province and provincial levels that are also responsible for the support, monitoring and evaluation of services provided at district level.

For administrative purposes, the KNP is shared between two South African provinces, the Mpumalanga province in the south and the Limpopo province in the North. The only fixed clinic in the KNP is situated in Skukuza under the Department of Health and Social Services (DoHSS) Mpumalanga, within the Ehlanzeni district.

2.4.2.3 District level

Each province has been divided into districts according to the functional and geographical determinants, and size of the population with clearly delineated administrative and geographic areas. It includes all institutions and individuals providing healthcare in the district, whether government, private or traditional. A district health system therefore consists of a large variety of interrelated elements that contribute to health in homes, schools, work places and communities. It includes self-care and all health workers and facilities up to and including the hospital at first level, appropriate laboratory, as well as other diagnostic and logistic support services (Hall, Ford-Ngomane & Baron 2005:45).
The district health authorities are accountable to the elected political authorities and all community health services, private and public, are their responsibilities. The most important function of the district health authorities is to provide PHC services to all members of the community. Services should include clinics, community health centres, community hospitals and emergency services (Dennill et al. 2009:48).

The community health centre in each district forms the central part of the district health services and provides preventive, promotive, curative, and rehabilitative care. Clinics provide similar services at less specialised levels. All permanent clinics should have water, electricity and some method of communication. Some areas are serviced by mobile clinics. The PHC clinic at Skukuza in the KNP is located in the Mbombela sub-district, Ehlanzeni district in Mpumalanga province; as illustrated in figure 2.4.

The map in figure 2.4 illustrates the Ehlanzeni district, and sub-districts in Mpumalanga.
2.4.2.4 **Community level**

Each community, living in a specific geographical area, served by community health services, should be encouraged to form an intersectoral community development committee. The members of the community health committee will serve on a voluntary basis. Representatives will be drawn from the health services, non-government organisations (NGOs), community members, and health practitioners in the area (Dennill et al. 2009:49). Community participation through clinic committees should be used for addressing problems, including health issues.

2.4.2.5 **Municipal health services**

Municipal health services (MHS), according to the Constitution of SA, are local governments’ responsibilities (Hall, Ford-Ngomane & Baron 2005:45). MHS is defined
in the Health Act as elements of environmental health, with the exception of port health, malaria, and the control of hazardous substances. As a consequence of this definition all other services become provincial responsibilities. It is envisaged that MHS will be delivered equitably throughout the district and coordinated and funded by the district or metropolitan municipality. These services are included in the district health plan and monitored by the district health authorities (Hall, Ford-Ngomane & Baron 2005:45).

2.5 HEALTH SERVICES IN THE KNP

Health services in KNP are managed by a PHC government fixed clinic situated in Skukuza and one mobile PHC service in the southern region of the KNP. The mobile clinic in the southern region is based at Skukuza clinic. Two mobile clinics from Phalaborwa and Malamulele PHC institutions respectively are responsible for providing health services in the northern region of the KNP (Annexure B5 referral hospital outside the KNP).

In Skukuza there are two private practitioners (Ferreira 2009). One of the private practitioners serves as a session medical officer for the DoHSS Mpumalanga and visits Skukuza clinic five days per week.

2.5.1 Health profile of the southern region of the KNP: Skukuza clinic 2008-2010

The public health sector is the main provider of PHC services in South Africa. It is important that these services are provided in an equitable, effective and efficient manner. Data, collected and kept on a daily basis at Skukuza clinic, are used to ensure equitable, effective and efficient health services, to identify healthcare needs and trends.
Statistics are kept *inter alia* on total headcount, ante-natal visits, PMTCT, cervical cancer screening, malaria, reproductive health, STI, TB, VCT, CD4, chronic diseases, and referrals ([http://www.info.gov.za/aboutsa/health.htm](http://www.info.gov.za/aboutsa/health.htm)).

### 2.5.1.1 Total headcount of clients who visited Skukuza fixed and mobile clinics: 2008-2010

Total headcount refers to all individual patients who attended the facility during a period of one year. Each patient is counted once for each day he/she attended the clinic, regardless of the number of services provided on each day. Figure 2.5 displays the annual head count of adult patients, children older than five years, as well as those younger than five years who presented at the Skukuza clinic during 2008, 2009 and 2010. In 2008 there were 9 517 in total, with 561 being children under the age of five years. However there was a slight increase in the number of adult patients 9 947 towards the end of 2010. The increase in clinic visits might be the result of patients being affected more with opportunistic infections as a result of an increase of the prevalence of HIV/Aids as indicated in figure 2.6. The increase in the number of children, namely 773, who visited the clinics in 2010 is a direct result of a National polio, measles, vitamin A and deworming campaigns launched in April 2010 (NDOH 2010:3).
Figure 2.5  Total headcount of annual visits to the fixed and mobile clinics in 2008-2010.

2.6  DIMENSIONS MODEL OF COMMUNITY HEALTH NURSING

The Dimensions Model of Community Health Nursing consists of three elements: the dimensions of health, healthcare and nursing practice (Clark 2008:69). According to Clark (2008:69), the “dimensions of health guide the nurse’s assessment of a client’s health status, whether it is an individual, a family, or a population”.

The framework for this research is based on the dimensions model in which the needs of the KNP’s employees and their families will be explored and described. The dimensions model incorporates the nursing process and public health concept of levels of prevention. However, the model also includes the determinants-of-health perspective on the factors that influence health and illness in populations and addresses relevant nursing activities or interventions within the dimensions of nursing that affect a population’s health status (Clark 2008:69).
The dimensions of health are similar to the epidemiological determinants-of-health perspective of public health where the interaction of multiple factors has been used to organise the assessment of the need of the KNP’s employees and their families. Clark (2008:68) used the following elements in the dimensions of health modules:

- **health** which covers the physical, psychological, environmental, socio-cultural, and behavioural needs of the employees and their families living in the KNP
- **health systems** which cover the availability, accessibility, affordability, acceptability and use of health services in the KNP and surrounding areas
- **healthcare** which covers primary, secondary, and tertiary prevention of disease and promotion of health of the employees and their families living in the KNP
- **nursing** which covers specific healthcare needs of the employees and their families living in the KNP.

### 2.6.1 Dimension of health of employees and their families living in the KNP

This dimension covers the physical, psychological, environmental, socio-cultural, and behavioural needs of the employees and their families living in the KNP.

#### 2.6.1.1 Physical healthcare needs of the employees and their families living in the KNP

The physical environment encompasses the health effects of factors in the physical environment. The physical environment consists of weather, geographic location, soil composition, terrain, temperature and humidity and hazards posed by poor housing and unsafe working conditions. Additional elements of the physical environment that affect health include light and heat, exposure to pathogens and allergens, radiation pollution, and noise (Clark 2008:71). Summers in the KNP are very hot and humid. The hottest days are experienced from November till February when temperatures above 40°C often occur (Braack 2006:8). According to the data review kept at the Skukuza clinic, many employees presented with skin conditions associated with high environmental temperatures, such as heat rashes.
Employees and their families in the KNP are located in a large geographically fragmented area with large distances from their nearest health facility; causing delays in seeking attention for their health needs. According data kept at the Skukuza clinic there is a high prevalence of HIV/Aids amongst employees living in the KNP. Therefore the immunity of HIV positive employees would be compromised, increasing their susceptibility to many diseases. Figure 2.6 illustrates the number of HIV positive employees and their families in the southern region of the KNP.

![Figure 2.6 Number of HIV positive employees and families in the southern region of the KNP: 2008-2010.](image)

Source: Data review: Skukuza clinic 2008-2010

Although plants in the KNP provide food, shelter and habitat and are vitally important to the environment, they may also affect human health with conditions such as hay fever and asthma. Employees and their families living in the KNP are vulnerable to these conditions.
2.6.1.2 Psychological healthcare needs of the KNP’s employees and their families

The psychological dimension encompasses the health effects of both internal and external psychological environments. Depression and low self-esteem are two factors in one’s internal psychological environment that could contribute to a variety of health problems, including suicide, substance abuse, family violence, and obesity. External psychological factors can also influence the development of health problems for example: a person who receives a great deal of emotional support during crises is less likely to attempt suicide than a person who faces crises without such support. Stress is another factor in the external psychological environment that is associated with a variety of health problems (Clark 2008:70).

The general mortality rate for the period 2006-2010 amongst the employees and their families living in the KNP, have been illustrated in figure 2.7.

![Mortality rate of SANParks employees living in the KNP for the period 2006-2010](image)

**Figure 2.7** Mortality rate of SANParks employees living in the KNP for the period 2006-2010

Source: (Shabangu 2009 and 2012) [e-mail to Riekie] Sherlocks@saparks.org
2.6.1.3 **Environmental healthcare needs of employees and their families living in the KNP**

According to Clark (2008:240), environmental health problems refer to an assessment of the factors contributing to the effects on human health by environmental issues such as exposure to pollution, exposure to pathogens and allergens, temperature and humidity, unsafe working conditions, difficult terrain and health hazards such as veld fires and zoonoses (infections in animals that may be transmitted to humans) (De Haan 2008:41). Because the KNP’s employees are exposed to abundant plant life such as trees and shrubs, they are prone to exposure to allergens that might cause allergic reactions such as hay fever and asthma. Certain employees, for instance field and game rangers, are specifically prone to unsafe working conditions where wild roaming dangerous and sick animals might affect these employees’ health and safety. Figure 2.8 illustrates that the more supportive the environment becomes, the easier the task of attaining health becomes.

![Figure 2.8](image)

**Figure 2.8** The effect of the environment on health

Source: Dennill *et al.* 2009:13

2.6.1.4 **Socio-economic healthcare needs of the KNP’s employees and their families**

When considering the economic context of health, the effects of poverty on health status or the increasing cost of healthcare are usually deemed to be important factors
There are many interrelationships among economic factors and health status. These relationships include those between health and societal productivity and stability, healthcare spending and rising costs, and the effect of socioeconomic factors on health status. The members of a healthy population are more productive and are able to learn and to use education effectively to increase society’s overall productivity. When people are unable to work due to health deficiencies, society loses their productive capacity. In addition the productivity of other family members might also be lost (Clark 2008:158). According to the data collected at Skukuza clinic there was a high prevalence of HIV/AIDS incidence in the KNP. **Immunity** is the body’s natural ability to defend itself against infection and disease. A **deficiency** is a shortcoming, the weakening of the immune system, so that the body can no longer defend itself against passing infections. A **syndrome** is a medical term for a collection of specific signs and symptoms that occur together and that are characteristic of a particular condition (Van Dyk 2008:4).

The employees and families of the KNP are affected by the destructiveness of HIV/AIDS in many ways with socioeconomic problems as a result.

### 2.6.1.5 **Healthcare needs due to health related behaviour patterns posing risks to the KNP’s employees and their families**

Certain personal behaviours might interact with the elements of a physical environment to cause or exacerbate health problems. For example smoking, abuse of alcohol, lack of recreational activities and unprotected risky sexual behaviours pose risks to the physical health of people (Clark 2008:241).

According to (Serraino et al. 2010:[11]; [http://www.aidsrestherapy.com/content/7/1/11](http://www.aidsrestherapy.com/content/7/1/11)) HIV-infected people face increased risks of developing several non-Aids defining illnesses, including diabetes mellitus and cardiovascular diseases. After the introduction of highly active antiretroviral therapies (HAART), an increased incidence of insulin resistance diabetes mellitus and cardiovascular diseases has been described (Serraino et al. 2010:[11]; [http://www.aidsrestherapy.com/content/7/1/11](http://www.aidsrestherapy.com/content/7/1/11)). Traditional risk factors
such as cigarette smoking, ageing, obesity, viral co-infections and duration of HIV infection are considered responsible for an elevated risk of death in HIV/Aids patients with diabetes mellitus and cardiovascular diseases.

2.6.2 Dimension of health systems offered to the KNP’s employees and their families

The discussion of this dimension focuses on the availability, accessibility, affordability, acceptability and use of health services of the KNP’s employees and their families. Health system factors could contribute to the development of chronic health problems or influence their course and consequences. Lack of access to healthcare is an important contributing factor to the incidence and prevalence, as well as control, of chronic diseases (Clark 2008:870). Healthcare system factors influence the availability and quality of treatments obtainable by persons with chronic conditions.

2.6.2.1 Availability of healthcare services for the KNP’s employees and their families

The availability of health services refers to sufficient and appropriate health services to meet the particular healthcare needs of each community. Availability is one of the strategies of the successful implementation of PHC (Dennill et al. 2009:6).

Healthcare services are fragmented in the KNP and not available to the entire community, mainly because of geographic inaccessibility. The only permanent healthcare services are situated in Skukuza, namely the PHC clinic, and the private practitioners’ practice.
2.6.2.2 Accessibility of healthcare services for the KNP’s employees and their families

Accessibility of healthcare services must be extended to be within reach of all people in the country. Special attention must be given to disadvantaged regions such as small isolated rural areas. Services must be

- geographically accessible, meaning that health services should be within a reasonable distance and that transport should be available
- financially accessible to the individual and the community
- functionally accessible, implying that the appropriate type of care should be available to meet the needs of the specific community (Dennill et al. 2009:6).

Healthcare services in the KNP are not accessible to all the people, because of long distances and geographic inaccessibility.

2.6.2.3 Affordability of healthcare services for KNP’s employees and their families

Affordability of healthcare services refers to the level of healthcare offered and should be aligned to what the community or the country can afford. No person should be denied healthcare because of an inability to pay (Dennill et al. 2009:6). The employees and their families, living in isolated areas of the KNP, have to travel more than 50 kilometres to their nearest healthcare service and up to 120 kilometres to the nearest hospital.

2.6.2.4 Acceptability of healthcare services for the KNP’s employees and their families

Acceptability of healthcare services reflects the level of congruence between services provided and the expectations, values, and beliefs of the target population (Clark 2008:72). The services provided must do what they were intended to do for the specific community. The effectiveness of the service must also be justifiable in terms of total cost (Dennill 2009:7). The available healthcare services in the KNP are acceptable to the community, however not accessible to all.
2.6.2.5  Utilisation of healthcare services by the KNP’s employees and their families

Utilisation of healthcare services refers to the extent to which the community actually makes use of available healthcare services (Clark 2008:72). Employees and their families living in the KNP utilise available health services extensively as indicated in figure 2.5.

2.6.3  Dimension of healthcare offered to the KNP’s employees and their families

The discussion of this dimension focuses on the primary, secondary, tertiary prevention of disease and promotion of health of the KNP’s employees and their families.

2.6.3.1  Primary preventive healthcare services provided to the KNP’s employees and their families

Primary prevention includes strategies to prevent chronic and other diseases from occurring and promote general health. This can be done through health promotion and health education to increase the public’s knowledge and individuals’ abilities to make healthy choices as well as creating environments that assist individuals in making healthy choices. The aim is to reduce or modify risk factors by establishing and maintaining healthy lifestyles and thereby reducing the risk of getting chronic conditions. Health promotion also includes having the appropriate health policies and services available to support people’s efforts to attain and maintain optimal health (De Haan 2008:55).

The following primary preventive healthcare services were rendered to the employees and their families in the southern region of the KNP during the years 2008-2010.

-  Ante-natal healthcare:
The first visit of a pregnant woman to a health facility should take place before the 20th week of gestation for the primary purpose of receiving ante-natal care, often referred to
as “booking visit”, that occurs within 20 weeks after conception. The first visit should include relevant screening procedures, laboratory tests for syphilis, counseling/health education and to prepare the woman for labour.

As illustrated in figure 2.9 the total of 39 were first annual ante-natal visits whereas the number of follow-up visits were 90 during 2008. The reason for the difference between the first and follow-up visits might be because some of the ante-natal clients also visited clinics outside the KNP. Many employees and families, living in the KNP, have homes in the neighbouring communities of the KNP. The slight decrease in the number of first visits (27) in 2010 could be a result of the impact of HIV/AIDS on the community of the KNP as indicated in figure 2.6. First antenatal visits and follow up visits recorded per annum for the years 2008, 2009 and 2010 in the southern region of the KNP, are illustrated in figure 2.9.

Figure 2.9 Anc annual first visits and follow-up visit for the year 2008-2010 in the southern region of the KNP
(Data review Skukuza clinic 2008-2010).
Prevention of mother to child transmission (PMTCT)

Mother to child transmission (MTCT), or vertical transmission of HIV, is one of the major causes of HIV infection in children. Unless preventative measures are taken 20-40% of children born to HIV positive women are infected. HIV can be transmitted from an infected mother to her baby via the placenta during pregnancy, through blood contamination during child birth, or trough breastfeeding. PMTCT in Skukuza clinic is managed according to the clinical guidelines of PMTCT according to the National Department of Health of South Africa (NDOH 2010:1).

Figure 2.10 illustrates the number of women at the ante-natal (Anc) clinic who were pre-test counseled for HIV; the number tested for HIV; and the number of HIV-positive women provided with antiretroviral prophylaxis treatment for PMTCT in the southern region of the KNP during 2008-2010.

Figure 2.10 Prevention of mother-to-child-transmission (PMTCT) in the southern region of the KNP 2008-2010
Source: Data review:Skukuza clinic 2008-2010
During 2008, 39 pregnant women who attended the antenatal clinic, were pre-test counseled and tested HIV positive. The number of women pre-test counseled during 2009 was 38 of whom 37 were HIV positive. The number of women pre-test counseled during 2009 was five who received ART.

- **Screening for cervical cancer**
  Human Papilloma Virus (HPV) Infection causes cervical cancer. Cancer of the cervix is one of the most common forms of cancer amongst women. If detected early, this can be treated and cured. All women are at risk of developing cancer of the cervix, but this increases with age. The onset of sexual activity at a young age and multiple sexual partners are associated with a higher risk of cervical cancer. Hence, delay of sexual debut, and safer sexual practices to reduce human papilloma virus (HPV) infection, should be encouraged (http://www.cancer.gov/cancertopics/factsheet/prevention/hpv).

Cervical cancer screening (Pap) smear should commence three years after the onset of sexual activity, and no later than the age of 21 years. Every one or two years after the age of 30 years, with previous negative tests, not after age of 70, with previous negative tests for the last ten years, and not after total hysterectomy (Clark 2008:454).

The Department of National Health recommended three smears for each woman per lifetime with a 10 year interval between each smear, commencing no earlier than the age of 30 years (http://www.doh.gov.za/docs/factsheets/guidelines/cancer).

Prevention is based on the knowledge of aetiological factors, and knowledge gained by epidemiological studies. The recognition and avoidance of carcinogens are of prime importance in the fight against cancer (Vlok 2006:800).
It is essential for all the people of the KNP to have access to comprehensive PHC services to obtain primary prevention strategies for the prevention of cervical cancer and care for HIV positive women. Cervical cancer screening in Skukuza clinic is managed according to national guidelines for cervical cancer screening programme (NDOH 2010:3).

Table 2.2 illustrates the number of clients screened for cervical cancer, number of positive smears for cervical cancer and the number of clients diagnosed with cancer of the cervix during 2008-2010 in the southern region of the KNP. Table 2.2 illustrates that 63 patients were screened for cervical cancer during 2008-2010. Of those 5 were smear positive for cancer of the cervix and 2 were diagnosed with cervical cancer in the southern region of the KNP.

Table 2.2  Screening of cervical cancer in the southern region of the KNP, as well as positive smear cases and cervical cancer diagnosed for the year 2008-2010

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical cancer screening</td>
<td>28</td>
<td>33</td>
<td>63</td>
</tr>
<tr>
<td>Cervical smear positive for cervical cancer</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Cervical cancer diagnosed</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Data review: Skukuza clinic 2008-2010

- **Malaria**

Malaria is a potentially life-threatening disease that poses major health risks for residents and travelers to malaria areas. It is an acute protozoal disease characterised by alternating attacks of high temperature, excessive perspiration and exhaustion. This parasitic disease is caused by four species of the plasmodium parasite namely:

- Plasmodium falciparum (P. falciparum).
- Plasmodium malariae (P. malariae).
- Plasmodium ovale (P. ovale).
- Plasmodium vivax (P. vivax).
Malaria is transmitted to humans by the bite of the female Anopheles mosquito, carrying parasites, of the genus Plasmodium. The main culprit of the four species of Plasmodium is Plasmodium falciparum, which causes at least 90% of all infections in Southern Africa. It is also responsible for the most serious form of the disease and the majority of deaths (http://www.malaria.org.za/malaria).

Malaria is a notifiable disease in South Africa (Regulation R703 of 1993) and occurs mainly in tropical and sub-tropical countries in Central and South America, Africa, Asia and Oceania. Malaria occurs in limited areas in SA, mainly in the low altitude areas of the Limpopo, Mpumalanga, Limpopo, North Eastern KwaZulu-Natal provinces and is therefore endemic in the KNP (Van Den Berg & Viljoen:233).

HIV positive individuals are more prone to suffer from malaria than HIV negative individuals. It has also been demonstrated that malaria causes a seven fold increase in the HIV viral load of people with HIV infection. People with HIV infection should therefore take extra precautions when living in malaria areas (Van Dyk 2008:55).

Malaria in the KNP is managed according to national guidelines for the prevention and treatment of malaria in South Africa which includes appropriate advice and use of drugs. Most importantly, non-drug prophylactic measures can prevent persons from contracting the disease, including:

- Awareness and assessment of malaria risk
- Avoidance of mosquito bites
- Compliance with chemoprophylaxis, when indicated
- Early detection of malaria

The objections of malaria treatment are to:

- prevent mortality
- prevent disease progression and development of severe malaria
- reduce morbidity
• eliminate parasitaemia to minimise transmission and
• limit the emergence and spread of drug resistance (NDOH: guidelines for the treatment of malaria 2010:1).

Because malaria is an endemic condition in the KNP, it is important to optimally introduce preventative measures as well as early detection of the disease by malaria rapid testing and treatment or referral to hospital if necessary. Table 2.3 demonstrates the prevalence of suspected malaria cases, positive malaria cases and malaria cases admitted to the hospital in the southern region of the KNP during the year 2008-2010.

Table 2.3 illustrates that 645 patients were screened for malaria during the period 2008-2010 in the southern region of the KNP; whereas 49 patients were positive for malaria falciparum and 6 patients were referred to hospital.

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suspected malaria cases</td>
<td>180</td>
<td>188</td>
<td>277</td>
</tr>
<tr>
<td>Suspected malaria cases tested positive</td>
<td>17</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>Malaria positive cases referred to hospital</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: Data review Skukuza clinic 2008-2010

**Reproductive health**

Oral contraception in the form of combined oestrogen progesterone pills, progesterone only pills as well as progesterone injectables should be available at all PHC clinics in South Africa. Male and female condoms as barrier methods should be distributed as well (http://www.info.gov.za/aboutsa/health.htm). The goal of reproductive health is to improve the sexual and reproductive health of all people in South Africa and to enable all people to exercise their contraceptive choice safely and freely. Providers should provide all women, men and young people, with the contraceptive method of their choice, subject to medical suitability and in accordance with the standardised clinical

Reproductive health is managed according to national guidelines for contraception service delivery in South Africa: A complete medical, obstetric and family history is obtained and an appropriate physical examination performed to identify potential risks to the individual's health, and pregnancy is excluded before commencing contraception. Patients are screened for:

- vital signs such as blood pressure, body mass
- cervical cancer screening according to protocol
- conditions predisposing to congenital anomalies
- mental health

STIs are treated using the syndromic approach and partners are notified of patients' infections so that the partners can report for treatment. Patients are screened for pregnancy and referred to the ante-natal clinic if they are pregnant or for termination of pregnancy (TOPs) if they want to terminate the pregnancy. Emergency contraceptive pills, as post-coital contraception, are also provided when necessary.

![Figure 2.11](image_url)

**Figure 2.11** Different family planning methods administered in the southern region of the KNP
Source: Data review Skukuza clinic 2008-2010
Figure 2.11 illustrates the number of clients who were on oral contraceptives, medroxyprogesterone acetate (long acting) 12 weekly and Norethisterone 8 weekly injectable contraceptives in the southern region of the KNP during 2008-2010.

- **Sexual transmitted infections (STI)**

Sexually transmitted infections are managed according to the national protocol for management and control of sexually transmitted infections. The syndromic approach to STI diagnosis and management implies treating the signs or symptoms (syndrome) of a group of diseases rather than treating a specific disease. This allows for the treatment of one or more conditions that might occur simultaneously and has been accepted as the management method of choice.

Many infected people have partners outside the KNP. One man might reportedly have 3-4 sex partners in one week. A small percentage of contact tracing remains a challenge in all PHC clinics and is a reason for concern, as STI’s contribute to the spread of HIV/Aids.

**Figure 2.12** Number of new sexually transmitted infections treated, male urethral syndrome, contact slips issued and the contacts treated in the southern region of the KNP

Source: Data review Skukuza clinic

68
Tuberculosis (TB)

TB is an infectious, chronic (acute or sub-acute) notifiable disease, characterised by the formulation of tubercles in any tissue or organ of the body. TB is caused by a micro-organism, the bacillus Mycobacterium tuberculosis, which usually enters the body by inhalation. Mycobacterium tuberculosis often affects the lungs, but it may also spread from the lungs to almost any part of the body via the bloodstream, the lymphatic system, or the airways. Pulmonary TB (in the lungs) is the infectious and most common form of the disease occurring in over 80% of cases notified to the DoHSS.

Extra-pulmonary TB (EPTB) results from the spread of the disease to other areas often the pleura, lymph nodes, meninges, spine, joints, genitor-urinary tract, intestines, kidneys, bones, or abdomen. Persons with EPTB are not likely to transmit the disease unless they also have pulmonary TB (Van Dyk 2008:63).

TB is prevalent all over the world. In South Africa the incidence in low-lying areas is twice that of the high-lying areas. TB is South Africa’s largest health problem and is the most serious and most common opportunistic infection that attacks HIV positive people (De Haan 2008:266).

Tuberculosis is a disease of poverty and poor living conditions. Malnutrition and alcoholism lower resistance and overcrowding favours close contact of susceptible persons, especially children and immune-compromised persons (Vlok 2006:515). An HIV positive patient with a deficient immune system has a ten times greater risk of developing TB or having an old infection reactivated than HIV negative persons. HIV shortens the time between exposure to the TB bacillus and the development of active TB. The mortality rate of TB is as much as four times higher in people who are infected with HIV (Van Dyk 2008:62).

Tuberculosis is managed according to the national tuberculosis management guidelines in South Africa.
Figure 2.13 illustrates the number of suspected TB cases, smear positive cases, number of clients started with TB treatment, and TB cases on treatment and enrolled on the TB register.

Figure 2.13  Number of suspected TB cases, TB cases tested smear positive, positive TB cases started with treatment, and TB cases on treatment on register in the southern region of the KNP in the year 2008-2010

Source: Data review Skukuza clinic

- HIV voluntary counseling and testing

The HIV/Aids pandemic directly or indirectly affects all South Africans. It has the potential to destroy the country’s’ economy and the labour force while at the same time being both a medical and political crises [http://www.unaids.org/en/knowledgecentre](http://www.unaids.org/en/knowledgecentre).

The impact of HIV is already experienced in many organisations with a loss of skills, an increase in absenteeism, higher morbidity and mortality rates, increased healthcare costs and other employee benefit costs as well as an increase in the cost of recruitment and training.
South Africa has one of the world’s highest HIV prevalence rates, with an estimated 10.6% of its 49 million people infected. On average 29.3% of pregnant women who sought treatment at public health facilities during 2010 were HIV-positive (http://www.bloomberg.com). In the KNP treatment, care and support services are not available to all the employees and their families, and this might influence people who tested positive to foster pessimistic attitudes. The intricacy of obtaining ART treatment might pose added barriers to sustained ART. Skukuza clinic is only accredited for ART since September 2010. VCT in the KNP is managed according to national management guidelines for VCT in South Africa. Figure 2.14 illustrates the number of people counselled for HIV testing, the number tested, and the number of HIV positive people.

![Figure 2.14 The number of VCT clients counseled, the number tested and the number of VCT clients tested positive for HIV in the southern region of the KNP](image)

Source: Data review 2008-2010 Skukuza clinic
- **CD4 count and the number of referrals for ART**

Management of HIV and referrals are executed according the clinical guidelines for the management of HIV and Aids in adults and adolescents in South Africa (NDoH:2010). HIV positive patients are referred when eligible for ART to the nearest ART service point. Since September 2010 Skukuza clinic is accredited for the initiation of ART and therefore patients eligible for treatment are initiated at Skukuza clinic in the KNP.

Figure 2.15 illustrates the number of blood samples drawn from HIV positive patients for their CD4 counts and the number of referrals to the nearest ART service point 2008-2010.

![Figure 2.15 Number of blood samples drawn from patients for CD4 count and the number of referrals to the nearest ART service point](image)

Source: Data review 2008-2010 Skukuza clinic
• Chronic lifestyle diseases

According to Clark (2008:855), a chronic disease is defined as a condition that requires on-going medical care, limits what one can do, and is likely to last longer than one year. Chronic conditions include diseases, injuries with lasting consequences, and other enduring abnormalities. Chronic health problems may be either physical or emotional.

Chronic lifestyle diseases are a group of diseases that share similar risk factors as a result of exposure over many years, such as unhealthy diets, smoking, lack of exercise and possibly stress. The major risk factors are high blood pressure, tobacco addiction, high blood cholesterol, asthma and diabetes mellitus. These result in various disease processes culminating in high mortality rates due to strokes, heart attacks, tobacco and nutrition induced cancers, chronic bronchitis and emphysema (http://www.sahealthinfo.org/lifestyle.htm).

Chronic health problems can arise from a variety of sources, for example some people are born with chronic health problems. Conversely, a person might develop a chronic disability as a result of a serious accident or because of a disease such as arthritis, cardiovascular disease, chronic respiratory disease, HIV/Aids, or cancer. Some chronic conditions such as some forms of cancer or HIV/Aids may result in death. Other chronic conditions, although not fatal, cause persistent pain and disability. The effects of chronic conditions are not only experienced by individuals. Population groups and society at large are also affected by the consequences of chronic health problems (Clark 2008:860).

Factors related to the biophysical, psychological, physical environmental, socio-cultural, behavioural, and health system dimensions can increase the risk of an individual or a population group with respect to a particular chronic condition. Conversely, the presence of a chronic condition might affect factors in each of these areas (Clark 2008:861). The number of chronic conditions reported in the chronic register in Skukuza’s fixed and mobile clinics has increased noticeably from 2008 till 2010.
Medical care on the other hand, has contributed to reduced mortality rates from cardiovascular and cerebro-vascular diseases. This is largely due to the concerted effort to control hypertension, smoking, and diet. Risk factors related to the biophysical, psychological, physical environments, sociocultural, behavioural, and health system dimensions all influence the development and outcomes of chronic physical health problems (Clark 2008:871).

PHC nurses are actively involved in efforts to control chronic physical health problems and their effects in individuals and population groups. These efforts involve assessment, diagnosis of chronic conditions, planning and implementation of control programmes, and evaluation of their effectiveness.

- **Hypertension**

Hypertension or high blood pressure is defined as a consistent elevation of pressure or tension in the arteries. Arteries are vessels that carry blood from the pumping heart to all the organs and tissues in the body. Hypertension is measured by the maximum or systolic pressure and the lowest or diastolic pressure made by the contraction and relaxation of the heart respectively. High blood pressure does not imply excessive emotional tension although emotional tension, and stress can temporarily increase blood pressure. Early diagnosis and effective management of hypertension are essential because it is a major modifiable risk factor for cerebro-vascular, cardiac, vascular and renal complications (Sands, Neighbors, Marek & Green-Nigro 2007:760).

Because hypertension is largely asymptomatic, it is often called the “silent killer”, as the condition may proceed undetected and uncontrolled, leading to irreparable end-organ damage (Sands et al. 2007:760). Modifiable risk factors for hypertension includes obesity, smoking, sedentary lifestyle, excessive sodium intake, alcohol abuse, chronic emotional stress and atherosclerosis. Nonmodifiable risk factors are age (over 60 years), male gender, post-menopausal status, history of diabetes, high cholesterol and positive family history (Sands et al. 2007:761).
Management of hypertension in the PHC clinic at Skukuza, and in other government clinics, is done according to the National Guideline on Primary Prevention of Chronic Diseases of Lifestyle and Standard Treatment Guidelines and Essential Drugs List.

### Table 2.4: Stepwise hypertension treatment

#### Step 1

<table>
<thead>
<tr>
<th>Entry to step 1</th>
<th>Treatment</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>diastolic BP 90-99 mmHg and/or systolic BP 140-159 mmHg without any existing disease and no major risk factors</td>
<td>lifestyle modification</td>
<td>BP control within 3 months to systolic BP below 140 mmHg and diastolic below 90 mmHg</td>
</tr>
</tbody>
</table>

#### Step 2

<table>
<thead>
<tr>
<th>Entry step 2</th>
<th>Treatment</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>diastolic BP 90-99 mmHg and systolic BP 140-159 mmHg without any existing disease and no major risk factors and failure of lifestyle modification alone to reduce BP after 3 months or mild hypertension with major risk factors or existing disease or moderate hypertension at diagnosis</td>
<td>lifestyle modification and hydrochlorothiazide, oral, 12.5mg daily</td>
<td>BP control within 1 month to systolic BP below 140 mmHg and diastolic below 90 mmHg</td>
</tr>
</tbody>
</table>

#### Step 3

<table>
<thead>
<tr>
<th>Entry to step 3</th>
<th>Treatment</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>failure of step 2 after 1 month or severe hypertension</td>
<td>lifestyle modification and hydrochlorothiazide, oral, 12.5mg daily add beta-adrenergic blocking agent, such as atenolol oral, 50mg daily if not contra-indicated</td>
<td>BP control within 1 month to systolic BP below 140 mmHg and diastolic below 90 mmHg</td>
</tr>
</tbody>
</table>
### Step 4

<table>
<thead>
<tr>
<th>Entry to step 4</th>
<th>Treatment</th>
<th>Target</th>
</tr>
</thead>
</table>
| failure of step 3 after 1 month compliance | Lifestyle modification and Hydrochlorothiazide, oral, 12.5mg daily  
And Beta-adrenergic blocking agent such as atenolol, oral, 50mg daily if not contra-indicated  
add ACE-inhibitor  
or Dihydropyridine calcium channel blocker, long acting (doctor initiated) | BP control within 1 month to systolic BP below 140 mmHg and diastolic below 90 mmHg with no side-effects |

### Step 5

<table>
<thead>
<tr>
<th>Entry to step 5</th>
<th>Treatment</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>failure of step 4 after 1 month of compliance</td>
<td>Refer</td>
<td></td>
</tr>
</tbody>
</table>

Source: NDoH Standard treatment guidelines and essential drugs list 2008:73-75

- **Diabetes Mellitus**

Diabetes mellitus is a group of metabolic diseases characterised by hyperglycaemia resulting from defects in insulin secretion, insulin action, or both. The basis of the abnormalities in carbohydrate, protein and fat metabolism in diabetes is the deficient action of insulin on the target tissues of skeletal muscles, adipose tissues and the liver. Uncontrolled diabetes mellitus may result in long term damage, dysfunction, and failure of various organs. Diabetes cannot be cured but it can be controlled by daily self-care (Sands et al. 2007:929).
<table>
<thead>
<tr>
<th>Type</th>
<th>Defining characteristics</th>
</tr>
</thead>
</table>
| Type 1 DM Immune mediated | Insulinopenic (insulin deficient) and dependent on exogenous insulin to sustain life  
Onset generally before age 30, but may occur at any age, including the geriatric years  
Generally lean, rarely obese  
Variable rate of beta-cell destruction  
Clinical presentation usually rapid  
Strong human leukocyte antigen (HLA) associations |
| Idiopathic diabetes | No immunologic evidence for beta-cell destruction  
No HLA association  
Strongly inherited  
Most individuals affected are African or Asian  
Episodic ketoacidosis with varying degrees of insulin deficiency between episodes |
| Type 2 DM          | The absolute requirement for exogenous insulin is episodic  
No requirement for exogenous insulin to sustain life at least initially  
Ranges from a picture of predominantly insulin resistance with mild relative insulin deficiency to a picture of more severe insulin secretory defects with insulin resistance  
Usually obese; those who are not obese by traditional criteria usually have abdominal adiposity  
Onset usually after age 40, but may occur at any age  
No auto-immune or HLA association |
| Gestational DM     | Pregnancy related                                                                                                                                          |

Source: Sands et al. 2007:930

Management of diabetes mellitus in the PHC clinic at Skukuza and in all other government clinics are according to National Guideline on Primary Prevention of Chronic Diseases of Lifestyle and Standard Treatment Guidelines and Essential Drugs List.
Figure 2.16 Number of hypertension and diabetes mellitus in the southern region of the KNP

Source: Data review 2008-2010 Skukuza clinic

2.6.3.2 **Health promotive healthcare services provided to the KNP’s employees and their families**

The failure of health education on the effects of diet, exercise, smoking, alcohol and other factors contribute to the development of chronic health problems and to the increased incidence of these conditions. To some extent this failure might be attributed to time constraints in the healthcare services. Intensive lifestyle modification programmes are found to be more effective than patient health education in clinics, because of limited consultation time per patient. The extent of screening services for existing chronic conditions might influence their course and effects (Clark 2008:870).

2.6.4 **Dimension of nursing offered to the KNP’s employees and their families**

The dimensions of nursing include the cognitive dimension of nursing practice that encompasses the knowledge needed for the nurse to identify health needs and how to
implement care to meet those needs. The interpersonal dimension includes affective elements and interaction skills. Affective elements consist of the attitudes and values of the health professional that influence his or her ability to practice effectively with a variety of different people (Clark 2008:73).

The discussion of this dimension focuses on specific healthcare information and support needed by the KNP’s employees and their families. In the PHC clinic the nurse uses intellectual skills and cognitive knowledge of causative factors of health problems to assess health and derive nursing diagnoses (Clark 2008:74).

Information in the form of health education, care and support is of vital importance to all people and their families living in the KNP and should include:

- immunisation of all children and child health nutrition information
- ante-natal care as well as PMTCT care and information
- women’s health such as cervical cancer screening and family planning care and information
- chronic care and lifestyle modification information
- mental health care and information
- communicable disease control and information
- Information on HIV/AIDS comprehensive management including voluntary counseling and testing for HIV and screening for TB
- ART information and care
- oral health care information
- information on all medications prescribed
- health education for the management of minor ailments as well as first aid care for common injuries and emergencies.

2.7 SUMMARY

The literature review of existing knowledge about PHC, health, health systems, and healthcare needs of people in South Africa and employees and their families living in
the KNP have been reviewed in this chapter. The current healthcare system of the KNP, viewed against the healthcare system of South Africa and a needs assessment, is the focus of this chapter.

Attaining and maintaining health can be a complicated process, as overall health can only be achieved through a combination of complete physical, mental, emotional, and social wellbeing and not merely through the absence of disease or infirmity (Vlok 2006:7).

The statistics of Skukuza PHC clinic, displayed in graphs, according to indicators of the District Information Health Systems (DIHS), portrayed the health situation of the KNP’s employees and their families.

In chapter 3 the research design and methodology used in the study have been discussed.
CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

In the previous chapter information, found in the literature pertaining to issues related to the topic, were discussed.

This chapter describes the research design and methodology used in the study, including the population, data collection, validity and reliability of the research instrument, as well as ethical considerations.

3.2 PURPOSE OF THE STUDY

The overall aim of the study was to determine the healthcare needs of the KNP’s employees and their families.

3.2.1 Objectives

The objectives of the study were to explore and describe the dimensions of:

- **health needs**, including the physical, psychological, environmental, socio-cultural, and behavioural healthcare needs of the employees and their families living in the KNP

- **healthcare systems**, implying the availability, accessibility, affordability, acceptability and use of healthcare services in the KNP and surrounding areas
• **healthcare needs**, addressing primary, secondary, tertiary prevention of disease and promotion of health of the employees and their families living in the KNP

• **nursing care needs** which could meet specific healthcare needs of the employees and their families living in the KNP.

### 3.2.2 Research questions

The main research question was:

*What were the healthcare needs of the employees and their families living in the KNP?*

This question was then divided into the following sub-questions:

- What were the dimensions of health needs: physical, psychological, environmental, socio-cultural, and behavioural health needs of the employees and their families living in the KNP?

- What were the dimensions of healthcare systems: how available, accessible, affordable, acceptable were the health services in the KNP, and how often were they utilised by the employees and their families living in the KNP?

- What were the dimensions of healthcare needs: primary, secondary, tertiary preventative health care needs of the employees and their families living in the KNP?

- What were the dimensions of nursing care needs: specific healthcare needs of the employees and their families living in the KNP?

### 3.3 RESEARCH DESIGN AND METHODOLOGY

A research design can be described as an overall plan for addressing a research question, including the specifications for enhancing the study’s integrity (Polit & Beck 2008:765). The researcher needs to specify what observations to make, (which variables to focus on), how to make them (which measurement procedures to adopt), and when to make them (Stommel & Wills 2004:33).
Research designs provide blueprints, or systems of rules to be followed in the conduct of a study. Thus the more detailed and more specific a research plan is, the easier other researchers can reproduce the study (Stommel & Wills 2004:34). The research design guides the researcher in planning and implementing the study to attain the proposed objectives.

According to Polit and Beck (2008:765) research methods are techniques used to structure a study and to gather and analyse information in a systematic manner. Methods in research can also be referred to as the steps, procedures, and strategies for gathering and analysing data (Polit & Beck 2008:758).

### 3.3.1 Quantitative research

With quantitative research the phenomenon is measured and numerically scored with standardised scales, which in turn, allows for mathematical or statistical modes of analyses (Stommel & Wills 2004:442). In this study the researcher selected to undertake a quantitative study with descriptive and explorative designs, to investigate the health care needs of the employees and their families who live in the KNP. Because it was a quantitative study, a structured interview schedule could be used to collect data and the answers of the respondents were coded and analysed, using the MS Excel program. The answers of the few open-ended questions were grouped and scored numerically to produce quantitative data.

### 3.3.2 Explorative design

An exploratory design begins with a phenomenon of interest, but rather than observing and describing it, exploratory research investigates the full nature of the phenomenon, the manner in which it is manifested, and other related factors (Polit & Beck 2008: 20). With an exploratory design the researcher measures a wide range of possible “causes”
at a specific point and time, and then examines an outcome of interest at a later point (Polit & Beck 2008:273).

In this study the researcher explored the health care needs of the employees and their families living in the KNP as no research findings on this topic could be located.

### 3.3.3 Descriptive research

Research that has as its main objective the accurate portrayal of the characteristics of persons, situations, or groups, and/or the frequencies with which certain phenomena occur (Polit & Beck 2008:752), is known as descriptive research.

The purpose of descriptive studies is to observe, describe, and document aspects of a situation in natural circumstances (Polit & Beck 2008: 274).

In this study the researcher wished to describe the healthcare needs of the employees and their families living in the KNP.

### 3.3.4 The conceptual framework of the research

As part of the literature review special attention should be paid to theoretical and conceptual frameworks or concepts that seem to be influential and useful in guiding the research (Stommel & Wills 2004:358). According to Polit and Beck (2008:754), a framework is the underpinning of a study. For example, theoretical frameworks in theory-based studies or conceptual frameworks in studies, based on specific conceptual models, could be useful for contextualising the research process and results.
A model is a symbolic representation of concepts or variables, and interrelationships among them (Polit & Beck 2008:758). The components of a model can direct or guide the study. The dimension model of community health nursing has been applied to this study and the elements of the model have been used as a conceptual framework in the dissertation, for instance for chapters 2, 4, 5 and for constructing the interview schedule (Clark 2008:69).

### 3.4 RESEARCH POPULATION

According to Brink (2007:101) the research population is the entire group about which information is desired. This group may consist of individuals or objects and has common characteristics designated by the researcher as being relevant to the study.

In this study the population consisted of employees and their families in the different work environments of the KNP. The entire research population of the KNP comprised 4 000 people (Thomson 2004:2).

A sample was drawn from the research population as it would have been impracticable, extremely time-consuming and very expensive to study the entire research population in the KNP. Thus sampling was necessitated by time and financial constraints.

### 3.5 SAMPLING AND SAMPLE

According to Polit and Beck (2008:339) sampling is a method of selecting a portion of the population to represent the entire population so that inferences about the population can be made. A sample is the subset of the larger population of cases, units, or observations.
The researcher decided to use a stratified random sampling method to ensure that all categories of employees of the various camps were chosen. This approach enabled the inclusion of the KNP’s subgroups of employees (Brink 2007:105).

The names of all the southern rest camps in the KNP were written on golf balls to facilitate the easy mixing of the names. Names written on pieces of paper and placed in a hat often stick together, making random sampling difficult. One golf ball, with the name of a southern rest camp, was taken blindly from the container by a neutral person and the name was written down. The same method was followed for the choosing the northern rest camps; central and far northern rest camps; concession areas, bushveld camps and ranger sites. The researcher decided to divide the KNP into the four regions and collect data from each region as their healthcare needs might differ because of environmental, infrastructure, and other differences and also because the healthcare services were provide by two different provinces.

A list of names of each category of workers was obtained from the management of the KNP. The names of the employees from each category of the selected camps were then numbered and each number was written on a golf ball. The same method of selection was followed for the individual respondents, as in the selection of the rest camps. This process was repeated until 75 individuals had been selected.

The researcher visited the majority of the respondents at their places of work or telephonically/electronically contacted them to establish whether they would be willing to be included in the sample. The sample comprised 75 respondents.

Sampling criteria are developed from the research problem, the purpose of the study, the operational definitions, study variables and design (Stommel & Wills 2004:300).
To be included in the study the respondents had to be:

- male or female employees who worked in the KNP
- employees who have families who live with them in the KNP
- willing to be interviewed and gave their informed consent.

### 3.5.1 The sample size

The sample consisted of 75 respondents comprising approximately 2.5% of the total research population of 4 000 persons.

### 3.6 DATA COLLECTION

Data form the basis of discussion and statistical interpretation. The term generally refers to the set of measurements collected by the researcher in the course of a study or, to the numerical results of a study (Brink 2007:26).

Polit and Beck (2008:751) refer to data collection as the formal procedures researchers develop to guide the collection of data in a standardised fashion. Research data for quantitative studies are collected according to a structured plan that indicates what information needs to be gathered and the process for doing this (Polit & Beck 2008:371). In this study the researcher collected the data by conducting structured interviews, using a pre-planned interview schedule. Permission was obtained from the executive manager of the KNP. The pre-planned, compiled and pre-tested interview schedule was used to collect data (pre-testing is addressed in section 3.7 of the dissertation).

### 3.6.1 The Interview

Survey data can be collected in a number of ways, but the preferred method is through personal interviews, where the researcher conducts face-to-face interviews with the
selected respondents. Personal interviews are regarded as the best method of collecting survey data because of the quality of information yielded. This is the case because the interviewer can explain any aspects that the respondent might not understand and obtain truthful answers. A further advantage of personal interviews is that the refusal rate tends to be low (Polit & Beck 2008:324).

The rationale to select the interview as a data collection method for this research was that:

- Some of the respondents of the sample were illiterate and would have been unable to read and understand the questions. The researcher read the questions to these respondents, recorded their answers and made use of an interpreter where applicable.

- The interview schedule had to be compiled in English for the purpose of the dissertation, but the researcher made use of an interpreter to translate the interview schedule into Shangaan or Tsonga where applicable. The respondents reacted positively and could answer all questions with some explanations provided by the interviewer and/or translator.

- Data were collected by interviewing 75 respondents. The respondents represented all categories of employees in the KNP.

- With a structured interview method, interviewer bias might occur, with possible implications for the research. Respondents and interviewers interact as humans and this interaction could affect respondents’ answers (Polit & Beck 2008:424).

- To overcome this problem, the primary task of interviewers is to put each respondent at ease so that he/she will feel comfortable in expressing opinions honestly. Interviewers always need to be courteous and friendly and expressions of surprise, disapproval or even approval should be avoided.

- The interviewer should be familiar with the questions in order to communicate in a natural conversational tone with the respondents (Polit & Beck 2008:429).

- The respondents were, however, asked before the interview to give their honest opinions to the best of their ability, and the researcher trusted the information to be correct. The researcher conducted the interviews herself and made use of
the prepared instrument. A translator assisted the interviewer, where necessary.

3.6.1.1 Methodology followed during each interview

Early in the morning of the set date for the interview session, the researcher visited the rest camp where the participants waited to be interviewed, as pre-arranged with the rest camp’s management. The researcher used a hut designated to her by the rest camp management for conducting interviews. The huts used for the interviews were in a quiet section of the rest camp. Disturbances during the interviews were minimal. The researcher placed the chairs in such a position that it would allow the researcher and respondent to face each other, and the researcher did not sit behind a desk that could be seen as a barrier between the parties. The researcher made sure that there was fresh cold water and glasses available for the respondents.

The respondents were welcomed and thanked for their willingness to participate in the research. They were again briefed on the objectives of the research, their role in this process and their rights. Their cooperation was requested, and they were again assured that they could terminate the interview at any stage without incurring any penalty whatsoever. The respondents were asked whether they had any questions for the researcher before the interview started.

During the interview the researcher marked the choices made by the respondent to the closed-ended questions in the relevant spaces on the interview schedule. The researcher also wrote down the respondent’s answers to the few open-ended questions verbatim on copies of the interview schedule. One-on-one interviews were conducted to ensure anonymity and confidentiality during the interview process.
An average of three to four interviews was conducted each day. The following table indicates the dates on which the interviews were conducted and the rest camps concerned.

**Table 3.1: Dates of interviews and rest camps in the KNP**

<table>
<thead>
<tr>
<th>Rest camp</th>
<th>Dates</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satara</td>
<td>25/10/2009-26/10/2009</td>
<td>04</td>
</tr>
<tr>
<td>Letaba</td>
<td>26/10/2009-27/10/2009</td>
<td>08</td>
</tr>
<tr>
<td>Shingwedzi</td>
<td>28/10/2009-29/10/2009</td>
<td>05</td>
</tr>
<tr>
<td>Skukuza</td>
<td>29/10/2009-20/11/2009</td>
<td>25</td>
</tr>
<tr>
<td>Satara</td>
<td>10/11/2009</td>
<td>06</td>
</tr>
<tr>
<td>Shingwedzi</td>
<td>11/11/2009</td>
<td>05</td>
</tr>
<tr>
<td>Letaba</td>
<td>11/11/2009</td>
<td>02</td>
</tr>
<tr>
<td>Lower-Sable</td>
<td>19/11/2009-20/11/2009</td>
<td>10</td>
</tr>
<tr>
<td>Other</td>
<td>30/10/2009-18/11/2009</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total number of respondents</strong></td>
<td></td>
<td><strong>75</strong></td>
</tr>
</tbody>
</table>

- **Interview schedule**

An interview schedule is a formal instrument that specifies the wording of all questions to be asked of respondents. An interview schedule resembles a questionnaire but the questions are read to the respondent and the researcher fills in or ticks off each the respondent’s answer to a specific question (Polit & Beck 2008:372).

Structured interviews differ in scale of structure through different combinations of open-ended and closed-ended questions. Open-ended questions allow respondents to respond in their own words in a narrative fashion. Closed-ended questions have fixed-alternative answers from which a respondent must choose the one that most closely matches the appropriate answer (Polit & Beck 2008: 414). The interview schedule used in this research consisted mainly of closed-ended questions, although a few open-ended questions required respondents to explain their particular answers.

As the elements of the Dimensions Model of Community Health Nursing were used as the conceptual framework for this research, these elements were also used to organise
the different sections of the interview schedule. The interview schedule consisted of the following sections:

**Section A:** Respondents’ demographic data.

**Section B:** Covered the dimensions of health, namely the physical, psychological, environmental, socio-cultural, and behavioural health needs of the employees and their families living in the KNP.

**Section C:** Covered the healthcare systems for instance the availability, accessibility, affordability, acceptability and use of health services in the KNP.

**Section D:** Covered the dimensions of healthcare, namely primary, secondary, tertiary prevention of disease and promotion of health of the employees and their families living in the KNP.

**Section E:** Covered the dimension of nursing care, for instance specific healthcare needs of the employees and their families living in the KNP.

The interview schedule (see Annexure C2) was sent to the supervisors at the UNISA who critically examined it. It was also sent to a statistician and to the management of the KNP for approval. Thereafter it was pre-tested in the KNP.

### 3.7 PRE-TESTING OF THE INTERVIEW SCHEDULE

A pre-test of the research instrument is done to test a data collection tool in order to identify any problems in the structure of the instrument and the wording of the questions. The researcher conducted structured interviews with eight respondents who were not part of the final study to pre-test the instrument.

The objectives of the pre-test were to identify

- mistakes in sentence construction
- typing errors and errors in the numbering or coding of items.
• questions that needed simplification
• important aspects not included in the instrument
• specific aspects of the interview schedule requiring modification

Following feedback from the pre-test, the researcher changed the interview schedule as follows:

Section A: Changed the numbering of items.
Section B3: Corrected mistakes in sentence construction.
Section D82: Made the sequence of the coding of the items more logical.

3.8 DATA ANALYSIS

Polit and Beck (2008:751) describe data analysis as a systematic organisation and synthesis of research data. In this study data were analysed with the assistance of a statistician using Microsoft Excel 2010 version (see chapter 4).

3.9 RELIABILITY AND VALIDITY

The quality of research and research instruments is determined by their validity and reliability. Reliability refers to the accuracy of obtaining the same answer when the same thing is measured more than once or when more than one person measures the same thing. If the instrument is reliable, the results will be similar each time the test is repeated (Polit & Beck 2008:764).

The use of a well planned structured instrument ensured the collection of the same data from all the respondents which facilitated analysis, comparison and discussion of the findings. The interview schedule used for data collection was structured to comply with the research objectives. The researcher obtained knowledge from the literature review and pre-existing instruments to develop the research instrument.
3.9.1 Reliability

Reliability is the degree of consistency with which an instrument measures the attributes (Polit & Beck 2008:764). Reliability is “the degree of consistency or dependability with which the instrument measures the attribute it is designed to measure”. A reliable instrument will yield results that are the same each time the test is repeated (Polit & Hungler 1997:308). Reliability is therefore concerned with accuracy, consistency and precision.

According to Polit and Beck (2008:374), for the research findings to be reliable the research instruments should accurately reflect or measure true scores of the attributes. In this study, the researcher ensured reliability by:

- Exactness of the measure used in an observation or description of an attribute.
- Instrument’s ability to produce the same result with repeated testing.
- The tool produces the same results when equivalent or parallel instruments or procedures are used.
- All the items in a tool measure the same concept or characteristic.
- Discussing the interview schedule with the supervisors (who have ample experience in the use of reliable instruments). See annexure C2 for the structured interview schedule prior to actual data collection.
- Pre-testing the interview schedule, to avoid words that were vague or would yield data irrelevant to the research questions.

3.9.2 Validity

Validity is the extent (degree) to which an instrument measures what it intends to measure (Burns & Grove 2008:457; Polit & Beck 2008:768). Validity is also referred to as the extent to which a specific measurement provides data related to commonly accepted meanings of a particular concept under consideration. In this study, the interview schedule was designed to identify health care needs of employees and their
families who live in the KNP. Like reliability, validity has a number of aspects and assessment approaches, such as face validity, content validity, and criterion-related validity and constructs validity.

*Face validity* refers to whether the instrument looks as though it is measuring the appropriate construct. The researcher and the supervisors were of the opinion that the interview schedule used in this research had face validity. This is the case because every item in the structured interview section addressed healthcare-related issues of the KNP’s employees and their families. This judgment was also based on their expert knowledge of the subject as well as their knowledge.

The interview schedule was also judged to have *content validity* based on the fact that it contained appropriate questions for the construct (healthcare of the KNP’s employees and their families) being measured. To assess whether the interview schedule covered all dimensions of the construct, it was compared to the literature and the supervisors’ inputs. No other test for validity of the research instrument was conducted.

In this study, the following procedures were followed to enhance validity:

- The interview schedule was compiled and cross checked by the supervisors.
- The interview schedule was pre-tested and corrected where necessary before data collection for the main study commenced.

### 3.10 LIMITATIONS

Polit and Beck (2008:73) discuss limitations of a study as sample deficiencies, design problems and weaknesses in data collection.

Some limitations could be identified before the research was conducted but other limitations will be discussed in chapter 5. Limitations to this study that could be identified before the commencement of the research included the fact that the “whole picture” of
health needs of employees and their families living in the KNP could not be studied, due to the complicated set-up. The vastness of the KNP, and language difficulties between researcher and respondents, could be seen as potential limitations. The “whole picture” was also not possible as the researcher could not include the visitors to the park or the prisoners, which would also influence the recommendations made at the end of the dissertation. To overcome some of the limitations, the researcher made use of the services of an interpreter during the personal interviews to ensure that the questions were clearly understood by the respondents.

Limitations will be discussed in more detail in chapter 5.

3.11 ETHICAL CONSIDERATIONS

In any research the researcher must address a range of ethical issues especially when the study involves humans as respondents.

Stommel and Wills (2004:373) are of the opinion that ethics is an academic discipline based in the philosophic and social sciences concerned with both descriptive and prescriptive questions of morality. According to Polit and Beck (2008:753) ethics focus on moral values that are concerned with the degree to which research procedures adhere to professional, legal and social obligations to the study participants. The following aspects were considered:

3.11.1 Permission to collect data

Permission to conduct the research was requested and obtained from the following authorities:

- The research proposal was submitted to the managing executive of the KNP and written consent was obtained to conduct the study in the KNP.
A letter was written to ask permission to collect data from the University of South Africa. Permission was granted and ethical clearance was obtained from the Research and Ethics Committee of the Department of Health Studies, UNISA. (See annexure A1 and 2).

3.11.2 Informed consent

Respect for all respondents is a key ethical principle that involves the right to full disclosure of information and the right to self-determination with regard to decision making about research participation. To make an informed decision, a potential research respondent must have adequate information about potential risks and benefits of study participation. Informed consent means that respondents have adequate information regarding the research, and have the power of free choice, enabling them to consent to or to decline participation voluntarily (Polit & Beck 2008:176), without incurring any negative consequences whatsoever.

In this research every respondent was given the opportunity to choose whether to be interviewed or not. The following information was given:

- The purpose and objectives of the study
- The estimated time required for the interview (approximately 20 minutes).
- The type of participation required or expected in the study (structured interview)
- How results would be made available/published (dissertation).
- How confidentiality, anonymity and privacy would be ensured
- The identity, qualification and contact details of the researcher in case anyone wished to obtain more information after the completion of the interview.

On the day of data collection, the researcher gave them a list of their rights to read and ask questions, if they so wished. They were then asked to sign the consent form if they agreed to take part. The researcher read and explained all information to the respondents who could not read, and all the respondents signed or wrote their names accordingly (Stommel & Wills 2004:379) (See annexure C1 for the respondents’ informed consent form).
3.11.3 The right to self-determination

Each respondent could freely decide to take part in the research or to decline participation without incurring any penalty or special treatment. This right was explained to them verbally and it was also mentioned on the consent form. Only employees who were willing to be interviewed, comprised the sample. The respondents could, however, withdraw from the study at any stage or could refuse to answer specific questions should they decide to do so.

3.11.4 The right to confidentiality and anonymity

Anonymous data collection means that the researcher has no way to link the identifying information of respondents with the data provided (Stommel & Wills 2004:382).

Anonymity was maintained because no names were written on the structured interview schedules and no means of identification of any specific respondent existed. In this study respondents were assigned numbers and no identifying information was appended to research materials, therefore any information provided by respondents could not be traced back to them. No names would be mentioned in any report.

Confidentiality means that information provided by respondents would not be divulged or made available to any other person (De Vos et al. 2005:61). In this study confidentiality implied that the researcher analysed and summarised the information from all the completed structured interview schedules and presented reports based on all the information combined in the dissertation, and possibly in a journal article.
The researcher assured the respondents and authorities who granted the permission to conduct the study of the anonymity and confidentiality of the data collected during the structured interviews.

3.11.5 Right to privacy

Researchers should ensure that their research is not more intrusive than it needs to be and that respondents’ privacy is maintained throughout the study. Respondents have the right to expect that any data they provide will be kept in the strictest confidence (Polit & Beck 2008:174).

All the interviews were conducted at a private venue, with only the researcher present and in sometimes the interpreter. All the completed structured interview schedules were kept under lock and key by the researcher. Only the researcher, the supervisors and the statistician had access to the raw data. The completed interview schedules would be destroyed by the researcher subsequent to the acceptance of the dissertation and possibly a journal article.

3.12 SUMMARY

In this chapter the researcher discussed the research design and methodology. The researcher developed a structured interview schedule as data collection instrument to elicit those responses relevant and essential to obtain information about the research problem. The data collection process and the maintenance of anonymity and confidentiality and other ethical issues were also addressed in this chapter.

In chapter 4 the data analysis and discussions has been presented.
CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

The previous chapter outlined the quantitative, exploratory and descriptive design that was used in this study. Structured interviews were conducted to collect the data.

The main purpose of this chapter is to discuss the findings obtained from the interviews conducted with 75 KNP employees. The response rate of the data collection was 100% as the respondents were interviewed at their work places by the researcher. The interview schedule comprised five sections.

The aim of the research was to determine the healthcare needs of the employees and their families living in the KNP. The objectives of the research were to explore and describe the health needs of the employees and their families, structured according to the dimensions of the objectives of the study were to explore and describe the dimensions of

- **health needs**, including the physical, psychological, environmental, socio-cultural, and behavioural healthcare needs of the employees and their families living in the KNP

- **healthcare systems**, implying the availability, accessibility, affordability, acceptability and use of healthcare services in the KNP and surrounding areas

- **healthcare needs**, addressing primary, secondary, tertiary prevention of disease and promotion of health of the employees and their families living in the KNP

- **nursing care needs** which could meet specific healthcare needs of the employees and their families living in the KNP.
4.2 DISCUSSION OF THE RESEARCH FINDINGS

The five sections of the interview schedule are used as a framework for discussing the research findings.

4.2.1 Respondents’ demographic information

In this section respondents’ personal information such as age, gender, occupations, qualifications, marital status, home languages, number of dependents, and approximate monthly incomes, and distances in kilometers respondents had to travel to their nearest healthcare services, were collected. It was important to collect data on the demographics of the respondents to determine what the health care needs were of respondents of different age groups, genders and cultural groups.

4.2.1.1 Age distribution of respondents (n=75)

The ages of the respondents ranged from ages 20 to older than 55 years. The average age of the respondents was 27 years.

Figure 4.1 Age distribution of respondents (n=75)
4.2.1.2 Gender of the respondents (n=75)

Both genders were represented in the sample, 54.7% (n=41) were males and 45.3% (n=34) were females.

4.2.1.3 Places where respondents resided in the KNP (n=75)

Respondents from the southern and northern sections of the KNP were included in the sample, 30.7% (n=23) of the 75 respondents lived in Skukuza which is the rest camp where the fixed healthcare services are located and 13.3% (n=10) of the respondents lived in Shingwedzi which is farthest away from these healthcare services.

![Figure 4.2 Places where respondents resided in the KNP (n=75)](image)

4.2.1.4 Marital status of respondents (n=75)

Out of the 75 respondents, 61.3% (n=46) were married, 33.3% (n=25) were single, 4.0% (n=3) were divorced, and 1.3% (n=1) was widowed.
4.2.1.5 **Home languages of respondents (n=75)**

The most important languages spoken in the region (Limpopo and Mpumalanga provinces) were represented in the sample. The home languages of the respondents were indicated as being mostly Tsonga 70.7% (n=53), which is the language spoken by the indigenous people of the region.

![Home languages of respondents (n=75)](image)

**Figure 4.3** Home languages of respondents (n=75)

4.2.1.6 **Respondents’ highest education levels attained (n=75)**

Of the 75 respondents 72.0% (n=42) could be considered literate as they completed their primary and secondary schooling and tertiary education.
Table 4.1: Highest education levels attained by respondents (n=75)

<table>
<thead>
<tr>
<th>Education</th>
<th>Percentage of respondents</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>No formal education</td>
<td>2.7%</td>
<td>2</td>
</tr>
<tr>
<td>Did not complete primary schooling</td>
<td>4.0%</td>
<td>3</td>
</tr>
<tr>
<td>Completed primary schooling</td>
<td>8.0%</td>
<td>6</td>
</tr>
<tr>
<td>Did not complete secondary schooling</td>
<td>37.3%</td>
<td>28</td>
</tr>
<tr>
<td>Completed secondary schooling</td>
<td>26.7%</td>
<td>20</td>
</tr>
<tr>
<td>Tertiary education</td>
<td>21.3%</td>
<td>16</td>
</tr>
</tbody>
</table>

4.2.1.7 Respondents’ employers (n=75)

Although the respondents all lived in the KNP they were not all employed by the KNP.

Table 4.2: Respondents’ employers (n=75)

<table>
<thead>
<tr>
<th>Employment status</th>
<th>Percentage</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>SANParks employed</td>
<td>66.7%</td>
<td>50</td>
</tr>
<tr>
<td>Private company employed</td>
<td>20.0%</td>
<td>15</td>
</tr>
<tr>
<td>Government employed</td>
<td>9.3%</td>
<td>7</td>
</tr>
<tr>
<td>Unemployed</td>
<td>2.7%</td>
<td>2</td>
</tr>
<tr>
<td>Self-employed</td>
<td>1.3%</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>75</td>
</tr>
</tbody>
</table>

SANParks employed most (66.7%, n=50) of the respondents.

4.2.1.8 Approximate monthly incomes of respondents (n=75)

The incomes of the respondents ranged from R3000 to R500 per month.
Figure 4.4  Approximate monthly incomes of respondents (n=75)

4.2.1.8 Type of work done by respondents (n=75)

A wide variety of employees were included in the sample ranging from labourers such as hut attendants (13.3%, n=10), to managers such as duty managers in rest camps (5.3%, n=4), and personnel who worked in the bush such as section rangers (2.7%, n=2). The type of workers most represented were hut attendants and general workers in rest camps. It is because there are more of these type of workers in the KNP. The least represented were veterinarians 1.3% (n=1) and employees involved in game capturing. This is likewise due to the fact that there are a total number of five veterinarians in the KNP.
Table 4.3: Type of work done by respondents (n=75)

<table>
<thead>
<tr>
<th>Type of work done by respondents</th>
<th>Percentage of respondents</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hut attendants in rest camps</td>
<td>13.3</td>
<td>10</td>
</tr>
<tr>
<td>General workers in rest camps</td>
<td>10.7</td>
<td>8</td>
</tr>
<tr>
<td>Technical service persons</td>
<td>5.3</td>
<td>4</td>
</tr>
<tr>
<td>Linen room workers</td>
<td>5.3</td>
<td>4</td>
</tr>
<tr>
<td>Chefs in restaurants</td>
<td>5.3</td>
<td>4</td>
</tr>
<tr>
<td>Shop attendants in rest camps</td>
<td>5.3</td>
<td>4</td>
</tr>
<tr>
<td>Security guards in rest camps</td>
<td>5.3</td>
<td>4</td>
</tr>
<tr>
<td>Hospitality managers in rest camps</td>
<td>5.3</td>
<td>4</td>
</tr>
<tr>
<td>Duty managers in rest camps</td>
<td>5.3</td>
<td>4</td>
</tr>
<tr>
<td>Supervisors in rest camps</td>
<td>5.3</td>
<td>4</td>
</tr>
<tr>
<td>Temporary workers</td>
<td>5.3</td>
<td>4</td>
</tr>
<tr>
<td>Workers in the transport section</td>
<td>2.7</td>
<td>4</td>
</tr>
<tr>
<td>Managers in concessions areas</td>
<td>2.7</td>
<td>2</td>
</tr>
<tr>
<td>Laundry workers at Skukuza</td>
<td>2.7</td>
<td>2</td>
</tr>
<tr>
<td>Section rangers</td>
<td>2.7</td>
<td>2</td>
</tr>
<tr>
<td>Field rangers</td>
<td>2.7</td>
<td>2</td>
</tr>
<tr>
<td>Police officers</td>
<td>2.7</td>
<td>2</td>
</tr>
<tr>
<td>domestic workers</td>
<td>2.7</td>
<td>2</td>
</tr>
<tr>
<td>Animal health workers</td>
<td>2.7</td>
<td>2</td>
</tr>
<tr>
<td>Trails ranger</td>
<td>1.3</td>
<td>1</td>
</tr>
<tr>
<td>Veterinarian</td>
<td>1.3</td>
<td>1</td>
</tr>
<tr>
<td>Game capturing</td>
<td>1.3</td>
<td>1</td>
</tr>
<tr>
<td>Professional nurse</td>
<td>1.3</td>
<td>1</td>
</tr>
<tr>
<td>Contract worker</td>
<td>1.3</td>
<td>1</td>
</tr>
</tbody>
</table>

4.2.1.10 Number of dependents per respondent

All the respondents (n=75) had dependents living in the KNP. In this section the number and age groups of the respondents’ dependents are presented.

- Respondents’ dependents

Of the 75 respondents, 45.3% (n=34) had wives living in the KNP. In section 4.2.1.4 the findings revealed that 46 of the respondents were married. It is, however, common practice of some of the wives or husbands not to live in the KNP as they are employed elsewhere. Out of these 34 wives living in the KNP, 79.4% (n=27) were not pregnant, and 20.6% (n=7) were pregnant.
Of the 75 respondents, 77.3% (n=58) indicated that they had dependent children living in the KNP.

Table 4.4: Respondents with children under the age of 2 years (n=58)

<table>
<thead>
<tr>
<th>Respondents</th>
<th>No of children per respondent</th>
<th>Total no of children</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>22</strong></td>
<td><strong>23</strong></td>
</tr>
</tbody>
</table>

The findings revealed that the respondents had 23 children younger than 2 years of age. Of the respondents 36.2% (n=21) indicated that they had children younger than 2 years and 1.7% (n=1) respondent had one child in the age group.

Table 4.5: Respondents with children between the ages 2-6 years (n=58)

<table>
<thead>
<tr>
<th>Respondents</th>
<th>No of children per respondent</th>
<th>Total no of children</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>29</strong></td>
<td><strong>37</strong></td>
</tr>
</tbody>
</table>

The findings portrayed in table 4.5 reveal that 29 respondents had 37 children amongst them. Of the 58 respondents who indicated that they had children living in the KNP, 36.2% (n=21) had one child, and 14.0% (n=8) had 2 children between the ages 2-6 years.

Table 4.6: Respondents with children between the ages 7-12 years (n=75)

<table>
<thead>
<tr>
<th>Respondents</th>
<th>No of children per respondent</th>
<th>Total no of children</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>22</strong></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>
The findings portrayed in table 4.6 indicate that 22 respondents had a total of 24 children between the ages 7-12 years of age. Of these 58 respondents 34.4% (n=20) had one child each between the ages 7-12 years and 3.4% (n=2) respondents had two children each.

Of the 58 respondents, 12.0% (n=9) had one child in the age group of 13-19 years, 5.3% (n=4) respondents had two children and 2.7% (n=2) respondents had three children aged 13-19.

Table 4.7: Respondents with children in the age group 13-19 years (n=58)

<table>
<thead>
<tr>
<th>Respondents</th>
<th>No of children per respondent</th>
<th>Total no of children</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
<td><strong>23</strong></td>
</tr>
</tbody>
</table>

The total number of respondents who had children in this age group was 20.0% (n=15) and the total number of children between the ages 13-18 years was 23.

Table 4.8: Respondents with dependent children older than 19 years of age (n=58)

<table>
<thead>
<tr>
<th>Respondents</th>
<th>No of children per respondent</th>
<th>Total no of children</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14</strong></td>
<td><strong>32</strong></td>
</tr>
</tbody>
</table>
Of the 58 respondents who indicated that they had dependent children living in the KNP, a total of 24.1% (n=14) had 32 children older than 19 years.

The total number of the 75 respondents’ children, of all ages, who lived in the KNP was 139.

- **Senior citizens dependent on respondents**
  
  Only one (1.3%) respondent indicated that he/she had one senior citizen as a dependent person.

### 4.2.1.11 Distances respondents had to travel to their nearest healthcare services (n=75)

Providing healthcare posed challenges as the respondents had to travel considerable distances to their nearest healthcare facilities. The respondents indicated that they had to travel from 1 to more than 50km to reach the nearest healthcare services.

![Distance in kilometres respondents had to travel to their nearest healthcare services (n=75)](image)

**Figure 4.5** Distance in kilometres respondents had to travel to their nearest healthcare services (n=75)
4.2.1.12 **Summary of respondents demographic data**

The findings in this section reveal that most respondents fell within the age bracket 40-45 years, were males, lived in Skukuza, were married, spoke Tsonga, were employees of SANParks, earned between R1001 to 3000 per month, were hut attendants in rest camps, had children and had to travel more than 51km to the nearest healthcare service when they needed health care.

4.2.2 **Dimensions of health**

Section B of the structured interview schedule covered the dimensions of health, namely the physical, psychological, environmental, socio-cultural, and behavioural healthcare needs of the employees and their families living in the KNP.

4.2.2.1 **Respondents’ rating of their health status (n=75)**

In this section information about the general physical condition of the respondents and their dependants’ health was requested. The findings in 4.2.1.4 indicate that 46 of the respondents were married, 58 had children and 1 respondent had an elderly dependent family member. When collapsing the findings of “agreed and strongly agreed” and “disagreed and strongly disagreed” it becomes clear that the respondents rated their own health status and that of their family members as being good.

<table>
<thead>
<tr>
<th>Target group</th>
<th>Very good/good</th>
<th>Average</th>
<th>Poor/very poor</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Respondents</td>
<td>56.0</td>
<td>42</td>
<td>33.3</td>
<td>25</td>
</tr>
<tr>
<td>Spouses</td>
<td>50.0</td>
<td>23</td>
<td>17.4</td>
<td>8</td>
</tr>
<tr>
<td>Children</td>
<td>77.6</td>
<td>45</td>
<td>19.0</td>
<td>11</td>
</tr>
<tr>
<td>Dependents</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 4.9: **Respondents’ rating of their family’s health status**
4.2.2.2 Dependents who inherited genetic disorders that caused health problems (n=75)

Of the 75 respondents, only 4.0% (n=3) indicated that they had dependents who had genetic disorders that caused health problems.

4.2.2.3 Conditions of respondents and their dependents that often needed medical attention (n=75)

In this section the findings revealed that hypertension was the chronic condition for which the respondents needed the healthcare most. Table 4.10 portrays the medical conditions of the respondents and members of their families that often required medical attention. HIV/AIDS has been discussed separately, because the fact that some respondents did not know their HIV status, is also important from the future planning of healthcare services.

* HIV/AIDS

Of the 75 respondents, 46.7% (n=35) indicated that they did not know their own or the HIV status of any of their family members. Individuals who tested positive and needed healthcare were 14.7% (n=11) respondents, 5.3% (n=4) of the respondents’ spouses and 2.7% (n=2) respondents’ children.

Table 4.10: Respondents’ and family members’ medical conditions that often needed medical attention

<table>
<thead>
<tr>
<th>Medical condition</th>
<th>Respondents</th>
<th>Spouse</th>
<th>Children</th>
<th>Senior citizen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes Mellitus</td>
<td>24.0% (n=18)</td>
<td>4.0% (n=3)</td>
<td>1.3% (n=1)</td>
<td>---</td>
</tr>
<tr>
<td>Hypertension</td>
<td>33.3% (n=25)</td>
<td>9.3% (n=7)</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Asthma</td>
<td>9.3% (n=7)</td>
<td>9.3% (n=7)</td>
<td>10.7% (n=8)</td>
<td>---</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>4.0% (n=3)</td>
<td>---</td>
<td>2.7% (n=2)</td>
<td>---</td>
</tr>
<tr>
<td>Obesity</td>
<td>1.3% (n=1)</td>
<td>---</td>
<td>1.3% (n=1)</td>
<td>---</td>
</tr>
<tr>
<td>Other physical conditions</td>
<td>---</td>
<td>---</td>
<td>1.3% (n=1)</td>
<td>---</td>
</tr>
</tbody>
</table>
Hypertension and Diabetes Mellitus were the two most important medical conditions which would necessitate the respondents to seek healthcare. Asthma was the condition for which the most children needed healthcare.

4.2.2.4 **Respondents or their dependents frequency of needing to consult healthcare professionals for psychological conditions**

The respondents revealed that stress-related conditions, fatigue, emotional stress and adverse events would necessitate respondents to seek medical care. The findings are portrayed in table 4.11. Although 61.3% (n=46) of the 75 respondents indicated that they needed to consult healthcare professionals for depression, only 34.7% (n=26) had to do so 1-5 times per year. Other psychological disorders were only present in 10.6% (n=8) of the respondents who needed consultation 1-5 times a year (6.7%; n=5), and more than twice a month (4.0%; n=3) which could be an indication of an existing problem. Some respondents (38.7% n=29) reported family violence and 33.3% (n=25) mentioned alcohol abuse which would require consultation with healthcare professionals.

**Table 4.11: Frequency with which respondents might need to consult healthcare professionals for psychological problems (n=75)**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Respondents</th>
<th>1-5 times per year</th>
<th>6-10 times per year</th>
<th>11-15 times per year</th>
<th>16-20 times per year</th>
<th>21-25 times per year</th>
<th>More than twice a month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>61.3% (n=46)</td>
<td>34.7% (n=26)</td>
<td>18.7% (n=14)</td>
<td>1.3% (n=1)</td>
<td>1.3% (n=1)</td>
<td>4.0% (n=3)</td>
<td>1.3% (n=1)</td>
</tr>
<tr>
<td>Substance abuse</td>
<td>30.6% (n=23)</td>
<td>26.7% (n=20)</td>
<td>1.3% (n=1)</td>
<td>1.3% (n=1)</td>
<td>1.3% (n=1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family violence</td>
<td>38.7% (n=29)</td>
<td>28.0% (n=21)</td>
<td>2.7% (n=2)</td>
<td>1.3% (n=1)</td>
<td>1.3% (n=1)</td>
<td>1.3% (n=1)</td>
<td>4.0% (n=3)</td>
</tr>
<tr>
<td>Emotional crises</td>
<td>74.7% (n=56)</td>
<td>52.0% (n=39)</td>
<td>14.7% (n=11)</td>
<td>2.7% (n=2)</td>
<td>1.3% (n=1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stress-related</td>
<td>81.3% (n=61)</td>
<td>41.3% (n=31)</td>
<td>26.7% (n=20)</td>
<td>2.7% (n=2)</td>
<td>2.7% (n=2)</td>
<td>1.3% (n=1)</td>
<td>6.7% (n=5)</td>
</tr>
<tr>
<td>Coping abilities</td>
<td>62.7% (n=47)</td>
<td>41.3% (n=31)</td>
<td>12.0% (n=9)</td>
<td>5.3% (n=4)</td>
<td>1.3% (n=1)</td>
<td></td>
<td>2.7% (n=2)</td>
</tr>
<tr>
<td>Psychological disorder</td>
<td>10.7% (n=8)</td>
<td>6.7% (n=5)</td>
<td>4.0% (n=3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------</td>
<td>-------------</td>
<td>-------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adverse events</td>
<td>64.0% (n=48)</td>
<td>52.0% (n=39)</td>
<td>6.7% (n=5)</td>
<td>5.3% (n=4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatigue</td>
<td>76.0% (n=57)</td>
<td>34.7% (n=26)</td>
<td>24.0% (n=18)</td>
<td>4.0% (n=3)</td>
<td>5.3% (n=4)</td>
<td>1.3% (n=1)</td>
<td>6.7% (n=5)</td>
</tr>
</tbody>
</table>

### 4.2.2.5 Frequency with which consultation with healthcare professionals might be needed for environment-related conditions in the workplace

This section covered the frequency with which interventions by healthcare professionals might be needed for environment-related conditions in the workplace that could negatively affect the health of respondents.

The KNP is situated in the eastern low veld region of the Mpumalanga province where extremely high temperatures and high levels of humidity commonly occur. Thus it is inevitable that employees, particularly those who work outside in the sun, such as field rangers, are exposed to uncomfortable environmental conditions and could suffer health consequences from such exposures. The climate in the KNP is sub-tropical. Summers are hot and humid with daily temperatures often exceeding 38°C ([http://www.kruger2canyons.com/learningcentre/kruger/climate](http://www.kruger2canyons.com/learningcentre/kruger/climate)).

Unsafe working conditions in the KNP affected the employees, as 46.7% (n=35) respondents indicated that they might need to consult healthcare professionals in this regard. The employees most affected were those in the nature conservation section. Contact with wild animals is unavoidable and although safety precautions are in place accidents do happen.

There are many different types of vegetation in the KNP which cause allergies particularly in the southern and central regions of the KNP (Joubert 2007:71). The vast and abundant plant life might cause allergies and chronic conditions such as hay fever and asthma ([http://www.allergyclinic.co.za/hayfever.htm](http://www.allergyclinic.co.za/hayfever.htm)). Secondary infections like sinusitis and conjunctivitis are common (see Annexure B3: vegetation in the KNP).
This is perhaps the reason why 80.0% (n=60) of the respondents were of the opinion that they might need healthcare for allergy-related ailments on a regular basis.

Especially section rangers and field rangers are exposed to smoke inhalation caused by veld fires. The fact that only 14.7% (n=11) of the respondents indicated that they would need healthcare for this environmental condition is perhaps because fires are controlled and scheduled from time to time in the different ranger sections. Although section rangers, field rangers, trail rangers, veterinarians, game capturers and employees working for the animal health department have to walk long distances through dense vegetation and over unsteady surfaces they are usually very fit and wear suitable boots. This might explain why only 13.3% (n=10) of the 75 respondents were of the opinion that difficult (unsteady) working terrain was a problem.

Zoonoses are infectious diseases that can be transmitted from animals to humans (De Haan 2008:73). Many employees in the KNP are exposed to zoonotic diseases such as bovine tuberculosis, anthrax, brucellosis and rabies. According to Oosthuizen (2009:12) these are all notifiable zoonotic diseases. Employees mainly exposed to zoonotic diseases are veterinarians and people working in the animal health department, field rangers, game capturers and nature conservationists, and 65.3% (n=49) of the 75 respondents indicated that they would need healthcare at sporadic intervals for zoonotic diseases.

Table 4.12: Frequency in which respondents might need consultations with healthcare professionals for work environment-related issues

<table>
<thead>
<tr>
<th>Environment-related issue</th>
<th>Respondents who would need healthcare</th>
<th>1-5 times per year</th>
<th>6-10 times per year</th>
<th>11-15 times per year</th>
<th>16-20 times per year</th>
<th>21-25 times Per Year</th>
<th>More than twice a month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature and humidity</td>
<td>78.7% (n=59)</td>
<td>56.0% (n=42)</td>
<td>10.7% (n=8)</td>
<td>8.0% (n=6)</td>
<td>1.3% (n=1)</td>
<td>_</td>
<td>2.7% (n=2)</td>
</tr>
<tr>
<td>Unsafe working environment</td>
<td>46.7% (n=35)</td>
<td>25.3% (n=19)</td>
<td>14.7% (n=11)</td>
<td>2.7% (n=2)</td>
<td>2.7% (n=2)</td>
<td>_</td>
<td>1.3% (n=1)</td>
</tr>
<tr>
<td>Exposure to pathogens and allergens</td>
<td>80.0% (n=60)</td>
<td>56.0% (n=42)</td>
<td>16.0% (n=12)</td>
<td>4.0% (n=3)</td>
<td>2.7% (n=2)</td>
<td>_</td>
<td>1.3% (n=1)</td>
</tr>
</tbody>
</table>
Continuous change and transformation in the nature of work in organisations and the world at large, is a consistent stress factor in the lives of people in general and employees in particular. For many people these changes might require continuous efforts to adapt to the changing environment which leads to feelings of insecurity. Feelings of insecurity might result in poor social and working relationships which are detrimental to the smooth running of a business (Hattingh & Acutt 2007:441).

**Table 4.13: Frequency in which respondents might need intervention for socio-economic-cultural –related issues**

<table>
<thead>
<tr>
<th>Condition</th>
<th>1-5 times per year</th>
<th>6-10 times per year</th>
<th>11-15 times per year</th>
<th>16-20 times per year</th>
<th>21-25 times per year</th>
<th>More than twice a month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discrimination</td>
<td>17.3% (n=13)</td>
<td>2.7% (n=2)</td>
<td>2.7% (n=2)</td>
<td>4.0% (n=3)</td>
<td>1.3% (n=1)</td>
<td></td>
</tr>
<tr>
<td>Cultural differences and clashes</td>
<td>36.0% (n=27)</td>
<td>4.0% (n=3)</td>
<td>1.3% (n=1)</td>
<td>2.7% (n=2)</td>
<td>2.7% (n=2)</td>
<td>4.0% (n=3)</td>
</tr>
<tr>
<td>Legislation and policies</td>
<td>9.3% (n=7)</td>
<td>1.3% (n=1)</td>
<td>1.3% (n=1)</td>
<td>1.3% (n=1)</td>
<td>1.3% (n=1)</td>
<td></td>
</tr>
<tr>
<td>Poor social relations</td>
<td>45.3% (n=34)</td>
<td>2.7% (n=2)</td>
<td>2.7% (n=2)</td>
<td>1.3% (n=1)</td>
<td>2.7 (n=2)</td>
<td></td>
</tr>
<tr>
<td>Lack of educational opportunities</td>
<td>48.0% (n=36)</td>
<td>6.7% (n=5)</td>
<td>1.3% (n=1)</td>
<td>1.3% (n=1)</td>
<td>1.3% (n=1)</td>
<td>1.3% (n=1)</td>
</tr>
<tr>
<td>Lack of sport and recreation facilities</td>
<td>40.0% (n=30)</td>
<td>2.7% (n=2)</td>
<td>1.3% (n=1)</td>
<td>4.0% (n=3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Training and education of the workers whether they are managers, supervisors or general workers is important as well as proper job descriptions to overcome insecurity and poor relationships in the workplace (Hattingh & Acutt 2007:107).

In the KNP annual training calendars are distributed via email to all the departments for general training, occupational health service (OHS) training, and induction programmes for new personnel in the KNP. Many employees in the KNP work until late in the afternoon or even until 19H00. There might be little time left to do some form of exercise before dark.

The 89.3% (n=67) respondents who complained about poor housing facilities lived in compounds in one or two room apartments. (See table 4.8). Managers, however, resided in three or four bedroom houses and responded positively about their accommodation. Many respondents complained about the lack of maintenance of their apartments.

It is clear from these findings that few respondents complained about the quality of the water in the KNP. Some workers have to drink from other water sources such as streams when working the veld which could be muddy. Despite previous outbreaks of

| Lack of sport and recreation opportunities | 46.7% (n=35) | 2.7% (n=2) | 1.3% (n=1) | 1.3% (n=1) | 2.7% (n=2) |
| Lack of opportunities for social gatherings | 46.7% (n=35) | 4.0% (n=3) | 1.3% (n=1) | 2.7% (n=2) |
| Lack of opportunities for religious gatherings | 40.0% (n=30) | 4.0% (n=3) | 1.3% (n=1) | 2.7% (n=2) |
| Poor housing facilities | 16.0% (n=12) | 14.7% (n=11) | 17.3% (n=13) | 2.7% (n=2) | 18.7% (n=14) | 20.0% (n=15) |
| Poor drinking water | 1.3% (n=1) | 1.3% (n=1) | 1.3% (n=1) | 1.3% (n=1) | 1.3% (n=1) |
| Poor sanitation | 16.0% (n=12) | 1.3% (n=1) | 1.3% (n=1) | 1.3% (n=1) | 1.3% (n=1) |
cholera in the Mpumalanga province no cholera case was reported in the KNP (Data review Skukuza clinic 2008).

4.2.2.7 Frequency with which respondents and their families’ risky health-related behavioural patterns might necessitate consultation with healthcare professionals

The percentage and number of respondents who indicated that they might need interventions for their risky health-related behavioural patterns is summarised in table 4.14.

In this study dietary issues mainly referred to lifestyle modifications that needed to be made due to the presence of chronic diseases such as diabetes mellitus, hypertension and HIV/Aids. According to section 4.3.2.3 the number of individuals in the sample with diabetes mellitus were 24.0% (n=18), with hypertension 33.3% (n=25) with HIV/Aids were 14.7% (n=11). These figures demonstrate that the respondents would need consultation on a regular basis for the correct diets to control their chronic diseases.

Table 4.14: Frequency in which respondents might need intervention for risky health-related behavioural patterns might necessitate consultation with healthcare professionals

<table>
<thead>
<tr>
<th>Condition</th>
<th>1-5 times per year</th>
<th>6-10 times per year</th>
<th>11-15 times per year</th>
<th>16-20 times per year</th>
<th>21-25 times per year</th>
<th>More than twice a month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dietary issues</td>
<td>50.0% (n=25)</td>
<td>34.0% (n=17)</td>
<td>4.0% (n=2)</td>
<td>4.0% (n=2)</td>
<td>4.0% (n=2)</td>
<td>4.0% (n=2)</td>
</tr>
<tr>
<td>Lack of exercise</td>
<td>79.4% (n=27)</td>
<td>2.9% (n=1)</td>
<td>6.0% (n=2)</td>
<td>2.9% (n=1)</td>
<td></td>
<td>8.8% (n=3)</td>
</tr>
<tr>
<td>Smoking of cigarettes</td>
<td>61.5% (n=16)</td>
<td>15.4% (n=4)</td>
<td>7.7% (n=2)</td>
<td>3.8% (n=1)</td>
<td>3.8% (n=1)</td>
<td>7.7% (n=2)</td>
</tr>
<tr>
<td>Alcohol abuse</td>
<td>69.9% (n=23)</td>
<td>15.1% (n=5)</td>
<td>3.0% (n=1)</td>
<td>3.0% (n=1)</td>
<td>3.0% (n=1)</td>
<td>6.0% (n=2)</td>
</tr>
<tr>
<td>Sexual activities (e.g. multiple sexual partners)</td>
<td>53.1% (n=34)</td>
<td>28.1% (n=18)</td>
<td>11.0% (n=7)</td>
<td>3.1% (n=2)</td>
<td></td>
<td>4.7% (n=3)</td>
</tr>
<tr>
<td>Not wearing occupational safety devices</td>
<td>84.0% (n=37)</td>
<td>11.4% (n=5)</td>
<td>2.3% (n=1)</td>
<td></td>
<td>8.8% (n=3)</td>
<td></td>
</tr>
</tbody>
</table>
Intensive lifestyle modification programmes are found to be more effective than patient health education in clinics, because of limited consultation time per patient (Clark 2008:870). No respondents indicated that malnutrition was present in their families.

According to Hattingh and Accutt (2007:421) problems in the workplace caused by alcohol or drug abuse and by physical and psychological dependence on these substances will affect quality of work as well as costs to a company for rehabilitation of the workers. The figures revealed a problem with alcohol abuse among the employees as 6.0% (n=2) of the respondents indicated that they would need interventions by health professionals to help them with this problem more than twice a month and 3.0% (n=1) of the respondents would need intervention at least 21 to 25 times a year.

Multiple sexual partners and none condom use often result in sexually transmitted infections (STIs) (Evian 2008:261). According to the findings portrayed in table 4.9 4.7% (n=3) of the respondents indicated that they would need interventions for their risky sexual behaviours more than twice a year.

The findings portrayed in table 4.14 reveal that 8.8% (n=3) of the respondents would need intervention for lack of exercise twice a month. At Skukuza staff village there are a large variety of recreational activities such as tennis, squash, rugby, soccer, ring ball, netball, golf, jogging, swimming and a fully equipped gymnasium. Employees and their families make use of these facilities on a regular basis.

According to the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) (OHSA), an employee should receive protection against accidents and diseases in the workplace (Hattingh & Acutt 2007:33). The employees in the KNP use the safety devices they are required to use for their particular tasks. However of the 75 respondents 8.8% (n=3) indicated that they would need interventions by medical professionals for “not wearing occupational safety devices”. It is difficult to predict risks for the employee and prevent it, particularly where employees work in the field and with animals. There is no safety device for every situation in the KNP as workplace.
4.2.3 Dimensions of health systems

Section C covered the healthcare systems, including the availability, accessibility, affordability, and acceptability of healthcare services in the KNP and adjacent areas.

In this section the respondents had to respond to questions asked by indicating to what extent they agreed or disagreed with the statements read to them. The strongly agreed and agreed percentages were added and portrayed in the tables.

4.2.3.1 Respondents’ and their families’ rating of the availability of needed healthcare received

The respondents’ opinions regarding the availability of health services in the KNP were obtained. On the availability of the healthcare services in the KNP the findings revealed that the respondents were satisfied with the distances they had to travel to the nearest healthcare service and that they did not complain about the time taken to reach these services. The respondents were probably used to the fact that the maximum speed motorist are allowed to travel was only 50km per hour and that animals roaming on the road caused delays.

Table 4.15: Availability of healthcare services in the KNP

<table>
<thead>
<tr>
<th>Availability of health care services in KNP</th>
<th>Percentage of respondents</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traveling distance to consult a healthcare professional</td>
<td>26.7</td>
<td>20</td>
</tr>
<tr>
<td>Takes too long to reach the nearest healthcare service</td>
<td>49.3</td>
<td>37</td>
</tr>
<tr>
<td>All healthcare services available</td>
<td>33.4</td>
<td>25</td>
</tr>
<tr>
<td>Transport was available</td>
<td>42.7</td>
<td>41</td>
</tr>
<tr>
<td>SANParks provided all the health care services needed</td>
<td>30.7</td>
<td>23</td>
</tr>
<tr>
<td>Do not expect SANParks to provide more healthcare services</td>
<td>88.0</td>
<td>66</td>
</tr>
</tbody>
</table>
The respondents were of the opinion that SANParks do not provide all the health services they needed but they did not expect these services. The respondents were satisfied with the operational hours of the healthcare services in the KNP as well as outside the park.

4.2.3.2 Respondents’ and their families’ rating of the accessibility of needed healthcare received

It is clear from the findings that the respondents were of the opinion that the healthcare services in the KNP were not accessible. It could be because the respondents had to travel long distances to the nearest health service at a slow speed and also due to the many obstacles in the road.

<table>
<thead>
<tr>
<th>Accessibility of health service</th>
<th>Percentage of respondents</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility in an emergency</td>
<td>28.0</td>
<td>9</td>
</tr>
<tr>
<td>Accessibility when it is not an emergency</td>
<td>34.6</td>
<td>26</td>
</tr>
</tbody>
</table>

4.2.3.3 Respondents’ and their families’ rating of the acceptability of needed healthcare received

The findings revealed that the respondents were satisfied with the quality of the healthcare services in the KNP, with the time the healthcare professionals spent with them during consultations, and that the healthcare services were culturally acceptable. The findings, however, revealed that the respondents felt that all the medication needed were not always easily obtainable.
Table 4.17: Acceptability of healthcare services in the KNP

<table>
<thead>
<tr>
<th>Acceptability</th>
<th>Percentage of respondents</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfied with quality of healthcare</td>
<td>77.3</td>
<td>58</td>
</tr>
<tr>
<td>Satisfied with time spent with healthcare professional</td>
<td>74.7</td>
<td>56</td>
</tr>
<tr>
<td>Always received medication they needed</td>
<td>25.3</td>
<td>19</td>
</tr>
<tr>
<td>Healthcare services were culturally acceptable</td>
<td>86.7</td>
<td>65</td>
</tr>
</tbody>
</table>

4.2.3.4 **Respondents’ and their families’ rating of the affordability of needed healthcare received**

Of the 75 respondents, 26.7% (n=20) could always afford the healthcare their family needed.

Table 4.18: How often respondents could afford the healthcare they needed

<table>
<thead>
<tr>
<th>Affordability of healthcare for respondents</th>
<th>Percentage of respondents</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents can always afford healthcare needed</td>
<td>26.7</td>
<td>20</td>
</tr>
<tr>
<td>Respondents can sometimes afford healthcare they needed</td>
<td>44.0</td>
<td>33</td>
</tr>
<tr>
<td>Respondents can never afford healthcare needed</td>
<td>29.3</td>
<td>22</td>
</tr>
</tbody>
</table>

Findings revealed that the respondents were of the opinion that transport, and medicine were not affordable. The findings revealed not a big difference between the percentage of respondents who indicated that they were of the opinion that the healthcare services provided in the KNP were too expensive compared to those who indicated that it was affordable.
Table 4.19: Affordability of healthcare services in the KNP

<table>
<thead>
<tr>
<th>Affordability of healthcare received in the KNP</th>
<th>Percentage of respondents</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport to healthcare services</td>
<td>28.0</td>
<td>21</td>
</tr>
<tr>
<td>Medication</td>
<td>33.3</td>
<td>25</td>
</tr>
<tr>
<td>Healthcare services</td>
<td>52.0</td>
<td>39</td>
</tr>
</tbody>
</table>

4.2.3.4.1 Respondents’ contributing to a medical aid

The findings revealed that the majority of respondents did not contribute to a medical aid scheme. It is evident from the findings discussed in section 4.3.1.8: that the approximate monthly income of 44.0% of respondents was between R1001-3000 per month which could be the reason why they did not contribute to a medical aid fund. These respondents made use of state healthcare services.

Figure 4.6 Respondents who belonged to a medical aid scheme (n=75)
4.2.3.5 Frequency in which respondents visited health services

The respondents were asked how often they visited various healthcare services which were listed in the interview schedule. The health services which were visited the most often by the respondents and their families were PHC clinics, eyes, ear, nose and throat healthcare services, the health services at Skukuza and a traditional healer.

The highest percentages for health services never visited were for “other specialists” 74.7% (n=56), gynaecologist 73.3% (n=55) and emergency healthcare or first aid services 68.0% (n=51).

Table 4.20: Frequency of visits by respondents to various health services

<table>
<thead>
<tr>
<th>Health service</th>
<th>Daily</th>
<th>Weekly</th>
<th>Monthly</th>
<th>7-11 times a year</th>
<th>2-6 times a year</th>
<th>Annually</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>28.0%</td>
<td>14.7%</td>
<td>24.0%</td>
<td>26.7%</td>
<td>5.3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(n=21)</td>
<td>(n=11)</td>
<td>(n=18)</td>
<td>(n=20)</td>
<td>(n=4)</td>
</tr>
<tr>
<td>PHC clinic</td>
<td>4.0%</td>
<td>38.7%</td>
<td>34.7%</td>
<td>14.7%</td>
<td>2.7%</td>
<td>5.3%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(n=3)</td>
<td>(n=29)</td>
<td>(n=26)</td>
<td>(n=11)</td>
<td>(n=2)</td>
<td>(n=4)</td>
<td></td>
</tr>
<tr>
<td>Eye/ear /nose &amp; throat clinic</td>
<td>1.3%</td>
<td>1.3%</td>
<td>1.3%</td>
<td>40.0%</td>
<td>17.3%</td>
<td>38.7%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(n=1)</td>
<td>(n=1)</td>
<td>(n=1)</td>
<td>(n=30)</td>
<td>(n=13)</td>
<td>(n=29)</td>
<td></td>
</tr>
<tr>
<td>Private medical practitioner</td>
<td>38.7%</td>
<td>14.7%</td>
<td>5.3%</td>
<td>16.0%</td>
<td>25.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(n=29)</td>
<td>(n=11)</td>
<td>(n=4)</td>
<td>(n=12)</td>
<td>(n=19)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dentist</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10.7%</td>
<td>32.0%</td>
<td>57.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(n=8)</td>
<td>(n=24)</td>
<td>(n=43)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gynaecologist</td>
<td>5.3%</td>
<td>4.0%</td>
<td>22.7%</td>
<td>73.3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(n=4)</td>
<td>(n=3)</td>
<td>(n=17)</td>
<td>(n=55)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency/first aid</td>
<td>5.3%</td>
<td>4.0%</td>
<td>22.7%</td>
<td>68.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(n=4)</td>
<td>(n=3)</td>
<td>(n=17)</td>
<td>(n=51)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health services at Skukuza</td>
<td>1.3%</td>
<td>29.3%</td>
<td>18.7%</td>
<td>10.7%</td>
<td>9.3%</td>
<td>30.7%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(n=1)</td>
<td>(n=22)</td>
<td>(n=14)</td>
<td>(n=8)</td>
<td>(n=7)</td>
<td>(n=23)</td>
<td></td>
</tr>
<tr>
<td>Other specialists</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4.0%</td>
<td>21.3%</td>
<td>74.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(n=3)</td>
<td>(n=16)</td>
<td>(n=56)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional healer</td>
<td>1.3%</td>
<td>1.3%</td>
<td>6.7%</td>
<td>32.0%</td>
<td>58.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(n=1)</td>
<td>(n=1)</td>
<td>(n=5)</td>
<td>(n=24)</td>
<td>(n=44)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.3.4 Dimension of healthcare

This dimension of healthcare section, which is part of the model used as a conceptual framework, covers mostly primary preventative healthcare aspects.
4.3.4.1 **The immunisation status of the respondents’ children**

The findings revealed that 76.0% (n=57) of the 75 respondents indicated that their children were fully immunised. Figure 4.7 portrays the findings of this item. Children should be immunised at stipulated intervals according to the protocol of the National Department of Health.

![Immunisation status of children](image-url)

**Figure 4.7** Immunisation status of children (n=75)

4.2.4.2 **Respondents’ possession of the “Road to Health card” as record for immunisation**

Most of the respondents (73.3%, n=20) said that they did not have a “Road to Health card” for their children. The reason for this low percentage of respondents who had the “Road to Health card” could be, that the findings in section 4.2.1.2 revealed, that 54.7% (n=41) of the respondents were male, and it is traditionally the mother of the children who take them to the clinic and the father might not know much about this.
4.2.4.3 *Frequency of precautionary measures taken by respondents against malaria*

Of the 75 respondents, 41.3% (n=31) took precautionary measures only during the summer months, 28.0% (n=21) took precautionary measures throughout the year, 8.0% (n=6) did so only when they remembered to do so and 22.7% (n=17) never took any precautionary measures against malaria.

Malaria is endemic throughout the KNP and a potentially deadly disease that poses major health risks for visitors to the KNP as well as residents living in the KNP. The parasitic disease is caused by different species and the complications of the plasmodium falciparum species can be fatal if not treated effectively and in time. It is therefore important that visitors to the KNP take the prophylactic treatment available ([http://www.doh.gov.za/docs/guidelines/malaria](http://www.doh.gov.za/docs/guidelines/malaria)). Employers and their families tend not to use medicinal prophylactic treatment for malaria but rather take other precautionary measures such as spraying of homes with insecticides, having gauze in front of the windows and doors of their homes and using insect repellents.

A 24 hour telephone service line is available to provide the current malaria status, prevention, prophylaxis, symptoms and signs of malaria (Ferreira 1999:1). Prevention of malaria, especially for residents of malaria areas is discussed in detail in section 1.2.
4.3.4.4 Respondents’ knowledge of when to seek medical care for listed conditions

The respondents were asked to indicate whether they knew when they should seek medical care for the listed conditions. The respondents should know what signs to look for in a patient to make the judgement when medical care was needed. This question unfortunately did not probe deep enough to test this knowledge to ensure that their judgement was correct. This was a limitation of the interview schedule. The total number of respondents who indicated that they knew when to seek medical care for certain conditions are portrayed in table 4.21.
Table 4.21: Number of respondents who indicated they knew when to seek medical care for certain conditions

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snake bites</td>
<td>97.3</td>
<td>73</td>
</tr>
<tr>
<td>Ears nose, and throat problems</td>
<td>93.3</td>
<td>65</td>
</tr>
<tr>
<td>Bleeding and shock</td>
<td>90.7</td>
<td>68</td>
</tr>
<tr>
<td>Difficulty breathing</td>
<td>85.3</td>
<td>64</td>
</tr>
<tr>
<td>Bleeding and abdominal pain in pregnancy</td>
<td>84.0</td>
<td>63</td>
</tr>
<tr>
<td>Chest pain</td>
<td>80.0</td>
<td>60</td>
</tr>
<tr>
<td>Fever</td>
<td>80.0</td>
<td>60</td>
</tr>
<tr>
<td>Lump in breast</td>
<td>78.7</td>
<td>59</td>
</tr>
<tr>
<td>Seizures</td>
<td>76.0</td>
<td>57</td>
</tr>
<tr>
<td>Communicable diseases</td>
<td>73.3</td>
<td>55</td>
</tr>
<tr>
<td>Insect bites and stings</td>
<td>68.0</td>
<td>51</td>
</tr>
<tr>
<td>Headache</td>
<td>66.7</td>
<td>50</td>
</tr>
<tr>
<td>Diarrhoea and vomiting</td>
<td>65.3</td>
<td>49</td>
</tr>
<tr>
<td>Passing burning urine</td>
<td>65.3</td>
<td>49</td>
</tr>
<tr>
<td>Fainting</td>
<td>61.3</td>
<td>46</td>
</tr>
<tr>
<td>A red eye</td>
<td>58.7</td>
<td>44</td>
</tr>
<tr>
<td>Muscle pains</td>
<td>58.7</td>
<td>44</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>57.3</td>
<td>43</td>
</tr>
<tr>
<td>Pain in bones</td>
<td>56.0</td>
<td>42</td>
</tr>
<tr>
<td>Joint pains</td>
<td>54.6</td>
<td>41</td>
</tr>
<tr>
<td>Infant feeding</td>
<td>53.3</td>
<td>40</td>
</tr>
<tr>
<td>Skin rashes</td>
<td>50.6</td>
<td>38</td>
</tr>
</tbody>
</table>

Snake bites (97.3%, n=73), conditions of the ears, nose and throat (93.3%, 65), bleeding and shock (90.7%, n=68) were the three conditions respondents knew when to seek medical care. Almost all species of snakes found in South Africa are also indigenous in the KNP and about 12% of them are considered to be potentially dangerous to humans. Nevertheless all snakebites should be considered dangerous until proven otherwise and individuals should always seek medical care when bitten by any snake (NDOH 2008:338).
Of the respondents, 85.3% (n=64) indicated that they would know when an individual with chest pain and shortness of breath 80.0% (n=60) should be referred for medical care. Although the chest pain in an individual who is having a heart attack is very severe and dramatic patients and family members might not realise the severity of the condition and might not seek medical attention in time (NDOH:282). The researcher did not establish what the respondents actually knew about the symptoms of these conditions.

Fever refers to a temperature of 38ºC or more. It is a natural and sometimes useful response to infection, inflammation or infarction and needs medical intervention (NDOH 2008:163). Of the 75 respondents, 80.0% (n=60) indicated that they would know when to seek medical health with a patient with fever. Headache can be benign or serious and might have serious underlying causes including: encephalitis, meningitis, mastoiditis, benign intracranial hypertension, hypertensive emergencies, stroke, brain tumour, and malaria. Headache due to a serious disease will often be associated with neurological symptoms and signs including: vomiting, fever, convulsions, confusion, visual disturbances, and neck stiffness (NDOH 2008:252). Of the 75 respondents, 66.7% (n=50) indicated that they would know when to seek medical help when someone presents with headache. As malaria is endemic throughout the KNP respondents should have a very good knowledge of the symptoms of malaria (http://www.doh.gov.za/docs/guidelines/malaria).

4.3.5 Dimensions of nursing

This dimension covers the tasks a nurse usually fulfills such as conveying health information to clients to prevent diseases and to promote health.

4.3.5.1 Specific healthcare information and support needed by respondents and their dependants

In this question the respondents were asked to indicate how important they regarding certain aspects of health education and how urgently they needed the information.
Health service personnel would be able to plan for health education sessions as prioritised by the respondents.

The findings of this item were prioritised by the respondents as “very important, urgently needed” and “very important but not urgently needed” has been condensed and portrayed in table 4.22.

Table 4.22: Health education needed by respondents

<table>
<thead>
<tr>
<th>Health information needed</th>
<th>Percentage of respondents</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARV</td>
<td>88.0</td>
<td>66</td>
</tr>
<tr>
<td>HIV/Aids</td>
<td>86.7</td>
<td>65</td>
</tr>
<tr>
<td>Management of chronic diseases such as diabetes mellitus and hypertension</td>
<td>65.3</td>
<td>49</td>
</tr>
<tr>
<td>Malaria</td>
<td>64.0</td>
<td>48</td>
</tr>
<tr>
<td>Prevention of chronic diseases such as diabetes mellitus and hypertension</td>
<td>64.0</td>
<td>48</td>
</tr>
<tr>
<td>Information on their medication</td>
<td>61.3</td>
<td>46</td>
</tr>
<tr>
<td>TB</td>
<td>60.0</td>
<td>45</td>
</tr>
<tr>
<td>Sexually transmitted diseases</td>
<td>57.3</td>
<td>43</td>
</tr>
<tr>
<td>Early detection of cancer</td>
<td>54.6</td>
<td>41</td>
</tr>
<tr>
<td>How to cope with stress</td>
<td>45.3</td>
<td>34</td>
</tr>
<tr>
<td>Healthy diet</td>
<td>44.0</td>
<td>33</td>
</tr>
<tr>
<td>Support on drug abuse</td>
<td>41.3</td>
<td>31</td>
</tr>
<tr>
<td>Safe sex</td>
<td>41.3</td>
<td>31</td>
</tr>
<tr>
<td>Emotional conditions including psychiatric diseases</td>
<td>40.0</td>
<td>30</td>
</tr>
<tr>
<td>Side effect of chronic medication</td>
<td>38.7</td>
<td>29</td>
</tr>
<tr>
<td>Correct way to exercise</td>
<td>38.7</td>
<td>29</td>
</tr>
<tr>
<td>Menopause</td>
<td>36.0</td>
<td>27</td>
</tr>
<tr>
<td>Support for alcohol abuse</td>
<td>36.0</td>
<td>27</td>
</tr>
<tr>
<td>How to stop smoking</td>
<td>34.7</td>
<td>26</td>
</tr>
<tr>
<td>Immunisation of children</td>
<td>34.7</td>
<td>26</td>
</tr>
<tr>
<td>Contraceptive methods</td>
<td>30.7</td>
<td>23</td>
</tr>
</tbody>
</table>
Although the respondents indicated that these topics were all important and health education about them urgently needed, some topics were more urgent than others. Conditions that they battle with everyday have received higher ratings such as HIV/Aids, ARV, malaria, prevention of chronic diseases, information on their medication, and TB. The findings are in line with global health issues, which are according to Clark (2008:120) diabetes, hypertension, asthma, TB and HIV/Aids.

According to statistics kept by Skukuza fixed and mobile clinics, hypertension as well as diabetes mellitus increased dramatically over the last two years, as depicted figure 4.9. (Take note of the trend lines).

![Figure 4.9 Comparison of new cases of Diabetes Mellitus and hypertension for the year 2008 and 2009 reported at Skukuza clinic](image)

Source: Statistics kept by Skukuza clinic)
4.3.5.2 Frequency with which people should make use of certain services or have certain examinations done

In this section the respondents’ opinions about how often people should make use of the listed services and examinations have been discussed. Almost all the respondents were of the opinion that Pap smears had to be done for sexually active women from time to time.

Cervical screening or Pap smear is a very important preventative measure in the early diagnosis and treatment of cervical cancer. Cancer of the cervix is one of the most common cancers amongst women and all women are at risk of developing cervical cancer. Multiple sexual partners are associated with a higher risk of cancer of the cervix. The Human Papilloma Virus (HPV) Infection causes cervical cancer and if detected at an early stage, it can be treated and cured (http://www.cancer.gov/cancertopics/factsheet/prevention/hpv).

The Department of National Health recommends three smears for each woman per lifetime with a 10 year interval between each smear, commencing not earlier than the age of 30 years according to the National guidelines on cervical cancer screening programme (http://www.doh.gov.za/docs/factsheets/guidelines/cancer).

It is considered by medical personnel that full medical examinations should be done once a year in adults. The results revealed that 58.7% (n=44) of the respondents gave correct answers. Of the 75 respondents, 61.1% (n=46) indicated correctly that prostate examination for men over the age of 45 years was needed at least once a year.

Breast examination for women is an important measure with a mammogram in the prevention of breast cancer. The question unfortunately did not allow for certain conditions, such as those women with a family and personal history of cancer and breast lumps should have breast examinations and mammograms done once a year. Female patients should also examine their breasts themselves on a regular basis.
Other female patients with lower risk can have it done every two years or even less frequently. Those 2.7% (n=2) of the respondents who indicated that it is never necessary to have it done, is therefore incorrect.

Regarding eye tests for drivers most of the respondents 80.0% (n=60) indicated eye tests to be essential for workers driving vehicles at least once a year, 13.3% (n=10) agreed that eye tests for drivers was only needed once every two years; 4.0% (n=3) stated eye tests for drivers to be necessary once every five years; and 2.7% (n=2) considered it to be needed once in a life time.

Most respondents (92.0%; n=69) indicated that blood pressure monitoring is essential at least once a year; 5.3% (n=4) agreed that blood pressure testing is only needed once every two years; 2.7% (n=2) considered blood pressure monitoring to be done only once every five years.

Almost all respondents 92.0% (n=69) were of the opinion that blood sugar should be tested at least once a year; 5.3% (n=4) indicated that blood sugar need to be tested every two years; 1.3% (n=1) stated testing of blood glucose was necessary once every five years; 1.3% (n=1) considered it to be done only once in a life time and 1.3% (n=1) indicated it to be unnecessary.

Of the respondents 94.7% (n=71) indicated that urine tests is needed at least once a year, 2.7% (n=2) were of the opinion that urine tests are unnecessary; 1.3% (n=1) stated that urine tests are necessary once every five years; 1.3% (n=1) considered it to be done only once in a life time and 1.3% (n=1) indicated it to be unnecessary.

According to Hattingh and Accutt (2007:246) periodic medical examinations are medical examinations performed every six to twelve months according to a medical surveillance programme for specific health risks to which the employee is exposed. All medical tests should be included as part of periodic medical examinations.
The majority of the respondents 85.3% (n=64) indicated that HIV tests should be essential at least once a year for people involved in risky sexual activities such as multiple sexual partners or none condom use; 10.7% (n=8) agreed that HIV tests were necessary once every two years; 2.7% (n=2) stated that HIV tests were unnecessary and 1.3% (n=1) considered it should be done every five years.

4.3.5.3 **Respondents’ opinions on whether they would make use of health services should it be available and accessible in the KNP**

The respondents were asked to indicate whether they would make use of the listed health services in the KNP, if available and accessible. The results are portrayed in table 4.23.

**Table 4.23:** Percentage of respondents who would use services if available in the KNP and when required (n=75)

<table>
<thead>
<tr>
<th>Healthcare service</th>
<th>Percentage of respondents</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunisation</td>
<td>100.0%</td>
<td>75</td>
</tr>
<tr>
<td>Well baby clinic</td>
<td>100.0%</td>
<td>75</td>
</tr>
<tr>
<td>Home-based care for HIV/AIDS patients</td>
<td>100.0%</td>
<td>75</td>
</tr>
<tr>
<td>Pap smear and gynaecological examinations</td>
<td>98.7%</td>
<td>74</td>
</tr>
<tr>
<td>Contraceptive methods</td>
<td>98.7%</td>
<td>74</td>
</tr>
<tr>
<td>Ante-natal healthcare</td>
<td>98.7%</td>
<td>74</td>
</tr>
<tr>
<td>VCT services</td>
<td>98.7%</td>
<td>74</td>
</tr>
<tr>
<td>DOTS</td>
<td>97.7%</td>
<td>73</td>
</tr>
<tr>
<td>Monitoring of chronic conditions</td>
<td>97.3%</td>
<td>73</td>
</tr>
<tr>
<td>Eye testing</td>
<td>96.0%</td>
<td>72</td>
</tr>
<tr>
<td>Minor ailments</td>
<td>96.0%</td>
<td>72</td>
</tr>
<tr>
<td>Injuries/ emergencies</td>
<td>96.0%</td>
<td>72</td>
</tr>
</tbody>
</table>
This chapter covered the data analysis and interpretation of the needs of the employees and their families living in the KNP. The first section of the interview schedule was about the biographical information of the respondents. The findings revealed that the respondent’s age ranged from 40 to 44 years. More males than females were interviewed and most of the respondents lived in Skukuza. The respondents’ educational levels varied from those with no formal education and those with tertiary education. Their incomes ranged from R500 to R3000 per month. The respondents represented various types of employees from cleaners to professionals. The findings revealed that 34 of the respondent’s wives lived in the KNP of whom 7 were pregnant. Of the 75 respondents interviewed, 77.3% (n=58) indicated that they had children aged younger than 2 years and older than 19 years. A total of 139 children lived in the KNP.

The findings revealed that 46.7% (n=35) of the respondents did not know their HIV status, but 14.5% (n=11) of the respondents, 5.3% (n=4) of their wives and 2.7% (n=2) of the children were HIV positive. The respondents also indicated that they needed healthcare for chronic conditions such as Diabetes Mellitus, and hypertension. A total of 29.3% (n=22) of the respondents, wives and children had Diabetes Mellitus and required regular monitoring of the condition. The findings also revealed that depression, stress-related conditions, fatigue and emotional crises would require medical attention on a regular basis.

Due to the geographical area where the KNP is situated environmental conditions such as the high temperatures and humidity also cause illness that would need medical attention. Employees are often at risk of injury working with wild animals and infections due to contact with pathogens. Malaria is an endemic condition in the KNP and the findings revealed that the respondents tend to take pre-cautions mostly in summer months such as spraying homes with insecticide and covering doors and windows with gauze. The respondents 64.0% (n=48) however indicated that they needed more information about malaria.
The work force of the KNP consists of people of a variety of cultures who speak different languages. Misunderstanding can often happen in such circumstances. The findings revealed that cultural differences have been reported by 36.0% (n=27) respondents, poor social relations by 45.3% (n=34) and lack of educational opportunities by 48.0% (n=36) of the respondents at least 1-5 times a year.

The findings revealed that the respondents were satisfied with the healthcare services offered by SANParks and they did not expect SANParks to provide more services. However, they felt that the available healthcare services were not accessible enough in emergencies or non-emergencies. It could be due to the distances they had to travel to the nearest healthcare facility.

The findings revealed that the respondents could not afford the transport and medication when they needed to visit healthcare facilities. Most of the respondents did not belong to a medical aid and had to make use of state healthcare service offered in the KNP.

The findings revealed that the respondents needed health education for ARVs and HIV/Aids.

Chapter 5 presents the conclusions of the dissertation, discusses the limitations of the study, and makes recommendations for practice and further research.
CHAPTER 5

SUMMARY, CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

In the previous chapter, data obtained from the structured interviews were analysed, interpreted and presented graphically. The analysis and interpretations covered the health needs of the employees and their families and have been structured according to the Dimension Model of Community Health Nursing.

In this chapter, the research findings, conclusions, recommendations and limitations of the study are discussed.

5.2 SUMMARY

The methodological approach employed to execute this research was a quantitative, explorative, descriptive research approach followed to study the healthcare needs of the KNP’s employees and their families. The appropriateness of the design was assessed in terms of whether it addressed the research questions and objectives and would produce interpretable and meaningful results.

The population consisted of employees and their families in the different work environments in the KNP. The research population of the KNP comprised 4 000 people. The researcher decided to use a stratified random sampling method to ensure that all categories of employees of the various camps in the KNP were chosen as it would allow for the possibility of including subgroups. The sample consisted of 75 respondents which comprised approximately 2.5% of the total research population.
The necessary permission to conduct the research was obtained from concerned institutions and prospective respondents of the study. Privacy and confidentiality were also ensured during the process of collecting and utilising data.

Data collection was done by interviewing respondents using an interview schedule consisting of mainly closed-ended and few open-ended questions. The aim of this research was to determine the healthcare needs of the KNP’s employees and their families. The instrument was pre-tested and the corrected research instrument was then used to collect data. The interview schedule was coded and the data analysed by computer using Microsoft Excel 2010 version of software with the support of a statistician.

The Dimension Model of Community Health Nursing was applied to this study and the elements of the model were used as a conceptual framework for the dissertation.

5.2.1 Research findings

5.2.1.1 Demographic information

More respondents were males (54.7%; n=41) than females. The respondent’s ages ranged from 35 to 39. Five rest camps were included in the study namely Skukuza, Lower-Sabie, Satara, Letaba, and Shingwedzi. Other areas included section ranger posts and concession areas. Respondents residing in Skukuza were 30.7% (n=23), Letaba 16.0% (n=12), and Lower-Sabie, Satara, and Shingwedzi 13.3% (n=10) respectively. Of the respondents 61.3% (n=46) were married and 33.3% (n=25) were single.

Of the respondents 37.3% (n=28) indicated that they did not complete secondary school, 26.7% (n=20) completed secondary school and 21.3% (n=16) had a university of college qualification. Only 66.7% (n=50) of the respondents were employed by SANParks, whilst 20.0% (n=15) employed by a private company and 9.3% (n=7) were employed by the government. The approximate monthly income of 44.0% (n=33) of
respondents was R1001-R3000 per month and 28.0% (n=21) earned R3001-R5000 per month. The type of work done by respondents included hospitality managers, field rangers, section rangers, security, police officers and hut attendants.

Of respondents, 45.3% (n=34) lived with their wives in the KNP. From these 34 wives, 79.4% (n=27) were not pregnant whereas 20.6% (n=7) were pregnant. Of the 75 respondents, 77.3% (n=58) indicated that they had dependent children living in the KNP. The total number of children of all ages who lived in the KNP was 139. Only 1.3% (n=1) of the respondents indicated that he/she had one senior citizen as a dependent person living in the KNP. Of the respondents 48.0% (n=36) had to travel more than 50km to their nearest healthcare service.

5.2.1.2 Dimensions of health of employees and their families living in the KNP

Physical health

Of the respondents, 40.0% (n=30) rated their own health as being good and 9.3% (n=7) rated the health of their spouses as being very good. Whereas 48.0% (n=36) rated the health of their children as being good. Only three (4.0%) respondents had dependents with genetic disorders.

Respondents rated conditions requiring medical attention as: 24.0% (n=18) diabetes mellitus, 4.0% (n=3) spouses and one (1.3%) child had this condition; 33.3% (n=25) had hypertension; whereas 9.3% (n=7) of their spouses had hypertension; 9.3% (n=7) of the respondents, and 9.3% (n=7) of their spouses and 10.7% (n=8) of their children suffered from asthma.

Of the respondents 30.7% (n=23) indicated that they were negative for HIV, whereas 14.7% (n=11) indicated that they were positive for HIV/AIDS; 46.7% (n=35) did not know their status and 2.7% (n=2) reported that their children HIV positive.
Only three (4.0%) respondents and two (2.7%) children had TB. Of the respondents 96.0% (n=72) were not obese.

_Psychological health_

As many as 34.7% (n=26) of the respondents reportedly required consultations for psychological conditions, such as depression, 1-5 times per year, whilst 4.0 % (n=3) consulted 21-25 times per year; 26.7% (n=20) needed to consult a healthcare professional 1-5 times per year for substance-related conditions such as alcohol abuse; and 28.0% (n=21) needed consultations concerning family-related to violence 1-5 times per year.

Other findings related to the respondents' psychological wellbeing, included:

- 52.0% (n=39) experienced emotional crises that needed 1-5, 2.7% (n=2) needed 11-15 and 14.7% (n=11) needed 6-10 consultations per year
- 41.3% (n=31) needed 1-5 consultations per year while 6.7% (n=5) always needed consultations for stress-related conditions
- 41.3% (n=31) of respondents experienced problems with coping abilities and needed 1-5 times consultations per year, whilst 12.0% (n=9) dis so 6-10 times per year
- 52.0% (n=39) required 1-5 and 36.0% (n=27) never needed consultation to help deal with adverse events
- 34.7% (n=26) needed 1-5 and 6.7% (n=5) always needed consultations for fatigue.

_Environmental health_

- Temperature and humidity are prominent environmental conditions in the KNP and 56.0% (n=42) of the respondents needed 1-5, and 10.7% (n=8) needed 6-10 annual consultations for such conditions.
- Unsafe working conditions affected 25.3% (n=19) of respondents who needed to consult with a health professional 1-5 times per year for conditions related to
unsafe working environments whereas 14.7% (n=11) consulted 6-10 times per year.

- Of the 75 respondents, 56.0% (n=42) needed consultations for health conditions caused by exposure to pathogens and allergens at least 1-5 times per year.
- Of the respondents 8.0% (n=6) consulted a health professional 1-5 times per annum for exposure to pollution (water, dusty conditions, smoke originate from field fires).
- For zoonotic diseases, 52.0% (n=39) needed 1-5 and 10.7% (n=8) needed 6-10 consultations per year.

**Socio-cultural health-related aspects**

- 72.0% (n=54) of the respondents reportedly never experienced discrimination, whereas 17.3% (n=13) needed 1-5 consultations per year in this regard
- 49.3% (n=37) of the respondents did not need consultations with healthcare professionals for conditions related to cultural differences and clashes, whilst 4.0% (n=3) always needed such interventions
- 86.7% (n=65) of respondents never experienced any problems to obey the rules and regulations in the KNP whereas 13.3% (n=10) encountered such problems
- 54.7% (n=41) of the respondents reportedly experienced poor social relations that needed interventions by healthcare professionals
- 60.0% (n=45) of the respondents experienced a lack of educational opportunities
- 54.7% (n=41) of the respondents experienced a lack of sport and recreation opportunities
- 54.7% (n=41) of the respondents experienced a lack of opportunities for social gatherings
- 44.0% (n=33) of the respondents complained about a lack of opportunities for religious gatherings
- 89.3% (n=67) of the respondents always experienced problems with poor housing conditions, whilst 10.7% (n=8) never needed such interventions
- 97.3% (n=73) of respondents never had problems with drinking water
- 81.3% (n=61) of the respondents never experienced poor sanitation problems

**Behaviour-related health needs**

66.7% (n=50) of the respondents indicated that they might need interventions regarding dietary issues, and 33.3% (n=25) never needed such consultations. The number of respondents from the sample with diabetes mellitus is 29%, hypertension 42% and HIV/Aids 23%. These figures demonstrated that dietary problems, along with others, contributed to the increase in the percentage of chronic conditions amongst the employees and families in the KNP. A valuable and utmost important measure of intervention is lifestyle modification programs. Intensive lifestyle modification programs are found to be more effective than patient health education in clinics, because of limited consultation time per patient.

Interventions might be needed for exercise (45.3%; n=34); smoking (34.7%; n=26); alcohol abuse (44.0%; n=33); recreational activities (28.0%; n=21); sexual activities (multiple sex partners or none condom use) 85.3%; n=64); wearing of occupational safety devices (58.7%; n=44).

**5.2.1.3 Healthcare systems’ accessibility, affordability, availability, and acceptability**

Section C covered the healthcare systems, including the accessibility, availability affordability, and acceptability of healthcare services in the KNP and adjacent areas. These results revealed that:

- 68.0% (n=51) of the respondents were of opinion that the health services were not accessible in crisis situations
- 64.0% (n=48) of the respondents disagreed that non-emergency health services
- 69.3% (n=52) of the respondents disagreed that the distance to the nearest healthcare service were accessible
- 65.4% (n=49) of the respondents felt it was time-consuming to reach the nearest health services.
- 54.7% (n=41) of the respondents agreed that transport was available to travel to the nearest healthcare service
25.3% (n=19) of the respondents felt that medicines are easily obtainable as although many needed to travel more than 51km to the nearest healthcare service

48.0% (n=39) of the respondents felt that healthcare services were affordable in the KNP

69.3% (n=52) of the respondents disagreed that SANParks provided all the health services needed in the KNP

88.0% (n=76) of the respondents felt that SANParks could provide more healthcare services in the KNP

22.6% (n=17) of the respondents felt confident about the available healthcare services in the KNP, whereas 70.6% (n=53) disagreed

36.0% (n=27) of the respondents considered the healthcare services’ operating hours to be adequate, whereas 38.7% (n=29) disagreed and 19 (25.3%) remained neutral

77.3% (n=58) of the respondents revealed the quality of healthcare services to be acceptable and 86.7% (n=65) considered them to be cultural acceptable

74.6% (n=56) of the respondents agreed the time spent with healthcare workers to be acceptable

33.3% (n=25) of the respondents could sometimes afford healthcare services, whereas 14.7% (n=11) could never do so

81.3% (n=61) of the respondents did not belong to medical aid schemes, whist 17.3% (n=13) did so

The following healthcare services were visited once a month: hospital 28.0% (n=21); PHC 38.7% (n=29); ear, nose and throat specialist 1.3% (n=1); private medical practitioner 5.3% (n=4); dentist 2-6 times per annum 10.7% (n=8); gynaecologist annually 24% (n=18); emergency or first aid 22.7% (n=17) annually; healthcare services at Skukuza 29.3% (n=22) monthly; other specialist 21.3% (n=16) annually; traditional healer 32.0% (n=24) annually.
5.2.1.4 Dimensions of healthcare: primary, secondary and tertiary healthcare regarding prevention of diseases and promotion of health

In section D dimensions of healthcare, as part of the model used as conceptual framework for this study, covered mostly primary preventative healthcare aspects. Respondents considered the following aspects of healthcare to be important:

- 76.0% (n=57) of the respondent’s children were on schedule with immunisation, and 73.3% (n=55) had up-to-date “road to health” cards; 10.7% (n=8) did not have a “road to health” card, whereas 13.3% (n=10) were uncertain.

- 28.0% (n=21) of the respondents took precautionary measures against malaria throughout the year, whereas 22.7% (n=17) never did so

Respondents knew when to seek medical care for: snakebites 97.3% (n=73); burns 92.0% (n=69); bleeding and shock 90.7% (n=68); breathing difficulties 85.3% (n=64); bleeding and abdominal pain during pregnancy 84.0% (n=64); chest pain 80.0% (n=60); fever 80.0% (n=60); lump in the breast 78.7% (n=59); ear, nose and throat problems 78.7% (n=59); seizures 76.0% (n=57); communicable diseases such as measles 73.3% (n=55); insect bites 68.0% (n=51); headaches 66.7% (n=50); diarrhoea and vomiting 65.3% (n=49); passing burning urine 65.3% (n=49); fainting 61.3% (n=46); red eyes 58.7% (n=44); muscular pains 58.7% (n=44); abdominal pain 57.3% (n=43); pain in the bones 56.0% (n=42); joint pains 54.6% (n=41); infant feeding 53.3% (n=40); and skin rashes 50.6% (n=38).

5.2.1.5 Dimensions of nursing care: specific healthcare needs

In section E the respondents were asked to indicate how important they regarded certain aspects of health education to be and how urgently they needed the relevant information. The findings of this item prioritised by the respondents as “very important, urgently needed” and “very important but not urgently needed” has been summarised as follows: ARVs 88.0% (n=66); HIV/Aids 86.7% (n=65); management of chronic diseases such as diabetes mellitus and hypertension 86.6% (n=65); malaria 85.3% (n=64); prevention of chronic diseases such as diabetes mellitus and hypertension 84.0% (n=63); information on medications used 84.0% (n=63); TB 84% (n=63); STIs 80.0% (n=60); early detection of cancer 84.0% (n=63); coping with stress 76.0% (n=57); healthy diet 66.7% (n=57); support for drug abuse 60.4% (n=45); safe sex 81.3%
emotional conditions including psychiatric diseases 74.4% (n=56); side effects of chronic medications 72.0% (n=54); correct ways to exercise 60.0% (n=45); menopause 65.3% (n=49); support for alcohol abuse 61.3% (n=46); stop smoking 68.0% (n=51); immunisation of children 65.4% (n=49); contraception 58.7% (n=44).

The frequency with which people should make use of certain services or have certain examinations done revealed the respondents’ opinions: at least once a year: pap smear 68.0% (n=51); full medical examination > 35 years 58.7% (n=44); prostate examination > 45 years 61.3% (n=46); breast examination 66.7% (n=50); eye test for drivers 80.0% (n=60); blood pressure 92.0% (n=69); blood glucose test 92.0% (n=69); urine test 94.7% (n=71); HIV test 85.3% (n=64).

Of the 75 respondents 98.7% (n=74) would make use of ante-natal healthcare (ANC) services; 100.0% (n=75) of immunisation services for children; 100.0% (n=75) of a baby clinic; 98.7% (n=74) of pap smear services; 97.3% (n=73) for monitoring of chronic diseases; 98.7% (n=74) of VCT services; 97.7% (n=73) for DOTS services; 98.7% (n=74) of contraceptive methods; 96.0% (n=72) for eye testing services; 96.0% (n=72) for minor ailment consultation services; 96.0% (n=72) for injuries or emergencies; and 100.0% (n=75) of home based care services.

5.3 CONCLUSIONS

5.3.1 Health status of employees and their families living in the KNP

Optimal health, which covers the physical, psychological, environmental, socio-cultural, and behavioural needs of the employees and their families living in the KNP is probably unattainable as healthcare services are poorly distributed throughout the KNP, being mostly concentrated in the main camp of Skukuza.
Although most respondents and their families were reportedly physically fairly healthy, some suffered from diabetes mellitus, asthma, hypertension and HIV/AIDS. As many as 62.7% of the respondents required medical consultations for zoonotic diseases during the 12 months preceding the interviews. However, the precise nature of these zoonotic conditions was not disclosed.

Most respondents knew when and where to seek medical help in case of any emergency. Most children’s immunisation and ‘road-to-health’ charts were up to date.

The KNP is a very hot and dusty area which is sometimes also damp. These conditions make it physically unpleasant to work but nobody complained about them. However, 85.3% of the respondents would have appreciated more information about wearing safety gear. Most protective clothing is heavy and hot, making it unlikely to be worn in the KNP’s hot climate.

A number of respondents indicated that they required consultations about psychological and socio-cultural stresses in their lives. These services are not available in the KNP.

Approximately one quarter of the respondents took preventive measures against malaria, but the precise measures were not specified.

### 5.3.2 Accessibility, availability, affordability and acceptability of health systems

Health services are concentrated in the Skukuza area and not available, accessible, nor affordable to most employees and their families living in the KNP, as they are concentrated in Skukuza. Only the minority of the respondents belonged to prepaid medical aid schemes and could thus afford to pay for the services of the private doctors in Skukuza.
5.3.3 Primary, secondary, and tertiary healthcare services in the KNP

Primary healthcare services are mostly provided at the clinics and are available to most KNP employees and their families. However, the members would need to seek secondary and tertiary healthcare services outside the KNP. Since ART services are provided inside the KNP, the respondents no longer needed to visit these services outside the KNP, saving time and transport costs.

5.3.4 Nursing care required to meet specific healthcare needs of the KNP’s employees and their families

Most respondents (more than 80% in all cases) indicated that they required nursing care/health education about HIV/AIDS, ART, management and treatment of chronic conditions such as diabetes mellitus, asthma and hypertension.

Almost all (exceeding 90%) would use most services offered by nurses at the PHC and mobile clinics, including Anc, well-baby clinic, contraception, ART, DOTS and home-based care services.

5.4 LIMITATIONS

The limitations that were identified during the study included that:

- the study was done in only four rest camps in the KNP as time and finances were too limited to include all the rest camps and/or all the employees in this study
- the sample size of 75 was relatively small.
- the study area of the KNP has a large, geographically fragmented personnel component, with possibly markedly different health care needs that this study with its limited scope might have been unable to identify.
only structured interviews were conducted with the respondents and the services of a translator were sometimes needed. More in-depth information might have been obtained by using focus group discussions or individual in-depth interviews.

although precautions were taken to ensure that the translations were accurate, it is possible that some misunderstandings might have occurred on the part of the respondents and/or translators.

the respondents’ answers were accepted as given. No cross checks with their medical records could be implemented as the interviews were conducted anonymously.

although the KNP is an endemic malaria area, no specific information about malaria diagnosis and treatment was obtained. Only limited non-specific information about malaria prevention was shared with the researcher.

5.5 RECOMMENDATIONS

The following recommendations based on the findings of the research are suggested for enhancing healthcare services in the KNP:

- Establishment of healthcare services in all large rest camps geographically displayed throughout the KNP. If this proves to be too expensive, then mobile healthcare services should be provided consistently.

- Healthcare services should be accessible, available, affordable, and acceptable to all employees and their families living in the KNP.

- Healthcare services should meet the specific physical, psychological, environmental, socio-cultural and behavioural needs of the employees and their families in the KNP.

- Healthcare services should provide primary, secondary, and tertiary prevention of disease and promotion of health of the employees and their families living in the KNP. If these services cannot be offered realistically, then free or subsidised transport should be provided to public health services outside the KNP.

- The two provincial departments of health (of the Mpumalanga and Limpopo provinces) should co-operate to provide improved healthcare services to the KNP’s employees and their families living in the KNP.
• The statistics of the healthcare facilities should be analysed and future studies should use such statistics to provide relevant health education and healthcare services, particularly in the case of malaria prophylaxis, diagnosis, treatment and prevention.

• The KNP is an extremely hot area. No information was obtained about the prevention, diagnosis and treatment of heat exhaustion and/or heat stroke which could be life-threatening conditions.

• As the KNP is a wilderness area, most employees and their families might be at risk of insect bites, zoonotic diseases and other wildlife-related risks. These were not specified during the interviews.

The following recommendations for future research based on the findings of the research are suggested:

• Research should be conducted to find ways to enhance the cooperation of the two provincial departments of health (of the Mpumalanga and Limpopo provinces) who are responsible for the delivery of health care in the KNP.

• Action research could be conducted to involve employees in social and sports activities to improve their physical and psychological health.

• Health education campaigns could be launched and then the impact it had on the knowledge and attitude of the employees towards their health could be researched.

• Conduct similar research using a qualitative research design.

• Repeat this same study in a few years’ time to see whether there has been an improvement in health care delivery and whether the recommendations have been implemented.

5.6 CONCLUDING REMARKS

Unless the employees and their families living in the KNP, can access and utilise effective healthcare services, they are unlikely to provide outstanding services to the KNP. Although primary healthcare services are available free of charge, these services are
not necessarily accessible to employees and their families living in more remote parts of the KNP. Regular mobile healthcare services and telephone healthcare services could help these persons to access the required services.

Healthcare services should also focus on preventive aspects and health education on condition such as HIV, malaria, insect bites, snake bites, tick-bite fever, internal parasites, and heat exhaustion. By preventing these conditions, as well as by early diagnosis and treatment, the health status of the KNP’s employees and their families could be enhanced.

Authorities responsible for the planning and provision of comprehensive healthcare service for all people living in the KNP can now use the findings of this study to improve the healthcare services provided.
BIBLIOGRAPHY


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ANNEXURE A

A1: Letter submitted to Research and Ethical Committee of the University of South Africa.
Research and Ethics Committee
Department of Health Studies
University of South Africa

Dear Committee members,

REQUESTING PERMISSION TO COLLECT DATA

I am hereby requesting permission to collect data for my master's dissertation titled:
HEALTHCARE NEEDS OF EMPLOYEES AND THEIR FAMILIES LIVING IN THE
KRUGER NATIONAL PARK IN SOUTH AFRICA

Mrs M.M. van der Merwe is my supervisor and the co-supervisor is Professor
V.J. Ehlers.

Methodological that will be followed is will be that

- a quantitative, explorative descriptive research design will be used.
- the overall aim of the research is to determine the healthcare needs of
  the employees and their families living in the Kruger National Park.

The objectives of the study will be to explore and describe the dimensions of:

- health, which covers the physical, psychological, environmental, socio-
  cultural, and behavioural needs of the employees and their families living in
  the Kruger National Park.
• health systems, including the availability, accessibility, affordability, acceptability and utilisation of health services in the Kruger National Park and surrounding areas.

• healthcare implying primary, secondary, tertiary prevention of disease and promotion of health of the employees and their families living in the Kruger National Park.

• nursing which cover specific healthcare needs of the employees and their families living in the Kruger National Park.

A random sample will be drawn from the research population, as it would be impractical to study the entire research population in the Kruger National Park. The respondents that will be included in the study will have to be:

• male or female employees who work in the Kruger National Park.

• employees who have families who live with them in the Kruger National Park.

An interview will be conducted using a structured pre-planned and tested interview schedule with 75 respondents from the study area.

Data will be analysed with the assistance of a statistician.

My supervisors will ensure that all relevant ethical aspects have been considered and will monitor the research process.

A copy of the interview schedule has been included with this application.

Yours faithfully,

[Signature]

Mrs. M.M.A. DEKKER

04374339
ANNEXURE A2: ETHICAL CLEARANCE FROM THE UNIVERSITY OF SOUTH AFRICA

UNIVERSITY OF SOUTH AFRICA
Health Studies Research & Ethics Committee
(HSREC)
College of Human Sciences

CLEARANCE CERTIFICATE

Date of meeting: 12 September 2007        Project No: 4374339

Project Title: A situation analysis of health services in the Kruger National Park

Researcher: MMA Dekker

Supervisor/Promoter: Prof SP Hattingh

Joint Supervisor/Joint Promoter: Mrs MM van der Merwe

Department: Health Studies

Degree: MA in Health Studies

DECISION OF COMMITTEE

Approved  V  Conditionally Approved  

23 August 2007

Date: ......................................
Prof L de Villiers
RESEARCH COORDINATOR: DEPARTMENT OF HEALTH STUDIES

Prof SM Mogotlane
ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRSES
A3: PERMISSION FROM THE KRUGER NATIONAL PARK TO CONDUCT RESEARCH

A3:1 Permission by Mr. V.A. Sibiya

23rd May 2012

Ms Riekle Dekker
Skukuza Clinic
P.O. Box 12
SKUKUZA
1350

Dear Ms Dekker,

PERMISSION TO CONDUCT RESEARCH TOWARDS MA CUR STUDIES AT UNISA

In response to your letters dated 2nd February 2012 and 31st March 2008, this letter serves to confirm that permission was granted to you to conduct research towards your MA CUR studies.

Trusting the above to be in order and everything of the best towards your studies.

Sincerely

V.A. SIBIYA
MANAGING EXECUTIVE
SKUKUZA CLINIC  
PO BOX 12  
SKUKUZA 1350  
013 7355067 /  
0823380458  

2nd February 2010

MR VA SIBIYA  
MANAGING EXECUTIVE  
CORPORATE OFFICE  
SKUKUZA  
KRUGER NATIONAL PARK  
1350

APPLICATION FOR PERMISSION TO CONDUCT RESEARCH TOWARDS COMPLETING MY MA CUR STUDIES AT UNISA

Dear Mr Sibiya,

I am currently a registered MA Cur student at the University of South Africa, UNISA. I have completed the following subjects successfully to obtain my BA honours degree in Health studies:

- Aspects of Health Service Management (MNUR2A-H)
- Leadership Development (MNUR3B-E)
- Theory Development (MNUR5B-D)
- Africa and International Nursing studies (MNUR6B-E)
- Methods of Nursing Research (MNURSI-E)

A further requirement for obtaining my Masters degree involves a dissertation based on research preferably conducted in my current field of employment.

After consultation with my supervisor at UNISA, Ms. M.M. van der Merwe (012 4296543) research conducted about both Primary Health Care and Occupational Health Care needs in Kruger National Park will comply with the MA Cur requirements. The focus of the study will be on Primary Health Care.

In order to commence with the research I urgently require written permission from you to conduct a survey.

Kindly find completed Guidelines for Research Proposal attached.

Sincerely,

RIEKIE DEKKER
SKUKUZA CLINIC

APPROVED / NOT APPROVED

[Signature]

V.A. SIBIYA  
MANAGING EXECUTIVE
A3: PERMISSION FROM THE KRUGER NATIONAL PARK TO CONDUCT RESEARCH

A3:2: Permission by Dr. B. Mkhize

31/03/2008

DR. B. MKHIZE
EXECUTIVE DIRECTOR
KRUGER NATIONAL PARK
1350

APPLICATION FOR PERMISSION TO CONDUCT RESEARCH TOWARDS COMPLETING MY MA CUR STUDIES AT UNISA

Dear Dr. Mkhize,

I am currently a registered MA Cur student at the University of South Africa, UNISA. I have completed the following subjects successfully:

- Aspects of Health Service Management (MNURB2-A)
- Leadership Development (MNURB2-B)
- Theory Development (MNURB2-D)
- Africa and International Nursing Studies (MNURB2-E)
- Methods of Nursing Research (MNURB1-E)

A further requirement for obtaining this qualification involves a dissertation based on research preferably conducted in my current field of employment.

After consultation with my supervisor at UNISA, (Prof. S.P. Hattingh tel: 011 4296543) research conducted about both Primary Health Care and Occupational Health Care needs in Kruger National Park will comply with the MA Cur requirements.

I will be able to conduct this research in my current field of employment. In order to commence with the research I urgently require written permission from you to conduct a survey by the end of May 2008.

Kindly find completed Guidelines for Research Proposal attached.

Sincerely,

RIEKIE DEKKER
SKUKUZA CLINIC

APPROVED / NOT APPROVED

DR. B. MKHIZE
MANAGING EXECUTIVE – KRUGER NATIONAL PARK
ANNEXURE B: ORIENTATION TO THE KRUGER NATIONAL PARK

B2: Classification of malaria areas in South Africa
Malaria Risk Areas in South Africa

HIGH RISK AREAS
Malaria is endemic in the Lowveld of Mpumalanga and in Limpopo (including the Kruger Park and private game reserves which make these provinces so popular with travellers). In KwaZulu Natal malaria is endemic on the Maputaland coast. So if you are travelling to the far north of South Africa, please consult a health-care professional for the latest advice on malaria prophylaxis as it changes regularly.

INTERMEDIATE RISK AREAS
In intermediate risk areas (Kosi Bay, Sodwana Bay, Mkuze Game Reserve and St Lucia Lake (not the town of St Lucia and the river mouth), the use of anti-malarial drugs is advisable only for high risk people from October to May. Check with your physician or travel clinic.

LOW RISK AREAS
In low risk areas no anti-malaria drugs are necessary. In the North West Province and the Northern Cape along the Molopo and Orange Rivers, including the Augrabies Falls and the Kgalagadi Transfrontier Park, malaria is only occasionally locally transmitted. It is not necessary to take anti-malaria drugs when visiting these areas, but precautionary measures to prevent mosquito bites should be taken.
Malaria Risk Areas

Precautions and Advice

Visitors to high risk Malaria areas should personally take precautions between dawn and dusk.

• apply insect repellent to exposed skin
• if possible remain indoors
• close windows and doors at night unless they are screened
• spray an aerosol insecticide inside the sleeping area
• burn mosquito coils and mosquito mats in sleeping areas
• sleep under a mosquito-proof bed-net
• wear long-sleeved clothing, trousers and socks if outdoors during this time
• in high-risk areas (Kruger Park, northern parts of Limpopo and northern parts of KwaZulu Natal) the use of anti-malaria drugs is recommended from October to May.

People at particular risk who should take extra precautions are:
• children under 5
• adults over 65
• pregnant women
• people on long term steroids
• people receiving chemotherapy
• people with Aids / HIV, porphyria or epilepsy
• people who have had their spleens removed
• chronically ill patients

TAKING MALARIA PROPHYLACTICS
If you do decide to take malaria prophylaxis, it is essential to take the drugs according to the directions on the package insert. You need to start a week or two before entering the malaria-endemic area and it is also essential that you continue to take the drugs for four weeks after leaving the malaria risk area. Please consult your physician or a registered health-care professional about the possible side-effects of the drugs.

PRE-CAUTIONS
Some medical conditions are contra-indications for malaria prophylactic drugs, so consult your regular doctor if you have any pre-existing conditions. If you are pregnant it is advisable to avoid malaria areas but you can still have a great holiday (including some excellent game viewing) without setting a foot in a malaria-endemic area.
AFTER TRAVELLING

It is important to note that a person may still contract malaria even though all precautionary measures have been taken. If any flu-like symptoms namely, headache, fever, muscular and joint pains, sweating, shivering attacks, nausea, diarrhoea and fatigue occur after a visit to a malaria risk area (and for up to six months thereafter) consult a doctor immediately and advise the doctor of your visit to the malaria area in order to ensure that malaria is diagnosed and treated in time. Malaria attacks can occur up to six months after leaving a malaria area.
Map of the Endemic Malaria areas within South Africa

National Department of Health and Social Services

http://www.doh.gov.za/issues/malaria
Annexure B3: Vegetation in the KNP
South African National Parks
http://www.sanparks.org/parks/kruger/conservation/scientific/maps
Annexure B4: Illustrates the main rest camps in the KNP.

South African National Parks

http://www.sanparks.org/parks/kruger/conservation/scientific/maps)
## DISTANCES BETWEEN MAIN KRUGER NATIONAL PARK CAMPS AND GATES

**IMPORTANT INFORMATION:**

Distances given are on roads - the actual travel time may be shorter.

Travel time is estimated at 25 km/h, which is the speed limit in the National Park.

The distances between camps are approximate and may vary depending on traffic conditions.

### Distances between rest camps

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### Distances between gates

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**NOTES:**

- Distances are approximate and may vary depending on traffic conditions.
- The maximum speed limit is 50 km/h on tar and 40 km/h on sand.
- The travel time is estimated at 25 km/h, which is the speed limit in the National Park.

**REFERENCES:**

- [South African National Parks](http://www.sanparks.org/parks/kruger/get_there/knp_distances_between_camps.pdf)
- [Additional information on the Kruger National Park](http://www.sanparks.org/parks/kruger/get_there/knp_distances_between_camps.pdf)
ANNEXURE B: ORIENTATION TO THE KRUGER NATIONAL PARK

B6: Entrance gates to the KNP

Illustrates the entrance gates and main rest camps in the KNP

South African National Parks

http://www.sanparks.org/parks/kruger/conservation/scientific/maps
Illustrates the different regions of the KNP.

South African National Parks

http://www.sanparks.org/parks/kruger/conservation/scientific/maps)
ANNEXURE B: ORIENTATION TO THE KRUGER NATIONAL PARK

B8: Ranger sections in the KNP

Ranger sections in the KNP
South African National Parks

http://www.sanparks.org/parks/kruger/conservation/scientific/maps
ANNEXURE B: ORIENTATION TO THE KRUGER NATIONAL PARK

B9: Population graphs in KNP
## Annexe B: Orientation to the Kruger National Park

### B10: Distance to hospitals

<table>
<thead>
<tr>
<th>Camp and region</th>
<th>Kilometers to nearest hospital</th>
<th>Name of hospital</th>
<th>Round trip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretoriuskop (South)</td>
<td>26km</td>
<td>Matikwane</td>
<td>52km</td>
</tr>
<tr>
<td>Berg en Dal (South)</td>
<td>46km</td>
<td>Shongwe</td>
<td>52km</td>
</tr>
<tr>
<td>Lower-Sabie (South)</td>
<td>78km</td>
<td>Matikwane</td>
<td>156km</td>
</tr>
<tr>
<td>Crocodile bridge (South)</td>
<td>63km</td>
<td>Tonga</td>
<td>126km</td>
</tr>
<tr>
<td>Skukuza (South)</td>
<td>30km</td>
<td>Matikwane</td>
<td>60km</td>
</tr>
<tr>
<td>Skukuza (South)</td>
<td>115km</td>
<td>Themba</td>
<td>230km</td>
</tr>
<tr>
<td>Skukuza (South)</td>
<td>120km</td>
<td>Rob Ferreira Nelspruit</td>
<td>240km</td>
</tr>
<tr>
<td>Satara (South)</td>
<td>123km</td>
<td>Matikwane</td>
<td>246km</td>
</tr>
<tr>
<td>Satara (South)</td>
<td>112km</td>
<td>Tinstwalo</td>
<td>224km</td>
</tr>
<tr>
<td>Orpen (South)</td>
<td>58km</td>
<td>Tinstwalo</td>
<td>116km</td>
</tr>
<tr>
<td>Olifants (North)</td>
<td>84km</td>
<td>Phalaborwa</td>
<td>168km</td>
</tr>
<tr>
<td>Letaba (North)</td>
<td>54km</td>
<td>Phalaborwa</td>
<td>108km</td>
</tr>
<tr>
<td>Mopani (North)</td>
<td>60km</td>
<td>Phalaborwa</td>
<td>120km</td>
</tr>
<tr>
<td>Shingwedzi (North)</td>
<td>118km</td>
<td>Malamulele</td>
<td>236km</td>
</tr>
<tr>
<td>Punda Maria (North)</td>
<td>47km</td>
<td>Malamulele</td>
<td>94km</td>
</tr>
</tbody>
</table>

Distances to the nearest referral Government hospitals

ANNEXURE B: ORIENTATION TO THE KRUGER NATIONAL PARK

B11: Referral hospitals outside the KNP
ANNEXURE C1: INFORMED CONSENT

TITLE OF RESEARCH: Healthcare needs of employees and their families living in the Kruger National Park in South Africa

RESEARCHER: Martha Maria Adriana Dekker

Please mark your answer by encircling the choices provided.

Do you understand that you have been asked to be in a research study?
  Yes   No

Have you read and received a copy of the attached information sheet?
  Yes   No

Do you understand the benefits and risks involved in taking part in this research?
  Yes   No

Have you had an opportunity to ask questions and discuss the study with the researcher?
  Yes   No

Do you understand that you are free to participate or withdraw from the study at any time?
  Yes   No

Do you understand who will have access to this information?
  Yes   No

This study was explained to me by the researcher.
I agree to take part in this study. I agree to be interviewed for the purposes described in the information letter. I understand that my name will not be associated with the collected information and that identifiers will be removed.

……………………………………. ……………………………. …………………………….  
Signature of participant         Date                  Printed name

I believe that the person signing this form understands what is involved in the study and voluntary agrees to participate.
<table>
<thead>
<tr>
<th>Signature of researcher</th>
<th>Date</th>
<th>Printed name</th>
</tr>
</thead>
</table>

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I am Mrs MMA Dekker a student at the University of South Africa

I need to collect data for my research, and have chosen you to take part.

The purpose of the research is to determine the healthcare needs of the employees and their families living in the KNP.

The objectives are to explore and describe the healthcare needs of the employees and their families living in the KNP in order to enhance these persons’ healthcare services and their general state of well-being including the physical, psychological, environmental, socio-cultural, and behavioural healthcare.

Data will be collected by the researcher using an interview schedule.

The data collection process should not take more than 1½ hour.

You are requested to answer the questions as honestly and truthfully as possible without fear.

The results of the research will be printed in the master’s dissertation of the researcher and will be examined by examiners to establish whether the researcher is able to do research on her own. This research is therefore only for the researcher’s own development and studies.

The findings of this research will be confidential as no name will be mentioned and in no way will it be possible to identify the respondents.

Your participation is voluntary and you may withdraw at any stage of the study if you feel threatened.

No harm will be done to you and no information you share with the researcher will be used to harm you.

The information collected might however benefit management of SANParks and their employees should it be possible to make suggestions to improve healthcare according to the needs of employees and their families.

Your privacy will be ensured during the interview.

Should you feel uncomfortable during the interview in any way, please discuss it with the researcher.

Should you have any questions at any time, please direct it to the researcher.
ANNEXURE C 2

INTERVIEW SCHEDULE

This research is about the healthcare needs of people living in the Kruger National Park.

Office use only

Number of respondent

1-2

Please enter the number allocated to the choices provided in the key and chosen by the respondent, into the blocks in the right hand margin. Respondents should ignore the coding of the blocks.

SECTION A

DEMOGRAPHICAL DATA

1.1 How old are you?

Key: Between 20 -24 years = 1
     Between 25 - 29 years = 2
     Between 30 - 34 years = 3
     Between 35 - 39 years = 4
     Between 40 - 44 years = 5
     Between 45 - 49 years = 6
     Between 50 - 54 years = 7
     Older than 55 years = 8

A1

1.2 What is your gender?

Key: Male = 1
     Female = 2

A2
1.3 Where do you stay in the Kruger National Park?
Key:  
Skukuza = 1  
Berg en Dal = 2  
Pretoriuskop = 3  
Crocodile Bridge = 4  
Lower-Sabie = 5  
Orpen = 6  
Satara = 7  
Olifants = 8  
Letaba = 9  
Mopanie = 10  
Shingwedzi = 11  
Punga Maria = 12  
Other = 13

If your answer is “other” please specify where you live.

______________________________________________________________________

1.4 What is your marital status?
Key:  
Single = 1  
Married/living together = 2  
Divorced/Separated = 3  
Widow/er = 4  
Other = 5

If your answer is “other” please specify your marital status.
1.5 Please indicate your home language (the language in which you communicate with your family and friends) choose only one language.

Key:  
- Afrikaans = 1
- English = 2
- Swazi = 3
- Tsonga = 4
- Zulu = 5
- Tswana = 6
- Xhosa = 7
- Venda = 8
- Shangaan = 9
- Other = 10

If your answer is “other” please specify your home language.

A5

1.6 Please indicate your highest level of formal education.

Key:  
- No formal education = 1
- Did not complete primary schooling = 2
- Primary school = 3
- Did not complete secondary schooling = 4
- Completed secondary school = 5
- University/college = 6
- Other = 7

If your answer is “other” please specify your highest formal education.

A6

1.7 Please choose the employment status that is applicable to your situation.

Key:  
- Self employed = 1
- Unemployed = 2
- SANParks employee = 3
Government employee = 4
Domestic worker = 5
Professional = 6
Private department = 7
Other = 8

A7

1.8 Please indicate an approximate of your monthly income.
Key: Less than R500 per month = 1
Between R501-R1000 = 2
Between R1001-R3000 = 3
Between R3001-R5000 = 4
Between R5001-R10000 = 5
Between R10000 and more = 6

A8

1.9 What type of work do you do?

A9

1.10 Please indicate how many dependants you have in your family who live in Kruger Park.
1.10.1 Wives (non pregnant)

A10

1.10.2 Wives (pregnant)

A11

1.10.3 Children younger than 2 years

A12

1.10.4 Children between 2 – 6 years
1.10.5 Children between 7-12 years

1.10.6 Children 13 – 18 years

1.10.7 Children older than 19 years

1.10.8 Senior citizens

1.11 Please indicate the distance (in kilometres) you usually have to travel to the nearest health service.

Key:

1-10km = 1
11-20 = 2
21-30 = 3
31-40 = 4
41-50 = 5
More than 51km = 6

A17
SECTION B

DIMENSIONS OF HEALTH

2.1 How would you rate your own and your dependents’ health status?

Key: Very good = 1
     Good = 2
     Average = 3
     Poor = 4
     Very poor = 5

2.1.1 Yourself

2.1.2 Spouse

2.1.3 Children

2.1.4 Other

Please specify “other” dependants

2.2 Have you or any of your dependents inherited genetic disorders that cause health problems?

Key: Yes = 1
     No = 2
     Don’t know = 3

B22
2.3 Do you or any one of your dependents who live with you have the following conditions that often need medical attention?

Key:  Yes, myself = 1
       Yes, my spouse = 2
       Yes, my children = 3
       I don’t know = 4
       No = 5

2.3.1 Diabetes mellitus (sugar)  

2.3.2 Hypertension  

2.3.3 Asthma (or other respiratory conditions)  

2.3.4 HIV/AIDS  

2.3.5 Tuberculosis (TB)  

2.3.6 Obesity  

2.3.7 Other physiological conditions

Please specify “other” physiological conditions

2.4 How often do you or any one of your dependents complain of or experience the following psychological conditions for which you would need to consult medical professionals?

Key:  Always = 1
       Between 21-25 times a year = 2
       Between 16-20 times a year = 3
### 2.4.1 Depression

### 2.4.2 Substance abuse

### 2.4.3 Family violence

### 2.4.4 Emotional crisis

### 2.4.5 Stress-related conditions

### 2.4.6 Problems with coping abilities

### 2.4.7 Psychological disorders

### 2.4.8 Problems dealing with adverse events

### 2.4.9 Fatigue

#### 2.5 How often do the following environmental conditions affect your and the health of your dependents for which you might a consult medical professional?

**Key:**
- **Always** = 1
- Between 21-25 times a year = 2
- Between 16-20 times a year = 3
- Between 11-15 times a year = 4
- Between 6-10 times a year = 5

Between 11-15 times a year = 4
Between 6-10 times a year = 5
Between 1-5 times a year = 6
Never = 7
Between 1-5 times a year = 6
Never = 7

2.5.1 The temperature and humidity

2.5.2 Unsafe working conditions (e.g. dangerous animals)

2.5.3 Exposure to pathogens and allergens

2.5.4 Exposure to pollution (e.g. water, air – dust)

2.5.5 Difficult working terrain

2.5.6 Health hazards (e.g. field fires, zoonoses)

2.6 How often do the following socio-economic cultural conditions affect you and your dependents that might need intervention?

Key: Always = 1
Between 21-25 times a year = 2
Between 16-20 times a year = 3
Between 11-15 times a year = 4
Between 6-10 times a year = 5
Between 1-5 times a year = 6
Never = 7

2.6.1 Discrimination

2.6.2 Cultural differences and clashes

2.6.3 Legislation and policies
2.6.4 Poor social relations

2.6.5 Lack of educational opportunities

2.6.6 Lack of sport and recreational facilities

2.6.7 Lack of sport and recreation opportunities

2.6.8 Lack of opportunities for social gatherings

2.6.9 Lack of opportunities for religious gatherings

2.6.10 Poor housing facilities

2.6.11 Poor quality of water

2.6.12 Poor sanitation

2.7 How often do your own and your dependents’ health related behavioural patterns pose a risk to health, that might necessitate consultation with health care professionals?

Key:

Always = 1
Between 21-25 times a year = 2
Between 16-20 times a year = 3
Between 11-15 times a year = 4
Between 6-10 times a year = 5
Between 1-5 times a year = 6
Never = 7
2.7.1 Dietary issues (e.g. obesity, malnutrition)  

2.7.2 Lack of exercise (e.g. lack of or over exertion)  

2.7.3 Smoking of cigarettes  

2.7.4 Alcohol abuse  

2.7.5 Lack of recreational activities (e.g. sport injuries)  

2.7.6 Sexual activities (e.g. multiple sexual partners, none condom use)  

2.7.7 Not wearing of occupational safety devices (e.g. lack of proper protection devices or none use)
SECTION C
DIMENSION OF HEALTH SYSTEMS

3 Please indicate to what extent you would agree or disagree with the following statements related to the health services you and your dependents/family make use of.

Key: Strongly agree = 1
      Agree = 2
      Neutral = 3
      Disagree = 4
      Strongly disagree = 5

3.1.1 The health services we make use of are easily accessible in cases of an emergency.  

3.1.2 The health services we make use of are easily accessible when it is not an emergency.  

3.1.3 The distance we have to travel to consult a health professional is acceptable.  

3.1.4 It does not take a very long time to reach the nearest health services.  

3.1.5 Transport to healthcare facilities is available.  

3.1.6 All the health services we need are available within the Kruger Park.  

3.1.7 SANParks provide all the health services we need.
3.1.8 We do not expect SANParks to provide more health services.

3.1.9 The hours in which health services in Kruger Park operate are adequate.

3.1.10 The hours in which health services, we make use of (outside KP), operate are adequate.

3.1.11 Transport to healthcare facilities is expensive.

3.1.12 Medication is too expensive.

3.1.13 The health services we make use of are affordable.

3.1.14 All medication we need is easy to obtain.

3.1.15 The time we spend to consult a health professional is acceptable.

3.1.16 The health services we make use of are culturally acceptable.

3.1.17 The quality of the health services we make use of is acceptable.

3.2 Indicate how you would rate the affordability of the healthcare you receive for your family’ healthcare needs per month, by choosing the statement that best describes your situation.

Key: We can always afford the healthcare our family needs = 1
We can sometimes afford the healthcare our family needs = 2
We can never afford the healthcare our family needs = 3

C82
3.3 Do you belong to a medical aid?
Key: Yes = 1
     No = 2

3.4 How often do you (including other members of your family) visit the following health services?

Key: Daily = 1
     Weekly = 2
     Monthly = 3
     7-11 times a year = 4
     2-6 times a year = 5
     Annually = 6

3.4.1 Hospital

3.4.2 Primary healthcare clinic

3.4.3 Eye and ear clinic/healthcare service

3.4.4 Private medical practitioner

3.4.5 Dentist

3.4.6 Gynaecologist

3.4.7 Emergency/first aid services

3.4.8 Health services at Skukuza
SECTION D

DIMENSION OF HEALTHCARE

Please indicate how important you consider the following aspects of healthcare.

4.1 Are all your children on schedule with their immunisation?

Key:  Yes  =  1
      No   =  2
      Not certain  =  3

4.2 Do you have a ‘Road to Health Card” for your child?

Key:  Yes  =  1
      No   =  2
      Not certain  =  3

4.3 How often do you take precautionary measure against malaria?

Key:  Only in summer  =  1
      Throughout the year  =  2
      When you remember  =  3
      Never  =  4
4.4 Do you know when to seek medical care when you or your dependents present with the conditions listed below.

Key:  Yes = 1  
      No = 2  
      Uncertain = 3

4.4.1 Communicable diseases such as measles.

4.4.2 Headaches

4.4.3 Seizures

4.4.4 Fever

4.4.5 Diarrhoea and vomiting

4.4.6 Chest pain

4.4.7 Difficulty breathing

4.4.8 Fainting

4.4.9 Abdominal pain

4.4.10 Burning when passing water

4.4.11 Pain in joints
4.4.12 Muscle pains

4.4.13 Pain in bones (e.g. legs)

4.4.14 Skin rashes and lesions

4.4.15 Insect bites and stings

4.4.16 Snake bites

4.4.17 Burns

4.4.18 Bleeding and shock

4.4.19 Lump in breast

4.4.20 Red eye

4.4.21 Problems of the ear, nose and throat

4.4.22 Abdominal pain or bleeding in pregnancy

4.4.23 Infant feeding
SECTION E

DIMENSIONS OF NURSING

5.1 Indicate how seriously you and your dependents need information or support on the following important issues related to.

Key:
- Very important, urgently need it = 1
- Very important but not urgently needed = 2
- Will be good to have it = 3
- Might need it in future = 4
- Will never need it = 5

5.1.1 Information on immunisation for children.

5.1.2 Information on how to eat healthy.

5.1.3 Information on correct way to exercise.

5.1.4 Information on ways to stop smoking.

5.1.5 Help and support for drug abuse.

5.1.6 Help and support for alcohol abuse.

5.1.7 Information on how to cope with stress.

5.1.8 Information on safe sexual practices.

5.1.9 Information on contraceptive methods.
5.1.10 Information on sexual transmitted infections.  
5.1.11 Information on HIV/AIDS.  
5.1.12 Information on anti-retroviral treatment (ART).  
5.1.13 Information on the medication you use.  
5.1.14 Information on conditions such as tuberculosis.  
5.1.15 Information on conditions such as malaria.  
5.1.16 Information on how to prevent chronic conditions such as Diabetes Mellitus and hypertension.  
5.1.17 Information on how to manage chronic conditions such as Diabetes Mellitus and hypertension.  
5.1.18 Information on early detection of cancer.  
5.1.19 Information on menopause.  
5.1.20 Information on side effects of chronic medication.  
5.1.21 Counselling for emotional problems including psychiatric conditions.  

5.2 In your opinion how often should people make use of the following health services/ examinations?

Key:  
At least once a year = 1  
At least every two years = 2
Every five years = 3
Once in a life time = 4
It is never necessary = 5

5.2.1 Sexually active women have a Pap smear

5.2.2 People over the age of 35 years have full medical examination.

5.2.3 Men over the age of 45 years have a prostate examination.

5.2.4 Women have breast examinations (also mammograms).

5.2.5 Workers driving vehicles have eye tests.

5.2.6 Have blood pressure tested.

5.2.7 Have blood sugar tested

5.2.8 Have a urine test.

5.2.9 People involved in risky sexual activity have HIV test.

6.1 If available and accessible how often would you (or do you) and your dependents make use of the following health services in Kruger Park?

Key: At least once a month = 1
At least 6 and more times a year = 2
At least 2-5 times a year = 3
Only when necessary = 4
Never = 5
6.1.1 Ante-natal care

6.1.2 Immunisation

6.1.3 Well baby clinic

6.1.4 Sick baby clinic

6.1.5 Pap smear and gynaecological examination

6.1.6 Monitoring of chronic conditions

6.1.7 HIV counselling

6.1.8 Directly observed Tuberculosis treatment Short course (DOTS)

6.1.9 Contraceptive methods

6.1.10 Eye tests

6.1.11 Minor ailments

6.1.12 Injuries/emergencies

6.1.13 Home based care for Aids patients or patient recovering from illness

THANK YOU