QUALITY OF LIFE OF ADULTS WITH VENOUS LEG ULCERS

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Declaration

I declare that Quality of Life of Adults with Venous Leg Ulcers is my own work and that all resources used or quoted have been indicated and acknowledged by means of complete references.

SIGNATURE DATE

(MRS B THERON)

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Abstract

Health related quality of life (HRQoL) refers to the impact of disease and treatment on disability and daily living. Living with a venous leg ulcer (VLU) has a negative impact on HRQoL. The aim of the present study was to investigate the aspects of HRQoL affected by VLUs in a local SA sample. A post hoc research design was utilised comparing 30 VLU patients and 30 non-VLU participants. Four hypotheses were investigated: (1) the experience of having a VLU on HRQoL, (2) the relation between gender and HRQoL of VLU patients, (3) the relation between age and HRQoL of VLU patients and (4) the interrelation between the underlying constructs of HRQoL of VLU patients. A structured questionnaire was used to obtain information on demographic variables and HRQoL using the SF-36 questionnaire. Interviews were conducted to obtain qualitative data to complete the investigation. Correlation analysis and t-tests confirmed that having a VLU negatively affected HRQoL and that interrelations existed among the constructs of HRQoL. There were no significant relations between gender, age and HRQoL of VLU patients. In line with the social constructivist approach, social support and restructuring a sense of meaning in life to increase HRQoL, are important goals in the management of VLUs.

Quality of life of adults with venous leg ulcers

Chapter 1: Introduction

1.1 Motivation for the study

As many nations of the world enter an era of post-materialism in which basic needs are met, interest in quality of life (QoL) is likely to grow. The inspiration for this study arose from the observation that elderly patients in various wound care clinics in Pretoria had trouble in living a life with venous leg ulcers. Having a venous leg ulcer (VLU) is regarded as a chronic illness (Husband, 2001a). Chronic leg ulcers occur in a large majority of the population (Husband, 2001a; Kurz et al., 2001), predominantly in the elderly (Ebbeskog, 2001; Lindsay, 2000). It is known as a condition of long duration (Nelzen, Bergqvist & Lindhagen, 1997; Ruckley, 1997a) and has a major impact on a patient's QoL (Persoon et al., 2004; Ruckley, 1998). In a democratic world where people have the right to live fulfilling lives, investigation of QoL is increasingly important.

A chronic leg ulcer is often defined as a wound below the knee, including the foot, which does not heal within six weeks (Bergqvist, Lindholm & Nelzen, 1999; Lindholm, Bjellerup, Christensen & Zederfeldt, 1993; Nelzen Bergqvist & Lindhagen, 1995; Nelzen, 1997). Symptoms include swelling and aching of the legs, often late in the day, which may improve with elevation of the limbs (Margolis, Knaus & Bilker, 2004). The condition is typically cyclical, with periods of healing followed by recurrence due to the underlying condition that remains (Bland, 1999; Ebbeskog, 2001; Husband, 2001a; Kurz et al., 2001; Lindholm, 2002; Nelzen, 1997; Ruckley, 1998). Due to increased longevity, the number of patients requiring care is increasing (Bland, 1999; De Araujo, 2003; Lamping, Schroter, Kurz, Kahn & Abenhaim, 2003; Lindsay, 2000; Nelzen et al., 1997). A distinct relationship between age and the prevalence of leg ulcers has been observed (Lamping et al., 2003; Lindsay, 2000; Nelzen, 1997), while the relationship between the prevalence of VLUs and gender is less clear from the literature (Margolis, Bilker, Santana & Baumsgarten, 2002).

Possible predictors for decreased QoL of VLU patients are increased pain (Bland, 1999; Hofman et al., 1997; Hyland, Ley & Thomson, 1994; Liew, Law & Sinha, 2000; Persoon et al., 2004; Pieper, Szczepaniak & Templin, 2000), decreased mobility (Mostow, Haraway, Dalsing, Hodde & King, 2005; Walters et al., 1999, as cited by Persoon et al., 2004), sleep disturbances (Hyland et al., 1994), decreased emotional well-being (Franks & Moffat, 1998; Margolis et al., 2004), social isolation (Bland, 1999; Lindsay, 2000; Phillips, Stanton, Provan & Lew, 1994; Pieper et al., 2000) and increasing financial costs (De Araujo, 2003; Harding, Morris & Patel, 2002; Kurz et al., 2001; Lamping et al., 2003; Lindsay, 2000; Phillips et al., 1994). A relevant measurement of QoL would therefore be one that covers all of the above predictors.

Living with a chronic illness is a matter of total readjustment of an individual's life to accommodate the illness (Husband, 2001a). It is suggested that the focus of treating VLUs should not only be on the healing of the wound (Husband, 2001b), but also that increased understanding of the VLU patient’s perspective may result in a more appropriate response to their needs (Ebbeskog, 2001). Efforts need to be directed towards normalisation and maintaining QoL for the VLU patient (Corbin & Strauss, 1988; Husband, 1996; Pott, 1992 as cited by Husband, 2001a).

It is widely accepted among healthcare professionals (Corbin & Strauss, 1988; Ebbeskog, 2001; Husband, 2001a) that the individual needs of the VLU patient should be considered, and that a positive management outcome and increased QoL can be influenced by the VLU patient's insight into the severity of the condition. Unfortunately, little conclusive research has been done regarding the VLU patient’s subjective needs and the extent to which the underlying constructs of QoL are affected. The aim of this study is to investigate a local sample in South Africa (SA).

1.2 Health Related Quality of Life and Venous Leg Ulcers

In the 1980s, the term health-related quality of life (HRQoL) emerged in an attempt to narrow the term and define it within the healthcare context (Price & Harding, 1996). HRQoL is a descriptive term that refers to people's subjective emotional, social and physical well-being, and their ability to function in the ordinary tasks of living (Ebbeskog, 2001; Smith, Guest, Greenhalgh & Davies; 2000).

Analysis of HRQoL consists of the investigation of its underlying six constructs, which include the general health dimension, physical health dimension, mental health dimension, role functioning, social functioning and pain (Ebbeskog, 2001; Kline, 2000; Stewart, Hays & Ware, 1988). To ensure a complete investigation of HRQoL of VLU patients, it is therefore necessary to use a measurement that includes these six constructs. Research has shown that the Short Form 36-item (SF-36) Health Survey is a well-validated generic measure of health status (Ebbeskog, 2001; Kurz et al., 2001; Smith et al., 2000) and has previously been used in SA (Westaway, Rheeder, Van Zyl & Golele, 2000). The SF-36 provides a summary of HRQoL. Various studies that used the SF-36 found that VLU patients have significantly poorer HRQoL than general non-VLU participants (Ebbeskog, 2001; Kurz et al., 2001). By investigating each of these constructs of HRQoL, it should be possible to determine the construct(s) of HRQoL affected by the presence of VLUs and the relations among the constructs. According to available literature (Brem, Kirsner & Falanga, 2004; Cali & Bruce, 1999; De Araujo, 2003; Lindsay, 2000; Margolis et al., 2004; Mostow et al., 2005; Volkers, Nyen, Verhaak & Schellevis, 2003), under-recognition and inadequate treatment of pain is only one of the possible six underlying constructs of HRQoL. While the pain of leg ulceration can dominate patients' lives and can have serious psychological, physical and social effects on patients' HRQoL (Ebbeskog, 2001), the same may be true for the other five constructs. By providing a better understanding of the impact of VLUs on HRQoL, the results of the present study could contribute to more focused and effective patient care for these VLU adults to assist them to improve their HRQoL (Husband, 2001a).

The individual’s subjective needs have been considered to be the most important factors influencing HRQoL (Franks & Moffat, 1998). Ruggeri, Warner, Bisoffi and Fontecedro (2001) suggested that both objective (detecting treatment effects) and subjective (to complete the HRQoL picture) measures are necessary for assessing HRQoL. Therefore, in this present study, the SF-36 questionnaire and demographic questions were used as objective measures. In search of a better subjective understanding of VLU patient’s lives and to complement the objective data, informal interviews were conducted with several local VLU patients while receiving treatment at various clinics.

It is acknowledged that HRQoL is an important unsolved healthcare issue at healthcare clinics in Pretoria, especially among the elderly VLU patients (Dr F Cronje, personal communication, November 3, 2005). South African research regarding HRQoL of VLU patients is limited, and as far as is known, no local studies have been undertaken to investigate the situation of VLU patients in the SA context. This study forms part of a larger study investigating the factors that may play a role in the treatment of VLUs and the process of recovery.

Understanding these HRQoL factors can help wound care staff to decide between different treatments, to inform patients about the likely effects of treatments, to monitor the success of treatments from the patient's perspective, and to plan and coordinate care packages.

1.3 The Research question

The research question can be formulated as follows:
What aspects of HRQoL are affected by the subjective experience of living with a VLU?

1.4 Dissertation outline

Chapter 1 introduces the research report. Chapter 2 provides a literature review including a brief definition of constructs pertaining to the topic. HRQoL and VLUs will be discussed and social constructions with regards to HRQoL will be included in this chapter.

The research design, methodology and data analysis are described in Chapter 3. A description of the qualitative interview session forms part of the research findings in Chapter 4. This chapter looks at what the process of quantitative and qualitative data gathering has yielded. Chapter 5 begins by reviewing the purpose and expectations of the study and then discusses whether the results are consistent with other researchers' findings. The chapter also links the research findings with the literature study. Chapter 6 concludes with a summary and recommendations for future research. The list of references is provided at the end of the report, as well as two appendices, showing both the Afrikaans and English consent forms and the questionnaires.

Chapter 2: Literature review: HRQoL and VLUs

2.1 Introduction

This chapter reviews the literature regarding the health related quality of life (HRQoL) experienced by patients with venous leg ulcers (VLUs). Although it is widely accepted among healthcare professionals that the individual needs of the patient should be considered, little conclusive research has been done on the extent to which the underlying constructs of HRQoL are affected (Husband, 2001b; Kurz et al., 2001). The literature discussed in this chapter encompasses key quantitative and qualitative research focusing on HRQoL of VLU patients.

To ensure a holistic investigation, the literature review starts off with a general description of HRQoL and the underlying constructs of HRQoL. Some background regarding the prevalence of VLUs, and the relation with age and gender will follow, as well as discussion of other variables such as wound management, care issues and the effect VLUs have on a patient's HRQoL.

2.2 Health Related Quality of Life (HRQoL)

Since the dawn of civilisation, great thinkers have discussed the quality of human existence (Maslow, 1970). To some individuals the ideal state is one of wealth, to others, it is having significant relationships, while others consider being able to help those in need as being important in their lives. Individuals vary in external circumstances, yet they may share a feeling of subjective QoL. What is QoL? "Quality" implies the degree of excellence of a characteristic, but the concept of the QoL may mean different things to different people (Bowling & Windsor, 2000). In the present study, QoL is a descriptive term that refers to people's emotional, social and physical well-being, and their ability to function in the ordinary tasks of living (Ebbeskog, 2001). The term "quality" is best described by an individual at each stage of his or her life and may change daily or, in some cases, even hourly (Bowling & Windsor, 2000). Evaluation of QoL includes life satisfaction, affective evaluations (moods and emotions), personal health issues and environmental influences. Due to the diversity of QoL, it was necessary to narrow the scope of QoL for this study.

In the 1980s, the term health-related quality of life (HRQoL) emerged in an attempt to narrow the all-encompassing QoL term and define it within the healthcare context (Price & Harding, 1996). HRQoL refers to the impact of disease and treatment on disability and daily living, or to a patient-based focus of the impact of a perceived health state on the ability to lead a fulfilling life (Price & Harding, 1996). Franks and Moffatt (1998) noted that when an individual with a chronic wound is feeling ill, he or she is likely to experience feelings of pain and discomfort or a change in usual functioning. This is the core consideration in HRQoL, as the individual's subjective sense of well-being is an important factor in management (Franks & Moffat, 1998). VLU patients have a significantly poorer HRQoL compared with healthy people, with profound implications for the lives of older VLU patients and the strategies needed to maintain and enhance their HRQoL (Persoon, et al., 2004). In this study, investigation of HRQoL will therefore be more relevant than investigation of overall QoL.

HRQoL for an individual with a VLU incorporates predictors such as pain and suffering, the financial costs of healthcare, the strain on personal resources, and overall impact on his/her life and activities of daily living (Langemo, 2005). Issues relating to HRQoL for VLU patients have been well documented in the literature, with various studies confirming the significant negative impact of VLUs on HRQoL (Brem et al., 2004; Cali & Bruce, 1999; De Araujo, 2003; Ebbeskog, 2001; Lindsay, 2000; Margolis et al., 2004;

Mostow et al., 2005; Persoon, et al., 2004; Phillips et al., 1994; Pieper et al., 2000; Price & Harding, 1996; Volkers et al., 2004). In a study where 62 individuals with chronic VLUs were interviewed, Phillips et al. (1994) found the condition was associated with altered mobility (81 %), burdensome care (58 %) and negative emotional impact on life such as fear, isolation, anger and depression (60 %). Pieper et al. (2000) reported similar findings. Other studies found patients experience pain and odour related to the wound, social isolation, financial loss, sleeping problems, low self-esteem and disability, manifesting as an overall decreased HRQoL, (De Araujo, 2003; Lindsay, 2000; Margolis et al., 2004; Mostow et al., 2005; Persoon, et al., 2004;).

Analysis of HRQoL consists of the investigation of its underlying six constructs (Ebbeskog, 2001; Kline, 2000; Stewart et al., 1988). Research has shown that the Short Form 36-item (SF-36) Health Survey is a well-validated generic measure of health status (Ebbeskog, 2001; Kurz et al., 2001; Smith et al., 2000) and it has previously been used in SA (Westaway et al., 2000). Investigation included these constructs in a local sample to determine the construct(s) of HRQoL affected by the presence of VLUs and the relations among the constructs.

2.2.1 Constructs of HRQoL

As mentioned in 2.2, HRQoL is regarded as comprising several underlying constructs. These include general health, physical health, mental health, role functioning, social functioning and pain (Ebbeskog, 2001; Kline, 2000).

A number of structured scales and tests have been developed to measure HRQoL. They vary widely in their conception, constructs and content, demonstrating that there is no agreement about an absolute measure of HRQoL. To investigate VLU patients' HRQoL, the appropriate strategy in this study would be one that specifically measures the abovementioned constructs. Therefore, the SF-36 will be used (see section 3.7.2). A brief description of each of the underlying constructs of HRQoL included in the SF-36 follows.

2.2.1.1 General health

The scores on the general health domain scale indicate the extent to which the respondents' perceptions of their HRQoL are influenced by their general health condition (Kurz et al., 2001). General health is determined by the extent to which health status limits energy or fatigue levels, sleep problems, psychophysiological symptoms, social functioning and role functioning (for example, being unable to work or to do housework), as well as current health perceptions, and health distress (Hays & Stewart, 1990). VLU patients are likely to be close to or below the threshold of being able to manage basic activities of daily living such as the ability to dress, bath or walk without assistance (Brem et al., 2004; Cali & Bruce, 1999; De Araujo, 2003; Lindsay, 2000; Margolis et al., 2004; Mostow et al., 2005; Volkers et al., 2004). The loss of independence in such basic activities hampers personal freedom, reduces autonomy, and leaves the person more vulnerable to the detrimental physiological and psychological effects of, and secondary conditions associated with, physical inactivity (Cali & Bruce, 1999). Loss of such independence also impacts strongly on the costs of and need for long-term care services (Laing, 1992; Lees & Lambert 1992).

2.2.1.2 Physical health

The scores on the physical health domain scale indicate the extent to which the respondents' perceptions of their HRQoL are influenced by their physical condition (Kurz et al., 2001). Physical health is determined by the extent to which health status limits physical activities such as self-care, walking, climbing hills and stairs, bending, lifting, and moderate or vigorous activities (Hays & Stewart, 1990). Physical health denotes a level of activity that is needed to maintain good health. Aging and VLUs pose a threat to physical health and loss of mobility (Lindsay, 2000; Margolis et al., 2004; Mostow et al., 2005; Pieper et al., 2000; Price & Harding, 1996).

Hyland et al. (1994) identified reasons for restricted mobility as (1) the level of pain prevented physical activities, (2) the need for dressing changes acted as a deterrent for outdoor activities, and (3) strategies to help patients in moving freely.

Physical health and the benefits of regular physical activity in the general population are well known (Phillips et al., 1994). In addition, the detrimental physiological effects of inactivity on both physical functioning, health and isolation, due to reduced mobility are also well-documented (Cooper, 1990; Cooper, Quatrano, Axelson, Harlan, Stineman, Franklin et al., 1999). Good calf muscle function is an important aspect of ulcer healing (Price & Harding, 1996). Walking and passive ankle exercises should be encouraged in order to reduce the possibility of losing movement of the ankle joint, especially since immobility of the ankle joint is thought to influence ambulatory venous hypertension and may be a factor in contributing to venous ulceration (Cooper et al., 1999). Healthcare providers have a key role in introducing other risk reduction behaviours and have an important influence in the adoption of regular physical activity.

2.2.2.3 Mental health

The scores on the mental health domain scale indicate the extent to which the respondents' perceptions of their HRQoL are influenced by their mental condition (Kurz et al., 2001). In this context, mental health is determined by the extent to which health limits the ability to have clear thoughts and the ability to cope with life's emotional demands (Hays & Stewart, 1990). According to MacHale (2002), depression and decreased HRQoL are more common in patients with physical illness. Indeed, any visible wound leads to greater emotional or psychological trauma than would an invisible wound, with feelings of shame and embarrassment often present (Langemo, 2005). Emotional or psychological trauma includes depression, fear, anger and anxiety (Phillips et al., 1994; Pieper et al., 2000; Price & Harding, 1996). A survey by Lindholm et al. (1993) confirmed that chronic leg ulcers have a marked impact on the patient's subjectively perceived mental health.

2.2.2.4 Social functioning

The scores on the social functioning domain scale indicate the extent to which the respondents' perceptions of their HRQoL are influenced by their social function and interactions (Flett, Harcourt & Alpass, 1994; Phillips et al., 1994). Social functioning is influenced by the extent to which health limits social activities. In this context, social functioning refers to social activities and interaction with significant others such as family members, friends, neighbours, the community and other social relations (Hays & Stewart, 1990). Social belonging refers to the ability to count on family members, friends or neighbours for help when needed (Hays & Stewart, 1990).

Most individuals report negative effects of VLUs on social roles and activities after ulceration (Phillips et al., 1994; Pieper et al., 2000; Price & Harding, 1996). Social contact has received considerable attention from researchers and Phillips et al. (1994) reported that suffering from VLUs has financial and psychological implications for patients that lead to restriction of their social contacts. Restricted mobility, pain and lack of employment all contribute to a growing sense of social isolation (Phillips et al., 1994; Pieper et al., 2000; Price & Harding, 1996). Enforced unemployment affects the VLU patient in not only financial terms, but also psychosocially (Price & Harding, 1996). Social networks developed purposefully through shared work experience cease to have meaning or value and become increasingly problematic to maintain. Relationships are often adversely affected, leading to a sense of isolation and discredited experiences of self and identity (Price & Harding, 1996). According to Monroe and Rubin (1983), social support aids morale and stability during difficult periods. Individuals without close family members and friends found it much more difficult to adjust (Price & Harding, 1996), with associated experiences of depression and loneliness. Participation in leisure activities has repeatedly been found to enhance HRQoL (Monroe & Rubin, 1983). Therefore, as people age, social support is a key environmental factor enhancing health, participation in various daily activities and security.

2.2.2.5 Role functioning

The scores on the role functioning domain scale indicate the extent to which the respondents' perceptions of their HRQoL are influenced by their ability to fulfil their role in the community (Hays & Stewart, 1990). Role functioning is determined by the extent to which respondents' performance of their roles in daily activities is impeded by their physical and emotional state of health (Hays & Stewart, 1990). Limitation in the ability to perform roles often results in people questioning the value of their lives. Role functioning refers to aspects regarding fulfilling one's role in the community (Laing, 1992). This includes being able to drive around in a motor vehicle, fulfilling a role as a partner, friend, neighbour or parent and the ability to be independent (Laing, 1992). While individuals fill a variety of roles throughout their life, they must realise that the number of roles often begins to diminish with aging and chronic illness. The role of boss, worker, or friend is lost. A loss of status, financial stability, and prestige are often found to accompany these role losses. VLUs have a detrimental effect on patients' activities of daily living (Price & Harding, 1996; Pieper et al., 2000). Due to reduced mobility and problems with performing basic tasks such as taking a shower, doing the shopping or cooking, their dependence on others dramatically increases and their role function decreases (Price & Harding, 1996; Pieper et al., 2000). This is also seen in VLU patients' psychosocial responses of being a burden and leading a restricted life (Laing, 1992; Lees & Lambert 1992).

2.2.2.6 Pain

The bodily pain dimension allows an indication of the extent to which the respondents' experience of bodily pain hinders their performance of daily activities, including work-related duties in the public domain and tasks within the home environment (Hays & Stewart, 1990). The experience of bodily pain inhibits the performance of roles and influences one's social functioning and emotional condition (Price & Harding, 1996; Pieper et al., 2000). The high levels of pain experienced by VLU patients must be considered since pain slows down the wound healing process (Borglund, 1988).

Hyland et al. (1994) reported that pain is a complex sensation experienced by VLU patients. Pain is strongly modulated by cognitive influences and is a characteristic feature of many chronic wounds (Hyland et al., 1994). The pain experienced by VLU patients may be constant or intermittent, and may be described as 'sharp', 'aching', 'stabbing', 'throbbing' and 'shooting' (Enoch & Price, 2004). Ryan, Eager and Sibbald (2003) described intermittent pain related to dressing removal or the recent application of new dressings. Hyland et al. (1994) further suggest that pain intensity may vary on a daily basis due to weather and seasonal influences and that pain intensity often increases at night. Liew et al. (2000) reported that pain can affect the individual physically, psychologically and socially, and increasing pain can significantly decrease the patient's overall HRQoL. Pain and increased sensitivity can serve as a constant reminder of the presence of an ulcer, and contribute to sleep disturbances and decreased mobility (Liew et al., 2000; Phillips et al., 1994; Pieper et al., 2000; Price & Harding, 1996). Associated signs and symptoms of pain also include dependent edema, varicose veins, a reddish-brown skin colour and possible deposition of hemosiderin (De Araujo, 2003; Lamping et al., 2003). Pain caused by venous insufficiency is often improved by walking or by elevating the legs (Pieper et al., 2000; Price & Harding, 1996).

In a qualitative study by Walshe (1995), phenomenological methods were used to describe the experience of venous leg ulceration. It was found that certain symptoms of ulceration, and specifically pain, were overwhelming features and that these symptoms cause significant restrictions in people's lives, particularly in their ability to walk and go out (Walshe, 1995). Sibbald (1998) reports that 76 percent of severe venous ulcers are painful, while Pieper, Rossi and Templin (1998) identified a need for better control of VLU pain to minimise restrictions and allow patients to feel more confident and positive about the treatment they receive. A person suffering from chronic pain is very likely to be anxious, angry, helpless and depressed, which in turn lowers the threshold of pain tolerance (Walshe, 1995).

Although the importance of pain management of VLU patients is often cited in the literature (Hofman et al., 1997; Husband, 2001b) and utilisation of a pain assessment tool is strongly recommended (Persoon et al., 2004), no studies that examined the use of a pain assessment method specifically designed for VLUs could be identified.

According to the literature (Brem et al., 2004; Cali & Bruce, 1999; De Araujo, 2003; Lindsay, 2000; Margolis et al., 2004; Mostow et al., 2005; Volkers et al., 2004), the treatment of pain is under-recognised and inadequate. The assessment of pain is an important, but often neglected part of the management of VLU and strategies that are more effective are needed to achieve pain relief for these patients.

2.2.3 Construct interrelations

The constructs underlying HRQoL are not distinct and there may be interrelations among them (Walshe, 1995). Pieper et al., (1998) reported on people's descriptions of how leg ulcers interfered with both their functional status and psychological well-being. Affected constructs included increased pain, less vitality, more restrictions to physical and social functioning, poorer general health and limitations in their physical and emotional roles compared with age-matched cohorts (Pieper et al., (1998). The specific correlations between these underlying constructs were not determined in their study.

In a systematic review of 37 studies regarding the impact of leg ulcers on a patient's daily life, Persoon et al. (2004) observed that the major limitations were pain and immobility followed by sleep disturbance, lack of energy, limitations in work and leisure activities, worries and frustrations, and a lack of self-esteem. One qualitative study reported by Walshe (1995) focused on the mental health construct in order to understand and interpret what it means to be living with a painful VLU, and how patients cope with these interrelations among constructs. A persons' bodily being is experienced as disintegrated and alienated from the self. A painful, unpleasant leg ulcer and the associated discomfort become symbols of vulnerability, of being imprisoned within the body and the bandage. Body image has an impact on the well-being of a VLU patient (Walshe, 1995). Lindholm et al. (1993) further added that the impact of chronic disease on health is closely related to personal, social, and environmental factors.

Although pain is often indicated as the major influence on the HRQoL of VLU patients (Brem et al., 2004; Cali & Bruce, 1999; De Araujo, 2003; Lindsay, 2000; Margolis et al., 2004; Mostow et al., 2005; Volkers et al., 2004), under-recognition and inadequate treatment of pain relates to only one of the possible six underlying constructs of HRQoL that can be affected when suffering from VLU. Since the impact of VLUs on all six of the underlying constructs of HRQoL may have serious psychological and social effects on their HRQoL, it is therefore important to investigate possible interrelations among the constructs.

2.3 Leg ulcers

A chronic leg ulcer is often defined as a wound below the knee, including the foot, which does not heal within six weeks (Bergqvist et al., 1999; Lindholm et al., 1993; Nelzen et al., 1995; Nelzen et al., 1997). Symptoms include swelling and pain, bad odours, discomfort, sleep disturbances and poor appetite (Margolis et al., 2004). The condition is typically cyclical and chronic, with periods of healing followed by recurrence (Ebbeskog, 2001; Kurz et al., 2001; Lindholm, 2002; Nelzen et al., 1997). The underlying pathology is characteristic of a chronic condition for which no cures are available - even if the ulcer is healed; the underlying condition usually remains (Husband, 2001b). Several large population studies have shown that more than 60% of all identified ulcers are recurrent

(Nelzen et al., 1995; Persoon et al., 2004). In order to institute adequate therapy, it is important to determine the exact underlying pathology of the ulcer (De Araujo, 2003). Chronic ulcers have a multi-factorial etiology, (Ruckley, 1999), meaning that several factors operate together (Callam, 1992). Risk factors for the development of such ulcers include a history of leg injury, obesity, phlebitis, a family history of varicose veins, employment or activities that require standing or sitting for long periods, deep venous thrombosis and previous varicose vein surgery (De Araujo, 2003).

Peripheral arterial disease (PAD), chronic venous insufficiency (CVI), or a mixture of both (Bergqvist et al., 1999) may cause leg ulcers. Although the pathogenesis differs among cases, the underlying problem impairing healing is poor circulation (Bergqvist et al., 1999; Nelzen et al., 1997; Nelzen, Bergquist, Lindhagen & Halbrook, 1991). Poor circulation decreases delivery of oxygen and nutrients, prevents removal of metabolic waste products such as carbon dioxide, and ultimately delays healing (Wipke-Tevis, Stotts, Williams, Froelicher & Hunt, 2001; Wipke-Tevis & Williams, 1999). Arterial ulcers are caused by the progressive narrowing of the arteries due to atherosclerotic plaque in the arteries (Wipke-Tevis & Williams, 1999). VLUs are caused by increased hydrostatic pressure in the veins so that serous fluid and red blood cells (RBCs) move from the veins to the tissue, resulting in leg edema (Wipke-Tevis & Williams, 1999). In VLUs, enzymes break down the RBCs causing the release of hemosiderin, which results in bronzy staining of the skin (Wipke-Tevis & Williams, 1999). Other less common causes like diabetes, rheumatoid diseases, trauma, inflammation, certain metabolic conditions and infections have also been reported (De Araujo, 2003; Ebbeskog, 2001; Nelzen et al., 1991).

Research has shown that the prognosis for wound healing is lowest among patients with VLUs, with as little as 44% being healed during a four and half year period (Nelzen et al., 1997). Studies also found that VLUs have a longer duration and a higher recurrence rate than those of a non-venous etiology (Baker, Stacy, Jopp-McKay & Thompson, 1991; Nelzen, Bergqvist, Franson & Lindhagen, 1996; Price & Harding, 1996).

2.3.1 Prevalence of VLU

A study by Nelzen et al. (1995) indicate that in Western countries, the prevalence rate of VLUs resulting from the etiologies mentioned above are between one and six per 1,000 people. A distinct relationship between age and the prevalence of leg ulcers has been observed (Callam, 1992; Lamping et al., 2003; Lindsay, 2000; Nelzen, 1997). Several studies have showed that the majority of patients with leg ulcers are over 65 years old (Bergqvist et al., 1999; Lamping et al., 2003; Lindsay, 2000; Nelzen et al., 1997). Some studies indicate that the peak prevalence was reported to be around the age of 80 (Nelzen et al., 1996).

Due to increased longevity over the last century, the proportion of the population aged 65 and older has progressively increased, leading to a marked increase in the number of patients with VLU (Ebbeskog, 2001; Lees & Lambert, 1992; Lindholm et al., 1993). These cases are mostly associated with venous disease (Bergqvist et al., 1999; Nelzen, 1997). Thorne (2000) has predicted that the percentage of people aged over 75 years will increase the current figure of 16% to 20,5% by the year 2021 and this age group has the highest VLU prevalence.

2.3.2 Ageing as a developmental stage and the adjustment to living with VLUs

Age-related changes greatly affect appearance, mobility, employment, emotional status and family life of the elderly (De Araujo, 2003; Johnson & Wolinsky, 1993; Kurz et al., 2001; Lamping et al., 2003; Lindsay, 2000; Nelzen et al., 1997). As larger numbers of older people are living with chronic disabling conditions, including VLUs (De Araujo, 2003; Kurz et al., 2001; Lamping et al., 2003; Lindsay, 2000; Mirowsky & Ross, 1992; Nelzen, 1997), it is becoming increasingly important to understand the impact of age-related changes and VLUs on their functioning. With an increased number of elderly people in South Africa (www.statssa.gov.za), it is important that this health-care issue should be recognised.

Change is a constant part of life. Most elderly remain functional in the community despite the frequent presence of age-related chronic conditions and physical illnesses (Harper, 1991). Life experience cultivates self-knowledge, leaving older people less preoccupied with power, control and achievement (Neugarten, 1977). This may enable older VLU individuals to cope more effectively with their limitations and disabilities than younger VLU patients (Franks & Moffatt, 1998; Phillips et al., 1994). In a cross-sectional study of age and gender-matched leg ulcer patients (n=758) using the Nottingham Health Profile, it was evident that younger males experienced poorer HRQoL than older males (Price & Harding, 1996). In later stages, self-doubts may be erased and the self-concept can become integrated and anchored (Demo, 1992), equipping the elderly with psychosocial skills to manage emotionally challenging situations and relationships (Mirowksy & Ross, 1992).

According to Erikson's ego development theory (Kaplan, 1979) the challenge for the elderly is the attainment of a state of integrity versus that of despair. Older adults (age 55 or 65 and older) who can look back on their lives with happiness, contentment and feeling fulfilled with a deep sense that life has meaning and that they have made a contribution to life, have attained a sense of what Erikson calls integrity. Older adults' strength comes from a wisdom that the world is very large and they now have a detached concern for the whole of life, accepting death as the completion of life (Kaplan, 1979).

On the other hand, some older adults may reach this stage and despair at their experiences and perceived failures (Kaplan, 1979). They may fear death as they struggle to find a purpose to their lives. Because many elderly remain independent and alone for extended periods, emotional and psychological problems of the elderly often go unnoticed (Harper, 1991). An additional problem is a lack of knowledge and resources concerning the interrelationship between physical illness and psychological factors in the elderly, particularly when considering the problems of VLUs in the elderly. Physical decline and sensory, motor, and cognitive difficulties in later life may again threaten their sense of effectiveness and worth and may lead to self-reflection about health (Hansell & Mechanic, 1986). Age-associated health conditions may spark negative thoughts and feelings about the self (Demo, 1992). Specifically, age-related physiological changes can increase pain and undermine daily activities and subjective health (Johnson & Wolinsky, 1993).

The death of loved ones and the resultant loss of intimate relationships may increase a sense of mortality and therefore age associated health losses can impact social interactions (Demo, 1992). Moreover, widowhood or retirement may alter social networks, leaving older individuals isolated from mutually empathic social ties (Demo, 1992). As people age, social support is a key environmental factor enhancing health, participation and security (Johnson & Wolinsky, 1993). The association between social support and living alone has been examined (Holmen, Ericsson, Andersson, & Wimblad, 1992; Stinner, 1990) and it may be concluded that less social support among older adults contributes to lower HRQoL.

2.3.3 Gender and VLU

Some recent studies show that female VLU patients only slightly outnumber male patients, with a ratio of 1:1,6 (Margolis et al., 2002; Nelzen et al., 1996). Canonico et al., (1998) reported in an epidemiological study that females outnumbered men, 35% and 17% respectively. However, it has been shown that men feel more ashamed of VLUs, compared to women and they feel more emotionally disturbed by leg ulcers than women (Phillips et al., 1994).

When considering pain and physical mobility, males' HRQoL was poorer than that of female patients (Lindholm et al., 1993), while in the domains of vitality and social and physical functioning, female patients had poorer HRQoL than their male counterparts (Price & Harding, 1996). Female patients generally appear to have poorer HRQoL than males, particularly so in older age groups. Thus, poorer HRQoL in females with ulcers may be related more closely to gender than to the presence of ulcers (Franks & Moffat, 1998).

2.3.4 Treatment for VLU

According to Falanga (2000), wound treatment involves three components; 1) treatment of the underlying cause of the ulcer, 2) provision of an appropriate dressing to create the optimum local environment for healing and 3) attention to concerns that the patient may have.

Surveys have shown wide variation in the clinical management of leg ulcers (Persoon et al., 2004), with numerous types of wound dressings, bandages and stockings being used in the treatment and prevention of recurrence. It is important that clinicians treating these patients should have sound practical knowledge and expertise not only in the use of therapeutic compression, but also the features and management of venous disease and the emotional impact of the illness (Falanga, 2000). According to Husband (2001a), increased sensitivity is needed to understand the impact of painful VLUs on HRQoL, so that more effective intervention strategies and improved outcomes for these patients can be developed.

Because the majority of VLUs recur, comprehensive assessment is necessary to determine the underlying ulcer etiology and appropriate treatment approaches (Bland, 1999; Ebbeskog, 2001; Lindholm, 2002; Nelzen, 1997). Therapy should involve the patient’s acceptance and participation. Zink, Rousseau and Holloway (2000) recommend a structured interview to obtain the history most prominent to the cause of the ulcer, explaining that the patient may be able to relate important associated symptoms. Zink et al. (2000) further add that it is critical to establish a positive therapeutic relationship with the VLU patient, since from the VLU patient’s point of view, HRQoL is a crucial aspect in assessing the efficacy of medical treatments (Phillips et al., 1994).

2.3.5 Economic aspects regarding treatment of VLU

Patients too often find themselves in situations of having to choose between commitments to their work and compliance with medical management for the ulcers (Langemo, 2005; Ruckley, 1997b) and this increases unemployment among VLU patients (Lamping et al., 2003).

Direct, as well as substantial indirect costs associated with the pain and disability, often require a huge amount of money to be spent on care and treatment (Hume & Basmajian, 1993; Lamping et al., 2003; Persoon et al., 2004). Because healing rates are often poor, this results in considerable dressing changes, (Nelzen, et al., 1995), prolonged emotional distress and time and money spent on venous diseases of the leg (Laing, 1992; Lees & Lambert 1992; Kurz et al., 2001; Persoon et al., 2004). Management of chronic wounds such as leg ulcers constitutes up to 80 percent of ongoing management procedures in the community (Lees & Lambert, 1992; Lindholm et al., 1993).

2.3.6 Daily living with slow-healing leg ulcers as a chronic illness

There is a growing awareness of the importance of understanding the VLU patient’s own perspective. Living with a chronic illness is not a matter of dealing with acute episodes scattered in an otherwise normal life, but rather a matter of total readjustment of an individual's life to accommodate the illness and its management (Husband, 2000a).

Daily life with a chronic, slow-healing leg ulcer often means considerable disability with physical limitations, worries, anxiety and treatment sessions that become a way of life (Pieper et al., 2000). Husband (2001a) reported that adjusting to the treatment means that patients deny their own individuality, having to adapt their lifestyles to their uncomfortable and unsightly wounds and dressings.

Healing the ulcer and normalising the patients' life can and should form the basis of care (Husband, 2001a). Frank (1995) reported that treatments with known efficacy improved both healing rates and HRQoL of VLU patients. Liew et al. (2000) found an improvement in three HRQoL constructs, namely pain, sleep and physical movement, after an average of one to three visits to a clinic, and home visits by primary care nurses. Maintaining therapeutic measures reduces the risk of re-occurrence. If however, the underlying pathology is not treated and VLU lesions are left unattended or managed improperly, morbidity is extended — the VLU patient's HRQoL is negatively affected, and management costs increase (Franks, 1995; Liew et al., 2000).

2.4 A theoretical approach to subjective HRQoL: social constructionism

As a perspective within the postmodern paradigm, social constructionism is based on the assumption that reality is constructed and does not have an objective and independent existence, reality is constituted through language, reality is organised and maintained through narratives and that there is no absolute truth (Freeman & Combs, 1996). In terms of research this approach states that all knowledge (scientific and non-scientific) is understood and interpreted by understanding the social context in which it is created. The emphasis is on the social and temporal context, multiplicity of perspectives, increasing complexity, individual meaning and differences. The beliefs, values, institutions, labels, laws and the likes and dislikes that make up the VLU patient's social realities are constructed by the members of a culture as they interact with one another from generation to generation and from day to day. The "realities" that each of the VLU patients takes for granted are the "realities" that their societies have surrounded them since birth. These realities provide the beliefs, practices, words and experiences form which they constitute their selves. People construct their realities together as they live them (Freeman & Combs, 1996).

What VLU patients consider the most important consequences of their condition will be combined with a social constructionist approach to ensure a better understanding. This refers to the effects of a dominant social reality that influences the creation of meaning (Held, 1990). According to the social constructionist perspective, through social interaction people create their own realities and worlds (Derry, 1999). Social constructions of HRQoL influence behaviour, according to what they believe a good HRQoL is. When VLU patients talk to their caregivers, doctors, friends and family, and vice versa, they construct the world. This belief does not exist in an objective sense, but is socially constructed and adhered to as if it was the 'truth' (Derry, 1999). This is in confirmation with what Gergen (1985) said that reality as we see it and think about it, is a social construct and not necessarily the only 'truth'. In the present study the focus is more on the social constructions of HRQoL of VLU patients rather on the physiological consequences of VLUs.

According to Monroe and Rubin (1983), social support aids morale and stability during difficult periods. In this study, this implies that a patient will co-create his own subjective reality about suffering from a venous ulcer within his social and cultural context, and his/her story will be influenced by the dominant belief systems of his/her particular social context. According to Dickerson and Zimmerman (1996), these VLU patients could therefore be helped to construct themselves in ways that are more beneficial.

A negative public image of the VLU patient has emerged as a norm, pathologising VLUs as a social problem (Berrera, 1986). The cultural fear of being old with VLUs seems to be related to a fear of impairment (Berrera, 1986). The wrongful assumption that youth and healthy, strong bodies alone are responsible for happiness and successful relationships between individuals implies that being old with VLUs is concomitant with being excluded from pleasure (Persoon et al., 2004). Efforts need to be directed to the creation of positive realities through social interaction. Professional management should be able to improve the probability of this being achieved as quickly and completely as possible (Husband, 2001b), rather than focussing on the physiological consequences of VLUs and more on the social meanings. Research (Franks, 1995; Husband, 2001a; Liew et al., 2000), has shown that VLU patients felt resigned to the slow healing process and wound recurrence and experienced a degree of powerlessness over the situation and social isolation, with thoughts constantly revolved around treatment.

Within the epistemological framework, the stories told during the present study provided an alternative, subjective reality to the traditional way of viewing these patients. Life is lived in hope of a future without a wound. Weingarten (2000) refers to hope as something we create. Hope is not a characteristic of the individual only. A VLU patient can be loved into hope when people who care and practice hope together surround the patient who is in need of hope. The elderly VLU patients in particular, who sometimes might view their existence as hopeless and meaningless, need to be loved into hope and to be reminded of their value to the community and other people. For the VLU patient, hope is the product of the quality of relationships, in which they spend that time. Wound care staff can assist them, loving them into hope by remembering their sources of hope throughout their lives.

Studies have indicated that both objective and subjective measures are necessary for assessing HRQoL (Ruggeri et al., 2001). According to Ruggeri et al. (2001), objective measures may be more suitable in detecting treatment effects, whereas subjective information is necessary to complete the HRQoL picture and to enhance the interpretation of objective data. A survey by Lindholm et al. (1993) confirmed that chronic leg ulcers have a marked impact on the patient's subjectively perceived mental health. The purpose of the present research study is to investigate the subjective experience of suffering from VLUs. In addition to the objective measure, interviews allowed a personal, subjective encounter and ensured a background to everyday living with slow healing leg ulcers and the enormous impact on the VLU patient's HRQoL. The VLU patients are not considered to be the objects of the research but rather active participants in the research process. Understanding is negotiated between the researcher and the VLU patients, between objective and subjective data.

The social constructionist research design is viewed as a process that is unfolding and consists of multiple conversations. As described by the VLU patients, living with a chronic leg ulcer can be understood as a dialectical ongoing process between two opposite poles. On the one hand, emotions of imprisonment in an altered body that leads to change in social life, while on the other hand, hope for possible healing and achieving freedom from a burdensome body. Loneliness is a significant health-care issue for many elderly VLU patients in the community (Ebbeskog, 2001; Lindsay, 2000). The correlation between social isolation, poor compliance to treatment, and low healing rates for VLU patients are well-documented (Dykstra, 1993; Ebbeskog, 2001; Friedland, Renwick & McColl, 1996; Lees & Lambert, 1992; Lindholm et al., 1993). Home visits by community nurses alone cannot provide the social and psychological support required (Lindsay, 2000). Eagle (1992, as cited by Lindsay) stated that loneliness and isolation due to pain, odour, bandages etc. contribute to the construction of low self-esteem and depression. Friedland et al. (1996) found that providing social support and assistance to people living with a chronic disease in the development of coping strategies are important resources in alleviating the stress experienced by these people. By creating a community of concern where everyone can listen to each other's stories, VLU patients can assist in reversing their experienced stress. By challenging their pain, isolation and immobility, they can make themselves seen, and in being seen they come into being in their own terms of a normal life. Nurses and healthcare professionals could help these patients construct a positive subjective meaning regarding the specific dimension of suffering. The individual's own sense of well-being is the most important factor when considering HRQoL of VLU patients (Franks & Moffat, 1998).

VLU patients often reappraise the activities and values that have given their lives meaning (Walshe, 1995). Since coping mechanisms in ill people are often inadequate (Hyde, Horsfall, & Winder, 1999), the VLU patients might feel embarrassed about ulcer leakage and have difficulties in maintaining dignity and outward appearance (Walshe, 1995). It is then when social support will be of benefit for the VLU patients, no matter if it is emotional, physical or practical help (to complete the basic tasks of ADL).

2.5 Directions towards normalisation of life

In situations where cure is not possible, efforts need to be directed towards palliation and normalisation of life for the patient. Professional management should be able to improve the probability of this being achieved as quickly and completely as possible (Husband, 2001b).

With VLUs, important aspects include diagnosis, its communication to the patient and the setting of an agreed action plan directed towards management of the problem (Husband, 2001b). However, one of the greatest barriers to the effective management of venous ulceration is that the approaches taken by health professionals and chosen interventions focus on acute signs and symptoms of pathology, rather than on the personal priorities and biographic needs of the patient (Pott, 1992 as cited by Husband, 2001a). Nurses and doctors are primarily concerned with healing the wound, with little consideration being given to the person during the healing process. Under-recognition and under-diagnosis of psychological symptoms like depression and decreased HRQoL must be avoided, especially when treating elderly patients for a disability (Margolis et al., 2004; Pieper et al., 2000; Volkers et al., 2004). According to Corbin and Strauss (1992) helping the patient to shape the course of the illness while maintaining HRQoL (Husband, 2001a), will be a better approach.

2.6 Summary

Although it is widely accepted among healthcare professionals that the individual needs of the VLU patient should be considered, little conclusive research has been done regarding the VLU patient's subjective needs and the extent to which the underlying constructs of HRQoL are affected. The aim of this present study is to investigate a local SA sample.

"Health Related Quality of life" in this study, refers to VLU patients' emotional, social and physical well-being, and their health related ability to function in the ordinary tasks of living (Ebbeskog, 2001). VLU patients generally have a poorer HRQoL compared with healthy people, with profound implications for the HRQoL of older VLU patients and the strategies needed to maintain and enhance their HRQoL (Persoon, et al., 2004; Phillips et al., 1994; Pieper et al., 2000; Price & Harding, 1996). The individual's own sense of well-being is the most important factor when considering HRQoL of VLU patients (Franks & Moffat, 1998).

Living with a chronic, slow-healing leg ulcer often implies considerable disability with physical limitations, anxiety and treatment sessions that become a way of life (Pieper et al., 2000). Efforts need to be directed to the creation of positive realities through social interaction. Professional management should be able to improve the probability of this being achieved as quickly and completely as possible (Husband, 2001a).

It is envisaged that the present study can contribute to understanding the subjective experience of VLUs and the impact on HRQoL and may lead to more focused and effective future patient care, contributing to the normalisation of VLU patients' lives. The methodology used in the present study will be described in the following chapter.

CHAPTER 3: Methodology

3.1 Introduction

Chapter 2 reviewed the literature regarding two key concepts of this study, namely VLUs and HRQoL. A VLU was defined as a wound below the knee, including the foot, which does not heal within six weeks (Bergqvist et al., 1999; Lindholm et al., 1993; Nelzen, 1997; Nelzen et al., 1995), while HRQoL was described as the individual's overall health related sense of well-being (Ebbeskog, 2001). It was also shown that having a VLU might influence several underlying constructs of HRQoL (Ebbeskog, 2001; Kline, 2000; Laing, 1992; Lees & Lambert 1992).

Chapter 3 describes the methodology used to determine the extent to which the underlying constructs of HRQoL are affected by the presence of a VLU as well as the subjective experience of suffering from VLUs. The VLU group, non-VLU group, research design and empirical procedure will be described, followed by descriptions of the HRQoL assessment and data analysis techniques.

3.2 Approach

The need for a better understanding of the effects of having VLUs on the underlying constructs of HRQoL was identified in a local SA sample. This research formed part of a larger study aimed at investigating the factors that may play a role in the treatment of VLUs and the associated recovery process.

The available literature revealed that living with slow healing VLUs as a chronic illness has an adverse impact on the patient's HRQoL due to a multitude of factors. These include frequency and regularity of dressing changes (Lees & Lambert, 1992; Margolis et al., 2004), which affect their daily routine (Nelzen et al., 1997), continued fatigue due to lack of adequate sleep (Persoon et al., 2004), restricted mobility (Cali & Bruce, 1999; Kurz et al., 2001), pain (Brem et al., 2004; Margolis et al., 2004; Mostow et al., 2005), wound infections (Wipke-Tevis & Williams, 1999), social isolation (De Araujo, 2003; Lindsay, 2000; Persoon et al., 2004) and depression (Volkers et al., 2004).

Measurement of a VLU patient's HRQoL is difficult (Ebbeskog, 2001) and entails more than aspects such as physiological determination of venous reflux or ankle brachial pressure. Quantitative instruments for determining HRQoL should include multiple health concepts and a range of health states pertaining to general functioning and well-being (Smith et al., 2000), while adhering to conventional standards of reliability and validity (Stewart et al., 1988). Previous HRQoL assessment methodologies of VLU patients have included international surveys, longitudinal studies and controlled experiments (Persoon et al., 2004). Several generic questionnaires have been used with VLU patients, including the Nottingham Health Profile, (Franks & Moffat, 1998; Lindholm et al., 1993), the Short Form-36 (SF-36) (Price & Harding, 1996), a disease-specific HR-HRQoL measure for venous disease namely the Aberdeen Varicose Vein Score (AVSS) (Smith et al., 2000) and the Chronic Venous Insufficiency Questionnaire (CIVIQ) (Smith et al., 2000). However, a study by Ruggeri et al. (2001) indicates that both objective and subjective measures are necessary for assessing HRQoL. According to their results, objective measures may be more suitable for detecting treatment effects, whereas subjective information is necessary to complete the HRQoL picture and to enhance the interpretation of objective data.

The present study utilised both qualitative and quantitative methods of data collection. Qualitative data was collected by means of informal interviews and grouped according to themes that could be suggestive of the experiences of VLU patients while undergoing treatment. This provided a subjective understanding of VLU-related HRQoL and served to complement the questionnaire.

Quantitative analysis of HRQoL requires the investigation of its underlying six constructs (Ebbeskog, 2001; Kline, 2000; Stewart et al., 1988). A complete investigation of HRQoL of VLU patients would therefore be one that includes these six constructs. Research has shown that the Short Form 36-item (SF-36) Health Survey is a well-validated generic measure of health status (Ebbeskog, 2001; Kurz et al., 2001; Smith et al., 2000) and it has previously been used in SA (Westaway et al., 2000). The SF-36 has been translated for use in more than 40 other countries, including South Africa (Ware & Sherbourne, 1992). The questionnaire was translated into Afrikaans by the researcher and checked for clarity by Doctor Frans Cronje.

3.3 The VLU and non-VLU groups

Since elderly people experience VLUs more frequently than younger individuals, (Ebbeskog, 2001; Lindsay, 2000; Lamping et al., 2003; Nelzen, 1997), the questionnaire was administered to VLU patients between 50 and 90 years. Inclusion criteria were an established history of VLUs of at least six months, with or without healing or recurrence. Exclusion criteria were VLU patients with a diagnosis of VLUs at age younger than 50 years. The questionnaire was initially administered to 37 VLU patients drawn from various Wound Care Clinics in Pretoria. The same SF-36 questionnaire was also administered to a non-VLU group of 30 older adults. Inclusion criteria were elderly males and females, aged between 50 and 90 years living within the same vicinity of the Wound Care Clinics in Pretoria. Exclusion criteria were people younger than 50 years of age having any serious illness, other than diabetes, hypertension/heart problems and arthritis, which are conditions present in the VLU group. The non-VLU group answered questions referring to the presence of VLUs, as anything in general that they experience in their lives that could lead to pain, decreased mobility etc. Descriptive and correlational analyses were performed.

3.4 Research design

This study focussed on qualitative and quantitative measures of HRQoL and underlying constructs in a local sample. A post hoc design was used, comparing the HRQoL of VLU patients with a non-VLU group, similar in age range, gender composition and socio-economic status.

3.4.1 Hypotheses

H1: The experience of living with a VLU has a negative impact on all constructs of HRQoL.

H0: The experience of living with a VLU does not have a negative impact on all constructs of HRQoL.

In addition:

H2: There is a relation between gender and overall HRQoL as well as the different underlying constructs of HRQoL.

H0: There is no relation between gender and overall HRQoL as well as the different underlying constructs of HRQoL.

H3: There is a relation between age and HRQoL of patients with VLUs.

H0: There is no relation between age and HRQoL of patients with VLUs.

H4: There is an interrelation between the underlying constructs of HRQoL of patients with VLUs.

H0: There is no interrelation between the underlying constructs HRQoL of patients with VLUs.

3.5 The setting

The study was undertaken at several wound care clinics in Pretoria, including Unitas Hospital, Meulmed Hospital, Loftus Wound Care Clinic, Eugene Marais Hospital, Kloof Hospital and Montana Clinic. The treating nurses were present during the interviews and questionnaire completion of the VLU patients. Completion of the questionnaires of the non-VLU participants were home based.

3.6 Procedure

A list of VLU patients was obtained from the abovementioned participating clinics. The patients were contacted to request participation in the study, explaining the purpose of the study and to set up an appointment for the interviewing and questionnaire completion. During the first meeting the patient was introduced to the researcher and the purpose of the study was explained again. Confidentiality was assured and it was explained to the patient that he/she might, at any stage, withdraw from the study if he/she did not want to continue. The researcher administered the questionnaire during patients' treatment sessions over a six-month period (July-December 2005). Patients were required to sign a consent form indicating voluntary participation and their rights to confidentiality, anonymity, and withdrawal from the study. The researcher was responsible for the questionnaires and interviews, as well as the quality of data collection.

3.7 Assessment of HRQoL

To provide an alternative reality to the traditional way of viewing VLU patients, the interviews provided the patients with opportunities to tell stories about their subjective experiences. This qualitative approach ensured a personal encounter with the patients, generated new understandings and raised important questions regarding HRQoL constructs most affected. Interviews were important to ensure that all the relevant concepts were covered and discussed in the results chapter. No interviews were held with the non-VLU group.

3.7.1 Demographic questionnaire

Although the present study was not conducted across different cultural settings, several demographic questions were added to ensure a more comprehensive and VLU-specific questionnaire.

Information was obtained on factors that could impact HRQoL such as age, gender, education, language, relationship status, living status, occupational status, dependency status, psychiatric condition, current mood, medication use and other long-standing illness or disabilities (Westaway et al., 2000). This ensured more inclusive information for hypotheses testing.

3.7.2 Medical Outcomes Short Form-36 questionnaire (SF-36)

Generic and specific measures of health status (Smith et al., 2000) are recognised methods for quantitative assessment of HRQoL. The Medical Outcomes Short Form-36 questionnaire (SF-36) has been used in several comprehensive studies and is regarded as providing both valid and reliable data (Kline, 2000; Smith et al., 2000; Stewart et al., 1988; Ware & Sherbourne, 1992). To be useful in clinical settings, quantitative assessment methods should also be simple and easy to use, as ill patients tend to be weaker and have more divided attention than the general population (Smith et al., 2000). The questionnaire was translated to Afrikaans, to ensure that all patients fully understood all questions in their mother tongue.

The SF-36 is one of the most commonly used methods for assessment of HRQoL (Kline, 2000; Smith et al., 2000; Stewart et al., 1988; Ware & Sherbourne, 1992). It contains 36 questions measuring health across different dimensions, namely physical health, role limitation because of physical health, social functioning, pain, mental health, role limitation because of emotional problems and general health (Price & Harding, 1996). The SF-36 uses an ordered categorical (ordinal) scale where responses to individual questions are classified according to a small number of ordered response categories and analysed by assigning equally spaced numerical scores to the ordinal categories (e.g. 0 = "Poor", 1 = "Moderate" and 2 = "Good"). Responses to each question within a construct are combined to generate a score between 0 and 100. A structured questionnaire based on the SF-36, was designed (Appendix 1) by the researcher, in accordance with the minimum standard of content validity for a comprehensive health measure as suggested by Ware and Sherbourne (1992). Twenty items were selected to represent six constructs. Table 3.1 briefly describes the 20 questions regarding HRQoL constructs relevant to the study.

Table 3.1: Description of questions to investigate underlying constructs of HRQoL

	Research objective	**Brief description**
1.	**General health: Questions 19-26**	The patient's perception of general health attempts to ascertain a personal evaluation of both physical and mental health. There are 7 questions and the responses indicate how a person views his/her health, ranging from poor and worsening, to a view that his/her personal health is excellent. The first question is: "In general, would you say your health is . . ." Possible responses include: "Excellent"= 1, "Very good"= 2, "Good"=3, "Average"= 4 or "Poor"= 5.
2.	**Physical health: Questions 25, 30 & 31**	Three physical health questions measure the impact of physical disability on physical health fulfilment. Response options to the 3 questions include "All the time"= 3, "Regularly"= 2, "Seldom"=1 and "Not at all"=0. Questions are phrased such that the respondent considers a typical day and decides whether health limits activity. Since the population target consists of elderly patients, activities mentioned range from medium level activities (e.g., physical exercise) to basic activities of daily living (e.g. transport, walking).
3.	**Mental health: Question 24, 43 & 64**	Three questions assess mental function and mental well-being. The response choices are based on a 3 point scale: "All of the time"= 3, "Regularly"= 2, "Seldom"= 1 or "Not at all"=0. The questions probe mental health states ranging from feelings of nervousness and depression to having crying spells.
4.	**Social functioning: Questions 26, 27 & 33**	These three questions probe the extent to which physical health and/or emotional problems have interfered with the normal social activities with family friends, neighbors, or groups during the last 2 weeks. The response choices include: "Not at all"= 0, "Seldom"= 1, "Regularly"= 2, "All the time"= 3. High scores indicate extreme and frequent disturbances of normal social activities, while low scores suggest no limitations to social activities.

	Research objective	Brief description
5.	**Role functioning: Question 32,35 & 37**	Three role-functioning questions measure the impact of physical disability on role functioning /role fulfilment. Responses indicate the degree to which physical health cause problems with work or other daily activities. The respondent considers the past 4 weeks when answering the items with a "Definite true"= 5, "True"= 4, "Not sure"= 3, "False"= 2 or "Definite false"= 1 response. The questions include for example "My leg ulcer prevents me from performing everyday activities" and "My leg ulcer prevents me from doing what I want to do."
6.	**Pain: Question 22**	One question measures the impact of severe bodily pain on both well-being and disability. The question: "I experienced pain because of my ulcer during the past 2 weeks", is scored on a 3-point scale: "All the time"= 3, "Regularly"= 2, "Seldom"= 1 or "Not at all"= 0.

3.7.2.1 Converting raw scores into standard scores

All items in the questionnaire were treated as equally important (equal weight scores). Analysis of equally weighted scales becomes difficult, however, when items with a different number and range of response categories are combined.

In the SF-36 questionnaire there were five response categories for general health and role functioning (scores 1–5), but only four for each of mental health, physical activity and pain (scores 0–3). According to the scoring procedure for the SF-36 questionnaire, lower scores represent better HRQoL.

In the case of a category with five possible response options, such as "General health" (seven items), a score of seven would represent a good HRQoL. Scores of three and one would indicate good HRQoL in the categories "Physical health" (four response options) and "Pain" (three response options) respectively. Therefore, the three-response category would contribute much more to the overall score than the five-response category. Due to the different length of the scales, some items thus become more important than others.

To resolve the inconsistency resulting from scales with different minimum and maximum scores, the raw scores were transformed so that this difference was eliminated and all items in the questionnaire were equally weighted. The equation given below was used to convert the raw scores into standard scores, transforming them to a zero–100 scale (Stewart et al., 1988). As in the SF-36, the data were transformed to a global score of 100, where zero indicates no interference with patients' HRQoL and 100 indicate severe interference with HRQoL (Stewart et al., 1988).

$$\boxed{\text{Transformation of raw scale score} = \frac{[\text{Actual raw score - lowest possible raw score}]}{\text{Possible raw score range}} \times 100}$$

(Stewart et al., 1988)

The actual raw score is the observed score as provided by the patients. The possible raw score range is the difference between the lowest and highest score.

Example:

A raw score of 30 for 'General Health' (seven items) would be transformed as follows:

Lowest possible score in general health domain: Patients marking 'Excellent = 1' for all seven items. **Total score = seven**.

Highest possible score in general health domain: Patients marking 'Poor = 5' for all seven items. **Total score = 35.**

Possible raw score range = 35 – 7

28.

Transformation of raw scale score= $\frac{[30 - 5]}{28} \times 100$

= 89

3.8 Data analysis

The SPSS (version 12.0) (SPSS Inc.) statistical package was used to analyse the data. Obtaining descriptive statistics was the first step for data analysis.

To test the hypotheses, t-tests were used to ascertain differences between the HRQoL of VLU patients and the non-VLU group, age related differences and gender related differences. The Spearman rho correlation coefficient was used to test for relations among the underlying constructs of HRQoL.

Coefficient alpha was used to ascertain the reliability of the HRQoL scale. Coefficient alpha was also used to ascertain the underlying construct reliability. Reliability is considered acceptable for group comparisons when alpha is 0,50 or above, (Stewart et al., 1988). The correlation coefficients and their associated p-values were calculated according to Cooper's (1990) interpretation of correlations. Item convergent validity was assessed from corrected item-total correlation coefficients.

3.8.1 Investigation of the reliability of the measuring scale

The reliability of the items used in the scale (SF-36) was investigated. A measure is reliable when it yields similar results when different people administer it on separate occasions and when alternative forms are used.

Chronbach’s alpha coefficient is an index of reliability based on the internal consistency of the scales. That is, it is based on the average correlation of items within a test and it is assumed that the items on a scale are positively correlated with each other because they are measuring, to a certain extent, a common construct. The corrected item-total correlation is the Pearson’s correlation coefficient of the relation between the item and scale controlling for all the other items in the scale.

The alpha correlation if an item is deleted (which is accomplished by calculating the Chronbach's alpha when each of the items is removed from the scale) is used to ascertain how each of the items affects the reliability of the scale. For example, if the overall alpha value of the measurement is less than the Chronbach’s alpha, then that could suggest that the excluded item was somehow interfering with the overall reliability of the measure.

3.9 Ethics

Approval for the study was obtained from the ethics committee of the Department of Psychology at Unisa. Patients were informed of their rights to confidentiality and participation was voluntary. No time limit was imposed for the completion of the questionnaire and they had the right to withdraw from the study at any time they chose to do so.

3.10 Summary

It was shown that having a VLU (Bergqvist et al., 1999; Lindholm et al., 1993; Nelzen, 1997; Nelzen et al., 1995) can influence several underlying constructs of HRQoL. The need for a better understanding of the abovementioned effects on a local sample were identified. The study formed part of a larger study aimed at investigating the factors that may play a role in the treatment of VLUs.

The methodological procedure included a qualitative study (informal interviews) combined with a quantitative study (questionnaires), since measurement of a VLU patient's HRQoL is difficult (Ebbeskog, 2001). This provided a better understanding of VLU-related HRQoL and served to get a more complete picture. The use of the SF-36 questionnaire was regarded as most suitable for identifying the relevant underlying constructs of HRQoL (Brem et al., 2004; Cali & Bruce, 1999; De Araujo, 2003; Lindsay, 2000; Margolis et al., 2004; Mostow et al., 2005; Volkers et al., 2004).

The questionnaire was administered to VLU patients and a non-VLU group, aged between 50 and 90 years (Ebbeskog, 2001; Lindsay, 2000; Lamping et al., 2003; Nelzen, 1997). The non-VLU group did not have any serious illness, other than diabetes, hypertension/heart problems and arthritis, (illnesses present in the VLU group). A post hoc design was used, comparing the HRQoL of VLU patients with a non-VLU group with similar age range, gender composition and socio-economic status. A structured questionnaire based on the SF-36, was designed (Appendix 1) by the researcher, in accordance with the minimum standard of content validity for a comprehensive health measure, as suggested by Ware and Sherbourne (1992).

The main hypothesis to be tested was that the experience of having a VLU has a negative impact on all contructs HRQoL. In addition hypothesis two included testing for a relation between the HRQoL of males and females with VLUs. Hypothesis three stated a relation between age and HRQoL of patients with VLUs, followed by hypothesis four that focused on the interrelation between the underlying constructs HRQoL of patients with VLUs.

The study was undertaken at several wound care clinics in Pretoria. The questionnaires were administered over a six-month period (July-December 2005). Information was obtained on demographic variables to ensure more conclusive information for hypotheses testing. Raw scores were transformed to ensure that all items in the questionnaire were equally weighted.

The SPSS (version 12.0) (SPSS Inc.) statistical package was used to analyse the data. Descriptive statistics were the first step for data analysis. The reliability of the items used in the scale (SF-36) was investigated using Coefficient alpha. Approval for the study was obtained from the ethics committee of the Department of Psychology at Unisa. The results and a discussion of the results of the present study will be dealt with in Chapter 4.

Chapter 4: Results

4.1 Introduction

Chapter 3 described the methodology used to determine whether having a VLU has an impact on HRQoL. The sample, research design and empirical procedure were described, followed by descriptions of the HRQoL assessment and data analysis techniques. Chapter 4 will present the results obtained from data analysis, hypotheses testing, descriptive data and themes derived from the interviews as well as an examination of the psychometric properties of the questionnaire used in the study.

4.2 Demographic information

The characteristics of the samples of the VLU group and non-VLU group are summarised and compared in Table 4.1.

Table 4.1: Demographic characteristics of the VLU and non-VLU participants

		Mean		**Age**	
		VLU (n= 30)	**Non-VLU** (n= 30)	**VLU**	**Non-VLU**
4.2.1	**Age**	71	78	52 (min)	65 (min)
				90 (max)	89 (max)
	Category	**Description**		**Frequency (%)**	
				VLU	**Non-VLU**
	Gender	Male		11 (37)	12 (40)
		Female		19 (63)	18 (60)

	Category	Description	Frequency (%)	
			VLU	Non-VLU
4.2.2	**Schooling**	Grade 8	1 (3)	0 (0)
		Grade 9	0 (0)	1 (3,3)
		Grade 10	3 (10)	4 (13,3)
		Grade 11	0 (0)	4 (13,3)
		Grade 12	26 (87)	21 (70)
	Academic qualifications	Degree	5 (17)	4 (13,3)
		Diploma	5 (17)	5 (16,7)
		Certificate	4 (13)	6 (20)
		Other	16 (53)	15 (50)
	Language	Afrikaans	24 (80)	26 (87)
		English	6 (20)	4 (13)
4.2.3	**Relationship status**	Single	12 (40)	13 (43)
		Have a partner	18 (60)	17 (57)
	Living arrangement	Alone	8 (27)	5 (17)
		Shares home with others	22 (73)	25 (83)
	Career status	Still employed	6 (20)	0 (0)
		Retired/ Unemployed	24 (80)	30 (100)
	Contact with relatives	None	1 (3)	0 (0)
		Once a week	3 (10)	1 (3)
		Twice a week	2 (7)	10 (33)
		3 times a week	6 (20)	9 (30)
		4 times a week	3 (10)	9 (30)
		5 times a week	3 (10)	1 (3)
		6 times a week	2 (7)	0 (0)
		7 times a week	10 (33)	0 (0)

	Category	**Description**	**Frequency (%)**	
			VLU	**Non-VLU**
	Contact with friends	None	1 (3)	0 (0)
		Once a week	11 (37)	0 (0)
		Twice a week	5 (17)	1 (3)
		3 times a week	2 (8)	6 (20)
		4 times a week	0 (0)	21 (70)
		5 times a week	3 (10)	2 (7)
		6 times a week	1 (3)	0 (0)
		7 times a week	7 (23)	0 (0)
4.2.4	**Other illnesses**	Yes	30 (100)	18 (60)
		No	0 (0)	12 (40)
	Other illnesses include	Hypertension/Cardiovascular problems	9 (30)	15 (83)
		Diabetes	4 (13)	0 (0)
		Arthritis	3 (10)	3 (17)
		Other	11 (37)	0 (0)
	Alcohol consumption	Occasionally	14 (47)	6 (20)
		Not at all	16 (53)	24 (80)
	Current mood	Happy	12 (40)	23 (77)
		Neutral	12 (40)	7 (23)
		Down	6 (20)	0 (0)
	Psychiatric history	Depression or other psychiatric conditions	2 (7)	3 (10)
		None	28 (93)	27 (90)

4.2.1 Sample size, age and gender

Due to the high prevalence of VLUs among elderly people (Ebbeskog, 2001; Lamping et al., 2003; Lindsay, 2000; Nelzen et al., 1997), the questionnaire was administered only to VLU patients between 50 and 90 years. Although the questionnaire was initially administered to 37 VLU patients sampled from various Wound Care Clinics in Pretoria, seven questionnaires were not completed fully and were deemed unsuitable for further analyses. The sample thus consisted of 30 elderly VLU patients of whom 11 were male and 19 were female. The VLU sample size was limited by the availability of patients with VLUs during this period. The non-VLU sample was drawn randomly from the vicinities of the abovementioned clinics in Pretoria. The non-VLU group consisted of 12 males and 18 females, which is almost similar to the VLU group.

The average age of the VLU group (average age = 71,27, sd= 10,82) differed significantly from the non-VLU group (average age = 77,80, sd= 6,48; t (47,41)= -2,84, p=0,01), with the non-VLU group the significantly older group.

4.2.2 Education levels and language preference

Educational levels of both groups ranged between grade 8 and grade 12. Both groups had similar post-school qualifications. The majority (80%) of both the groups spoke Afrikaans as their first language, and the remaining 20% spoke English as their first language. It was therefore evident that both groups were able to understand either the Afrikaans or English questionnaire. In terms of education levels and language preferences, the two groups were similar.

4.2.3 Social interaction

The majority of the VLU patients (80%) were pensioners. Only 20% of the VLU patients were still employed. The whole non-VLU group was also unemployed or on pension. There was a significant difference between the groups in terms of relationship status (i.e. are you in a relationship? yes, no) with more VLU patients in a relationship (yes =18, no =12) than the non-VLU participants (yes =17, no =13; t (23,11)=-4,42, p=0,00). Whereas 27% of the VLU patients lived alone, only 17% of the non-VLU group lived alone, but the difference was not significant.

Although the groups had similar amounts of contact with friends, there was a significant differences between the VLU and non-VLU groups in contact with relatives per week, with the VLU patients (M=4,47, sd=2,29) having more contact with relatives than the non-VLU participants (M=2,97, sd=0,96; t (39,01)=3,31, p=0,02).

The two groups were similar regarding employment status, amount of contact with friends per week and the percentage that lived alone.

4.2.4 Health profile

The entire VLU group had long-standing illnesses or disabilities other than VLUs, compared to 60% of the non-VLU participants who had other illnesses. These illnesses included hypertension or heart related illnesses, diabetes and arthritis. Diverse conditions such as osteoporosis and cancer, accounted for the remaining illnesses. Despite the fact that the non-VLU group was older and therefore more likely to have other illnesses, the VLU group had more illnesses that could also impact negatively on

HRQoL. This confirmed that it is likely for individuals with VLUs to have other illnesses (as listed above), contributing to a decrease in HRQoL (Margolis et al., 2003).

Very few participants had a family history of depression or other psychiatric conditions. The majority (77%) of the non-VLU group described their mood as happy, whereas only 40% of the VLU group described their mood as happy. Neutral mood was indicated by 40% of the VLU group and 23% of the non-VLU group. None of the non-VLU group described their mood as down, compared to 20% of the VLU group. The difference in mood status was significant with more VLU patients (M=1,80, sd=0,761) describing their mood as neutral than the non-VLU participants (M=1,23, sd=0,43; t (45,81)=3,56, p=0,01). There were also significant differences in alcohol consumption. More VLU patients (yes=14, not at all =16) used alcohol than non-VLU participants (yes=6, not at all =24; t (55,38)=-2,25, p=0,01).

Comparing the two groups regarding their health profile, they were very similar in most respects, except that the VLU group indicated decreased mood levels, increased alcohol consumption and a greater incidence of other illnesses.

4.3 Psychometric properties of the measurements

4.3.1 Reliability of the scale: SF-36

To test the reliability of the scale, only the VLU groups' scores were used. The reliability of the SF-36 was evaluated by calculating the Cronbach alpha coefficient (Table 4.2). According to Arias and de Vos (1996) values above 0,4 indicate that an item reliably contributes to the scale's homogeneity. In order to evaluate each subscale's relevance towards ensuring scale homogeneity, alpha coefficients were also calculated when individual subscales were deleted (Stewart et al., 1988). Lower correlation coefficients resulting from excluding specific subscales indicate decreased scale homogeneity. The Cronbach coefficient of the scale was 0,914 (Table 4.2), which can be interpreted as an excellent reliability coefficient (Arias & de Vos, 1996).

Table 4.2: Reliability statistics of the six subscales of the SF-36 questionnaire

Cronbach's Alpha	N of subscales
,914	6

Item-Total Statistics

	Construct	Scale Mean with subscale deleted	Scale Variance with subscale deleted	Corrected Item-Total Correlation	Cronbach's Alpha with subscale deleted
1.	Pain because of ulcer	14,697	22,841	,498	,924
2.	Mental health	16,019	18,568	,772	,898
3.	Role function	13,230	17,253	,737	,906
4.	General health	13,678	20,442	,727	,905
5.	Physical health	15,408	19,229	,681	,908
6.	Social function	15,241	15,988	,908	,882

All corrected total correlation coefficients exceeded the criterion of ≥ 0,40 and ranged from 0,498 to 0,908 (Table 4.2). Each alpha value decreased when subscales were excluded or deleted from the scale, except the subscale that measured pain. A possible methodological reason for this result could be the fact that the pain subscale only consisted of one item. Comprehensive studies that have been done with the SF-36, indicated that the measure can provide valid and reliable data (Kline, 2000; Smith et al., 2000; Stewart et al., 1988; Ware & Sherbourne, 1992).

4.3.1.1 Reliability of general health construct subscale

Seven questions were used to measure the extent of the effect of VLUs on general health. The responses to these questions indicate how a person views his/her health, ranging from poor and getting worse, to a view that his/her personal health is excellent. Reliability statistics are shown in Table 4.3. Coefficient alpha was 0,864, which is regarded as a very good reliability coefficient (Arias & de Vos, 1996). All corrected item-total correlation coefficients exceeded the criterion of ≥ 0,40 and ranged between 0,421 and 0,812 (Table 4.3). When the alpha correlation with a question deleted was calculated each alpha value decreased, except the question measuring mobility. This may be because mobility is defined in terms of being able to walk, whereas it has a wider practical meanings.

Table 4.3: Reliability of general health subscale

Reliability Statistics

Cronbach's Alpha	N of questions
,864	7

Item-Total Statistics

Question	Scale Mean with question deleted	Scale Variance with question deleted	Corrected Item-Total Correlation	Cronbach's Alpha with question deleted
In general, your health affects:	21,03	18,930	,661	,844
Appetite	21,07	16,685	,812	,819
Sleep	20,63	16,447	,642	,846
Vision	20,63	18,378	,656	,843
Hearing	20,83	17,592	,675	,839
Energy level	20,47	17,706	,664	,840
Mobility	20,33	18,713	,421	,877

4.3.1.2 Reliability of physical health construct subscale

Three questions were used to measure the amount that suffering from VLUs affects physical health. Respondents had to answer three questions relating to physical health. Since the population consisted of elderly patients, activities ranged from medium level activities (e.g. physical exercise) to basic activities of daily living (e.g. transport, walking). Response options were "All the time”, “Regularly", "Seldom”, or "Not at all”. Reliability statistics are shown in Table 4.4. The coefficient alpha of 0,762 was considered a respectable reliability coefficient (Arias & de Vos, 1996). All corrected item-total correlation coefficients exceeded the criterion of ≥ 0,40 and ranged between 0,421 and 0,812. When individual questions were deleted, each alpha value decreased except for the last question regarding physical activity. A possible reason for this result may be that physical exercise might have different meanings for different individuals.

Table 4.4: Reliability of physical health subscale

Reliability Statistics

Cronbach's Alpha	N of questions
,762	3

Item-Total Statistics

Question	Scale Mean with question deleted	Scale Variance with question deleted	Corrected Item-Total Correlation	Cronbach's Alpha with question deleted
I struggle to walk because of the ulcer/s.	3,52	3,759	,623	,646
VLUs prevent to make use of public transport.	3,62	3,101	,665	,599
VLUs prevent me in participating in physical exercise.	3,14	4,623	,517	,763

4.3.1.3 Reliability of the mental health construct subscale

There were three questions assessing the impact of VLUs on mental function and mental well-being. The response choices included "Not at all", "Seldom", "Regularly", and "All the time". Reliability statistics are shown in Table 4.5. Coefficient alpha was calculated at 0,815, which again indicated very good reliability (Arias & de Vos, 1996). All corrected item-total correlation coefficients exceeded the criterion of ≥ 0,40 and ranged between 0,625 and 0,756. When individual questions were deleted or excluded from the subscale each alpha value decreased, indicating that all questions in this subscale were necessary for inclusion to ensure the scale's homogeneity (Table 4.5).

Table 4.5: Reliability of the mental health subscale

Reliability Statistics

Cronbach's Alpha	N of questions
,815	3

Item-Total Statistics

Question	Scale Mean with question deleted	Scale Variance with question deleted	Corrected Item-Total Correlation	Cronbach's Alpha with question deleted
I feel depressed because of the ulcers.	1,90	2,990	,756	,652
Crying spells because of the ulcers.	2,47	4,189	,645	,776
I feel depressed.	2,30	3,803	,625	,788

4.3.1.4 Reliability of the social functioning construct subscale

Three questions on the SF-36 scale aim to determine to what extent VLU problems interfered with the participants' participation in normal social activities with family friends, neighbours or groups during the previous two weeks. The response choices included "Not at all", "Seldom", "Regularly", and "All the time". High scores indicate that VLUs had extreme and frequent disturbances in normal social activities, while low scores suggest no limitations in social activities. The three questions used had a coefficient alpha of 0,818, indicating good reliability (Arias & de Vos, 1996). All corrected item-total correlation coefficients exceeded the criterion of ≥ 0,40 and ranged between 0,674 and 0,726 (shown in Table 4.6). Each alpha value decreased when questions were excluded or deleted from the subscale, indicating that all questions in this subscale were necessary for inclusion to ensure the scale's homogeity.

Table 4.6: Reliability of social functioning subscale

Reliability Statistics

Cronbach's Alpha	N of questions
,818	3

Item-Total Statistics

Question	Scale Mean with question deleted	Scale Variance with question deleted	Corrected Item-Total Correlation	Cronbach's Alpha with question deleted
The ulcer places stress on relationships.	2,47	4,326	,674	,799
The ulcer prevents me from attending social functions.	4,13	5,913	,693	,733
The ulcer prevents me to meet friends and family.	4,73	6,547	,726	,733

4.3.1.5 Reliability of the role functioning construct subscale

There were three questions about the effect of VLUs on participants' ability to fulfill roles. The respondents had to consider the previous four weeks when answering the items. Responses could be "Definitely true", "True", "Not sure", "False" or "Definitely false". A coefficient alpha of 0,887 is considered a very good reliability coefficient (Arias & de Vos, 1996). All corrected item-total correlation coefficients exceeded the criterion of ≥ 0,40 and ranged between 0,78 and 0,801. Each alpha value decreased when questions were excluded or deleted from the scale, indicating that all questions in this subscale were necessary for inclusion to ensure the scale's homogeity (Table 4.7).

Table 4.7: Reliability of role functioning subscale

Reliability Statistics

Cronbach's Alpha	N of questions
,887	3

Item-Total Statistics

Question	Scale Mean with question deleted	Scale Variance with question deleted	Corrected Item-Total Correlation	Cronbach's Alpha with question deleted
The ulcer slows me down in general.	7,47	6,257	,780	,853
The ulcer prevents me from doing what I want to do.	7,80	5,545	,801	,822
The ulcer prevents me from performing everyday activities.	8,13	4,533	,799	,843

4.3.1.6 Reliability of the pain subscale

The health concept of bodily pain indicates the extent to which VLUs affect both physical well-being and physical disability. One question was used to assess the effect of VLU pain on HRQoL, namely "I experienced pain because of my ulcer during the past two weeks”. Responses indicate the amount of severe and limiting pain, and responses include “All the time”, “Regularly”, “Seldom”, or “Not at all”.

Although only one question was used to assess the effect of VLU pain on HRQoL, the results of comprehensive studies that have been done with the SF-36, indicate that it can provide valid and reliable data (Kline, 2000; Smith et al., 2000; Stewart et al., 1988; Ware & Sherbourne, 1992).

4.4 Comparison of VLU and non-VLU groups’ scores for underlying constructs of HRQoL

As explained in Chapter 3, all items in the SF-36 questionnaire were treated as equally important (equal weight scores), by converting raw scores to standard scores according to an equation suggested by Stewart et al. (1988). The data obtained from the SF-36 were thus transformed to global scores between 0 and 100, with zero indicating the least interference with HRQoL and 100 indicating the most interference with HRQoL. It follows that the lower the score, the better the HRQoL (Table 4.8). Scoring options of some of the questions in SF-36 had to be reversed.

Table 4.8: Comparing scores of the underlying constructs of VLU patients and the non-VLU group

N=30	Range		Minimum		Maximum		Mean		Std. Deviation	
	VLU	Non-VLU	VLU	Non-VLU	VLU	Non-VLU	VLU	Non-VLU	VLU	Non-VLU
General health	78,57	21,43	10,71	39,29	89,29	60,71	61,30	47,26	17,37	6,41
Physical health	100,00	44,44	0,00	0,00	100,00	44,44	59,38	19,26	29,43	11,65
Mental health	88,89	33,33	0,00	0,00	88,89	33,33	37,03	7,78	30,51	10,17
Social function	100,00	40,00	0,00	0,00	100,00	40,00	46,66	11,67	33,97	10,85
Role function	100,00	33,33	0,00	0,00	100,00	33,33	72,50	13,61	28,37	11,26
Pain	33,33	66,67	66,67	0,00	100,00	66,67	81,11	18,89	16,80	22,63
Overall HRQoL	73,28	25,45	23,08	7,14	96,36	32,59	60,55	19,74	21,09	6,46

An independent t-test was conducted to compare the groups' scores (Table 4.9), with definite differences noted. T-tests for unequal variances were used because the scores were not normally distributed (p>0,05) and variances were not equal (p>0,05).

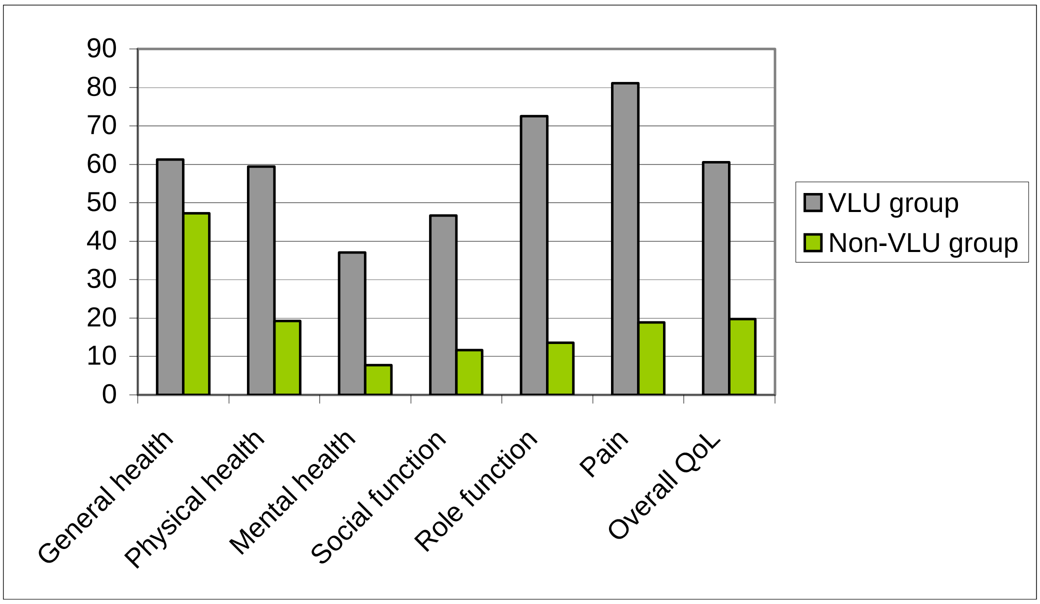
Table 4.9: Independent t-test to compare the groups

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. 2-tailed	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
General health	Equal variances assumed	12,80	0,00	4,16	58	0,00	14,05	3,38	7,28	20,82
	Equal variances not assumed			4,16	36,75	0,00	14,05	3,38	7,20	20,90
Physical health	Equal variances assumed	22,13	0,00	6,93	57	0,00	40,13	5,79	28,53	51,73
	Equal variances not assumed			6,84	36,31	0,00	40,13	5,87	28,24	52,02
Mental health	Equal variances assumed	40,88	0,00	4,98	58	0,00	29,26	5,87	17,51	41,01
	Equal variances not assumed			4,98	35,37	0,00	29,26	5,87	17,34	41,18
Social function	Equal variances assumed	51,75	0,00	5,38	58	0,00	35,00	6,51	21,97	72,52
	Equal variances not assumed			5,38	34,86	0,00	35,00	6,51	21,78	72,54
Role function	Equal variances assumed	15,80	0,00	10,57	58	0,00	58,89	5,57	47,73	70,05
	Equal variances not assumed			10,57	37,91	0,00	58,89	5,57	47,60	70,17
Pain	Equal variances assumed	4,41	0,04	12,09	58	0,00	62,23	5,15	51,92	
	Equal variances not assumed			12,09	53,52	0,00	62,23	5,15	51,90	

The non-VLU group obtained much lower scores on all of the underlying constructs of HRQoL than the VLU patients, therefore indicating a better HRQoL than the VLU group. These results indicate that the HRQoL of the VLU patients is worse than that of the non-VLU group. There was a large range in the VLU patients' scores (Table 4.8), indicating the variety in the degree of affected underlying constructs. This was not true for pain, with a range of only 33,33, and a minimum score of 66,67, indicating that all VLU patients experienced a considerable amount of pain, more or less to the same degree. The maximum score of the non-VLUs participants' pain construct was equal to the minimum score of pain of the VLU patients. It was evident that pain was a very prominent factor in the VLU patient's lives.

General health describes the threshold of being able to manage basic activities of daily living (ADLs), such as the ability to dress, bath or walk without assistance (Brem et al., 2004; Cali & Bruce, 1999; De Araujo, 2003; Lindsay, 2000; Margolis et al., 2004; Mostow et al., 2005; Volkers et al., 2004). There was a significant difference between general health scores for VLU participants (M=61,31, sd=17,37) and the non-VLU participants (M=47,26, sd=6,41; t (36,5)=4,16, p=0,00). The magnitude of the differences in the means (eta squared) was 0,23. Therefore, 23% of the variance in general health, including fatigue levels, sleep problems, psycho physiological symptoms, health perceptions (Hays & Stewart, 1990), was explained by VLUs (more specifically, VLU group membership). The mean score of the non-VLU group indicates that they also experienced poorer general health but to a lesser extent (Figure 4.1). This is likely to be age-related, as described by Harper (1991).

Figure 4.1: Comparing mean scores of underlying constructs of VLU patients and the non-VLU group



There was a significant difference between physical health scores for VLU participants (M=59,39, sd=29,44) and non-VLU participants (M=19,20, sd=11,65; t (28,00)=10,86, p=0,00). The magnitude of the differences in the means was 0,67. VLUs pose a threat to physical health and loss of mobility (Lindsay, 2000, Margolis et al., 2004, Mostow et al., 2005; Pieper et al., 2000; Price & Harding, 1996) and this present study confirmed that 67% of the variance in physical health was explained by having VLUs. VLU participants also had other illnesses, to a greater extent than non-VLU participants.

Mental health entails one's "Psychological Well-Being", the ability to have clear thoughts and the ability to cope with what life demands. According to MacHale (2002), depression and decreased HRQoL are more common in patients with physical illness. The results of the present study (Table 4.8) showed that both groups obtained the lowest average score for the mental health construct in relation to the other constructs. There was a significant difference between mental health scores for VLU participants (M=37,04, sd=30,51) and non-VLU participants (M=7,78, sd=10,17; t (35,37)=4,89, p=0,00). The magnitude of the differences in the means (eta squared) was 0,29. Therefore 29% of the variance in mental health, which can include depression, fear, anger and anxiety (Phillips et al., 1994; Pieper et al., 2000; Price & Harding, 1996), was explained by having VLUs.

In this context, social functioning referred to social activities and interaction with family members, friends and neighbours. There was a significant difference between social functioning scores for VLU participants (M=46,66, sd=33,97) and non-VLU participants (M=11,67, sd=10,85; t (29,00)=7,52, p=0,00), (Table 4.8). The magnitude of the differences in the means was 0,49. Therefore, 49% of the variance in social functioning was explained by having VLUs, which can lead to adversely affected relationships and a sense of isolation (Phillips et al., 1994; Pieper et al., 2000; Price & Harding, 1996).

Role function described aspects relating to fulfilling one's role in the community (Hays & Stewart, 1990; Laing, 1992). There were significant differences in role functioning scores between VLU participants (M=72,5, sd=28,38) and non-VLU participants (M=13,61, sd=11,26; t (29,00)=13,99, p=0,00). The magnitude of the differences in the means was 0,77. The finding that problems with performing basic tasks increased VLU patients' dependence on others (Price & Harding, 1996; Pieper et al., 2000) was confirmed by the present study's finding that 77% of the variance in role functioning was explained by having VLUs. Therefore the results of this local SA study confirmed the findings in the literature that living with VLUs have a detrimental effect on patients' execution of roles in their daily lives (Mostow et al., 2005).

When scores for the pain construct were considered, the non-VLU group's maximum score for pain was equal to the minimum score for pain of the VLU patients. There was a significant difference between pain scores for VLU participants (M=81,11, sd=16,80) and non-VLU participants (M=18,89, sd=22,63; t (29,00)=26,44, p=0,00). The magnitude of the differences in the means was 0,92. Hyland et al. (1994) reported pain as a complex sensation experienced by VLU patients, that even slows down the wound healing process (Borglund, 1988), inhibits the performance of roles and influences social functioning and emotional condition (Price & Harding, 1996; Pieper et al., 2000). It was clear that a large amount, (92%) of the variance in pain experienced was explained by having VLU.

It can be concluded that the experience of having a VLU has a notable impact on HRQoL since there were significant differences between the scores of the two groups (Figure 4.1) on all six constructs as well as overall QoL, with large effect sizes. In comparison with non-VLU group's scores, VLU participants' constructs most affected in descending order were pain, then role function that was more affected than physical health, then social functioning, then mental health and least general health.

4.5 VLUs relation with gender

The sample of 30 VLU patients was divided into groups of males and females. Studies have showed that female VLU patients only slightly outnumber male patients, with a ratio of 1:1,6 (for example Margolis et al., 2002; Nelzen et al., 1996). Canonico et al. (1998) reported in an epidemiological study that females with VLUs outnumbered men. This was also evident in the local study, with 19 female patients, and only 11 male patients. The mean scores obtained by males and females are shown in Table 4. 10.

Table 4. 10: Comparison of male and female scores

	Gender	N	Mean	Std. Deviation	Std. Error Mean
General health	Male	11	61,04	16,17	4,87
	Female	19	61,47	18,46	4,24
Physical health	Male	11	52,52	26,34	7,94
	Female	18	63,58	31,15	7,34
Mental health	Male	11	38,38	29,55	8,91
	Female	19	36,26	31,83	7,30
Social function	Male	11	48,18	38,94	11,74
	Female	19	45,79	31,85	7,31
Role function	Male	11	81,06	18,67	5,63
	Female	19	67,54	32,14	7,37
Pain	Male	11	78,79	16,82	5,07
	Female	19	82,46	17,10	3,92
Overall HRQoL	Male	11	60,00	20,75	6,26
	Female	19	60,88	21,90	5,16

An independent t-test was conducted to compare the male and female VLU patients' scores (see Table 4.12). The level of significance was decided on alpha that equals 0,05. Since there were fewer than 50 in each of the sub-groups, the Shapiro-Wilk test was used (Table 4.11). T-test for unequal variances were used because the scores were not normally distributed (p>0,05) and variances were not equal (p>0,05).

Table 4.11: Normality of the distribution of scores of VLU males and females

	Gender	Shapiro-Wilk		
		Statistic	**df**	**Sig.**
General health	Male	,97	11	,88
	Female	,94	18	,33
Physical health	Male	,91	11	,26
	Female	,90	18	,06
Mental health	Male	,94	11	,56
	Female	,88	18	,02
Social function	Male	,89	11	,15
	Female	,91	18	,07
Role function	Male	,88	11	,11
	Female	,87	18	,02
Pain	Male	,63	11	,00*
	Female	,64	18	,00*
Overall HRQoL	Male	,95	11	,61
	Female	,95	18	,46

* Correlation is significant at the 0.05 level.

Table 4.11 contains the descriptive statistics for the two groups, looking at the normality of the distribution of scores. Pain scores of groups, female mental health and female role function were normally distributed.

There were no significant differences in the mean scores of the underlying constructs of HRQoL for male and female VLU patients (Table 4.12) although role function was almost significant.

Table 4.12: Independent t-test to compare scores of VLU males and females

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
General health	Equal variances assumed	,02	,88	-,06	28	,95	-,43	6,70	-14,15	13,29
	Equal variances not assumed			-,07	23,40	,95	-,43	6,46	-13,77	12,92
Physical health	Equal variances assumed	,27	,61	-,98	27	,34	-11,06	11,27	-34,19	12,08
	Equal variances not assumed			-1,02	24,06	,32	-11,06	10,81	-33,37	11,26
Mental health	Equal variances assumed	,16	,69	,18	28	,86	2,13	11,76	-21,96	26,21
	Equal variances not assumed			,19	22,34	,86	2,13	11,52	-21,74	25,99
Social function	Equal variances assumed	,67	,42	,18	28	,86	2,39	13,09	-24,42	29,21
	Equal variances not assumed			,17	17,77	,87	2,39	13,83	-26,69	31,47
Role function	Equal variances assumed	4,01	,06	1,27	28	,21	13,52	10,64	-8,28	35,31
	Equal variances not assumed			1,46	27,99	,16	13,52	9,28	-5,49	32,52
Pain	Equal variances assumed	1,24	,28	-,57	28	,57	-3,67	6,44	-16,86	9,52
	Equal variances not assumed			-,57	21,31	,57	-3,67	6,41	-16,99	9,65
Overall HRQoL	Equal variances assumed	,17	,68	-,11	27	,92	-,89	8,22	-17,75	15,98
	Equal variances not assumed			-,11	22,19	,91	-,89	8,11	-17,70	15,92

According to the literature, regarding the domain of physical functioning, female patients have poorer HRQoL scores than their male counterparts (Price & Harding, 1996). This was also evident in the local sample with the male's physical functioning average score of only 52,52 (sd=26,34) compared to an average score of 63,58 (sd=31,15) for the female group (Table 4. 10). Female patients had more interference of physical health on HRQoL than their male counterparts, although the difference was not significant.

It is suggested that men are more emotionally disturbed and isolated by leg ulcers than women (Phillips et al., 1994). This trend was evident, but the differences in mean scores of social function (male M= 48,18, sd=38,94); (female M= 45,79, sd=31,85), and mean scores of mental health (male M= 38,38, sd=29,55); (female M= 36,26, sd=31,83) were not significant.

It was evident in the local sample that the male's role functioning mean score of 81,06 was higher compared to a mean score of 67,56 of the female group. The interference of VLU on role function was greater for males than females but the difference was not significant. Role functioning is determined by the extent to which respondents' performance of their roles in daily activities is impeded by their physical and emotional state of health (Hays & Stewart, 1990).

In the present study, the overall HRQoL scores of the males and females were not significantly different (males= 60,00, females= 60,88). This does not correspond to Franks and Moffat's (1998) findings that female patients generally appear to have poorer HRQoL than males, particularly so in older age groups. Gender differences in the literature are not consistent. When pain scores were considered, males' HRQoL was poorer than that of female patients (Lindholm et al., 1993). This statement was contradicted by this local study's results with the males' mean score for pain lower

(78,79) than the females' mean score (82,46) (Table 4.10), however the difference was not significant.

It should be noted that diverse methodologies were used that could have resulted in abovementioned contradictions. In the present sample, it appears that for males, physical functioning and pain have less impact on HRQoL than for females. However, females seemed to experience a better HRQoL regarding social functioning, mental health and role function than males.

The results given in table 4.13 indicate that fewer females (42,1%) tended to be in serious relationships compared to males (90,9%) and the difference was significant (t (27,94)=3,31, p=0,003).

Table 4.13: Comparison of male and female relationship status and living arrangements

	Male	**Female**
Relationship:	**Frequency (%)**	
Single	1 (9,1)	11 57,9)
Have a partner	10 (90,9)	8 (42,1)
Live alone:		
Yes	2 (18,2)	6 (31,6)
No	9 (81,8)	13 (68,4)

Although both males and females tended not to live alone (males= 81,8%, females= 68,4%), more females than males lived alone (see Figure 4.2) but the difference was not significant.

The males had slightly more contact with relatives per week (4,82), compared with the females (4,26), as shown in Table 4.14. It also seemed that the female group had more contact with friends per week (3,53), compared with the male groups' contact with friends per week (2,73), although no significant difference was found.

Figure 4.2: Comparing percentages of male and female relationship status and living arrangements

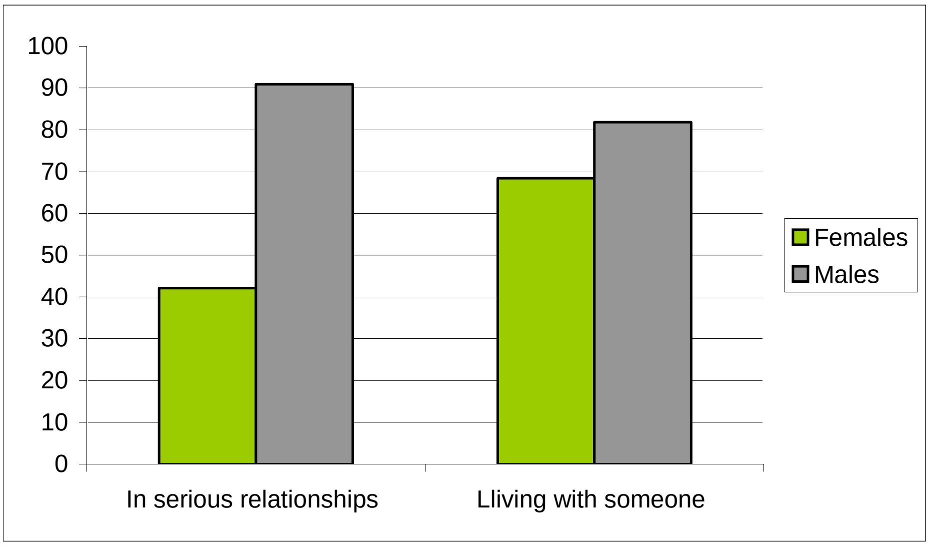


Table 4.14: Comparison of social contact of males and females

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Contact with relatives per week	Male	11	4,82	1,99	0,60
	Female	19	4,26	2,47	0,57
Contact with friends per week	Male	11	2,73	2,24	0,68
	Female	19	3,53	2,74	0,63

To conclude, there were no significant differences in the mean scores of the underlying constructs of HRQoL for male and female VLU patients (Table 4.10). There was a significant difference in relational status, more males being in serious relationships than female VLU patients. More females lived alone and had more contact with friends. Males tended to have more contact with relatives than friends.

4.6 VLUs relation with age

According to the literature, with increased age, self-doubts may be erased and the self-concept can become integrated and anchored (Demo, 1992), equipping the elderly with psychosocial skills to manage emotionally challenging relationships (Mirowksy & Ross, 1992). It follows then than older VLU individuals should be able to cope more effectively with their limitations and disabilities than younger VLU individuals (Franks & Moffatt, 1998; Phillips et al., 1994). In a cross-sectional study of age- and gender-matched leg ulcer patients (n=758) using the Nottingham Health Profile, younger males experienced poorer HRQoL than older males (Price & Harding, 1996). The effect of age was therefore investigated in the present study.

To test hypothesis three, that there is a relation between age and HRQoL of VLU patients, the level of significance was decided on alpha that equals 0,05. The null hypothesis (of normality) has to be rejected if the p-value of the Shapiro-Wilk test is less than 0,05 (less than the chosen level of significance). Since there were fewer than 50 respondents each group, the Shapiro-Wilk test was used to interpret the results. Since the p value was larger than the level of significance, the null hypothesis for normality could not be rejected.

The relations among the variables were investigated using Spearman’s Rank Order Correlation coefficient. The correlation coefficient indicates the direction (positive or negative) and the strength of the correlation between two variables. Interpretation of output from Spearman’s Rank Order Correlation is the same as the output obtained from Pearson Product-moment correlation (Table 4.15).

Table 4.15: Spearman's Rank Order correlation of subscales

		Age
General health	Correlation Coefficient	-0,04
	Sig. (2-tailed)	0,84
Physical health	Correlation Coefficient	-0,11
	Sig. (2-tailed)	0,57
Mental health	Correlation Coefficient	-0,19
	Sig. (2-tailed)	0,32
Social construct	Correlation Coefficient	-0,25
	Sig. (2-tailed)	0,19
Role function	Correlation Coefficient	-0,19
	Sig. (2-tailed)	0,30
Pain	Correlation Coefficient	-0,20
	Sig. (2-tailed)	0,28
Overall HRQoL	Correlation Coefficient	-0,31
	Sig. (2-tailed)	0,10

There is a negative correlation between age and all six underlying constructs of HRQoL i.e. the older the patient the better the QoL. However the p-values are larger than 0,05 and therefore the correlations are not significant. The lack in significance may be because of the restricted age range.

To conclude, an increase in age is associated with an increase in HRQoL. This trend corresponds to the findings cited in the literature (De Araujo, 2003; Kurz et al., 2001; Lamping et al., 2003; Lindsay, 2000; Mirowsky & Ross, 1992; Nelzen, 1997).

4.7 Interrelations among constructs

To test hypothesis four, the relations among constructs were determined. The variables to be correlated were all summated Likert scale scores.

Based on the results, it was concluded that the six variables did not have normal distributions. Therefore, the non-parametric Spearman's rank order correlation was indicated. The second assumption underlying both Pearson's product moment correlation and Spearman's rank order correlation was that there is a linear relationship between the two variables in each pair of variables to be correlated. To investigate this, scatter plots for each pair of variables were created. It was noted from the scatter plots that the data formed a cigar shape around the regression line, indicating that there were correlations between the variables. The regression lines have a definite positive slope indicating a positive relationship. Based on this, it was assumed that there were linear relationships between the variables and it would be appropriate to use Spearman's rank order correlation.

The correlation matrix shows the correlations of all the variables with each other (Table 4.16). When considering the size of correlations, Cohen (1988) suggests values between 0,50 and 1,0 are indicative of a strong correlation. As shown in Table 4.16 the results obtained from the present study showed strong positive correlations among the underlying constructs, some more than others.

General health has a significant positive correlation with mental health (r=0,807, 65%), social function (r=0,743, 55%), and role function (r=0,579, 34%), and to a lesser degree with pain (r=0,483, 23%) and physical health (r=0,466, 22%).

Physical health has a significant positive correlation with social function (r=0,745, 56%) and role function (r=0,630, 40%), and to a lesser degree with pain (r=0,492, 24%), general health (r=0,466, 22%) and mental health (r=0,447, 20%).

Table 4.16: Intercorrelation of subscales

			Experience pain because of ulcer	**Social function**	**General health**	**Role function**	**Mental health**	**Physical health**
Spearman's rho	**General health**	Correlation Coefficient	,483(**)	,743(**)		,579(**)	,807(**)	,466(**)
		Sig. (2-tailed)	,007	,000		,001	,000	,009
		N	30	30		30	30	30
	Physical health	Correlation Coefficient	,492(**)	,745(**)	,466(**)	,630(**)	,447(*)	
		Sig. (2-tailed)	,006	,000	,009	,000	,013	
		N	30	30	30	30	30	
	Mental health	Correlation Coefficient	,412(*)	,807(**)	,807(**)	,637(**)		,447(*)
		Sig. (2-tailed)	,024	,000	,000	,000		,013
		N	30	30	30	30		30
	Social function	Correlation Coefficient	,434(*)		,743(**)	,796(**)	,807(**)	,745(**)
		Sig. (2-tailed)	,016		,000	,000	,000	,000
		N	30		30	30	30	30
	Role function	Correlation Coefficient	,300	,796(**)	,579(**)		,637(**)	,630(**)
		Sig. (2-tailed)	,017	,000	,001		,000	,000
		N	30	30	30		30	30
	Experience pain	Correlation Coefficient		,434(*)	,483(**)	,300	,412(*)	,492(**)
		Sig. (2-tailed)		,016	,007	,017	,024	,006
		N		30	30	30	30	30

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Mental health has a significant positive correlation with social function (r=0,807, 65%), general health (r=0,807, 65%) and role function (r=0,637, 41%), and to a lesser degree with physical health (r=0,447, 20%) and pain (r=0,412, 17%).

Social function has a significant positive correlation with mental health (r=0,807, 65%), role function (r=0,796, 63%), and physical health (r=0,745, 56%) and general health (r=0,743, 55%), and to a lesser degree with pain (r=0,434, 19%).

Role function has a significant positive correlation with social function (r=0,796, 63%), mental health (r=0,637, 41%), general health (r=0,579, 34%) and physical health (r=0,630, 40%), but not with pain (r=0,300, 9%).

It can therefore be concluded that there were significant positive relations among most of the constructs: social functioning, general health, role function, mental health and physical health, and to a lesser degree with the experience of pain. The correlation between role function and pain was not significant.

4.6 The qualitative study: Brief communication of interviews

The purpose of the present research study was to investigate the subjective experience of suffering from VLUs. Interviews allowed a personal encounter and introduction to the literature regarding everyday living with slow healing leg ulcers and the enormous impact on the VLU patient’s life. Information in interviews is negotiated through questions and answers as well as trust and rapport. During interviews it became clear that some of the VLU patients do not raise even modest agendas of other medical problems during their visits at the clinics.

As described by the VLU patients, living with a chronic leg ulcer can be understood as a dialectical ongoing process between two opposite poles. On the one hand, emotions of imprisonment in an altered body that leads to change in social life, while on the other hand, hope for possible healing and achieving freedom from a burdensome body (personal interview, June 2005). Hope is a possible source of relief in the altered situation. The patients expressed difficulty in learning to live with the change and to manage bodily signals such as pain, the unusable leg and awareness of body image change, change in work, sport and social life.

The epistemological framework was that of constructivism. Major themes that emerged from the interviews seemed to be linked to the way these VLU patients regarded themselves. Identification of themes was based on Owens' (1978) criteria of recurrence of ideas within the narrative data (ideas that have similar meaning but different wording), repetition (the existence of the same ideas using the same wording), and forcefulness (verbal or nonverbal cues that reinforce a concept). Three themes, namely (i) Freedom vs. imprisonment, (ii) Gain vs. loss, and (iii) Hope vs. despair encapsulated distinct categories associated with HRQoL. The respective categories are (i) emotional consequences of altered body image, and living a restricted daily life (ii) gaining well-being despite dealing with a painful wound and loss of time and (iii) the struggle between hope and despair during a lengthy healing process. Although the themes are intimately interwoven, they can be addressed separately as shown in Table 4.17

4.6.1 Theme 1: Freedom vs. imprisonment

Patients expressed the longing for the freedom to be able to walk around freely and to engage in physical and social activities. Their condition, however, caused them to feel imprisoned and not “allowed” to do these things anymore. Patients revealed that they tried to carry on with their lives despite the pain and limitations imposed by the wound, but that the dressing prevented them from performing routine daily activities, like taking a shower. Feelings of imprisonment were strengthened by disrupted sleeping patterns, as pain interrupted sleep at night, causing them to rest during the day. All six constructs seem to be affected.

Table 4.17: Themes that encapsulate living with VLU

	Theme 1: Freedom vs. imprisonment	**Theme 2: Gain vs. loss**	**Theme 3: Hope vs. despair**
Category	Emotional consequences of altered body image	Gaining well-being despite dealing with a painful wound and loss of time	Struggle between hope and despair during a lengthy healing process
Patient descriptions	Reflection on declined bodily function. Leg ulceration as a part of onset of aging. Work abilities, sport, outside life, restrictions caused by the ulcer. Body state and/or function, activity level, emotional state, life, involvement, impaired mobility, sex and sleep disturbances.	Engagement in population, staying positive, believing in recovery, feeling healthy, altering expectations. Ulcer preoccupation. Loss of time due to thinking of the ulcer. The loss of the luxury to sleep at night, the loss of walking great distances.	Having hope of leg ulcer healing. Distant future.
Constructs	All six constructs	Physical health, mental health, general health, social functioning and pain	Mental health

4.6.2 Theme 2: Loss versus gain

Time was filled with pain, described as something that had to be dealt with. VLU patients experience a loss of the luxury to sleep well at night and the loss of being able to walk great distances, but there was a certain sense of gain, for example, the knowledge of positions to put the leg in to relieve the pain for a while. A moment of gain of freedom was experienced when the wound was opened and the leg was exposed to air. Social functioning, physical health, general health, mental health and experience of pain are affected here.

4.6.3 Theme 3: Hope versus despair

Patients appeared to fluctuate between hope and despair during the lengthy healing process. Patients experienced feelings of hope for the future, despite the despair at the slow healing process and recurring wounds. Mental health is affected.

4.6.4 Summary of qualitative assessment

The purpose of this part of the study was to allow VLU patients to tell their story about their life. During interviews it became clear that some of the VLU patients did not raise even modest agendas of other medical problems during their visits at the clinics. By motivating VLU patients to relate and speak about other medical problems during their visits at the clinic, could possibly promote physical and mental health. Gaps in communication potentially reduce the effectiveness of medical care, by failing to address symptoms of treatable conditions that impact HRQoL.

VLU patients felt resigned to the slow healing process and wound recurrence and experienced a degree of powerlessness over the situation. Within the epistemological framework their stories provided an alternative reality to the traditional way of viewing these patients. The VLU patient's life is lived in hope of a future without a wound. The major themes that emerged from the story seemed to be linked to the way they regarded themselves. The identified themes did not replace the information gained from earlier studies, but provided another perspective and enhanced the understanding of living with VLUs and the affected underlying constructs of HRQoL. It was clear that all six underlying constructs of HRQoL were integrated in describing their personal situation in their own words (Table 4.17).

4.7 Summary

The results obtained from tests were described in Chapter 4. The VLU and non-VLU group were similar in terms of education, employment status, presence of other illnesses, living arrangements, family history of depression and weekly contact with friends. Significant differences were found in terms of relationship status, contact with friends, ratings of their mood and alcohol consumption. The reliability of the SF-36 was evaluated by calculating the Cronbach alpha coefficient. The Cronbach coefficient of the scale was 0,914, which could be interpreted as an excellent reliability coefficient (Arias & de Vos, 1996). All corrected total correlation coefficients exceeded the criterion of ≥ 0,40 and ranged from 0,498 to 0,908. The present study confirmed the reliability of the SF-36, as reported in other studies (Kline, 2000; Smith et al., 2000; Stewart et al., 1988; Ware & Sherbourne, 1992).

Having a VLU explained 23% of the variance of the general health, 67% of physical health, 29% of mental health, 49% of social functioning, 77% of role functioning and 92% pain experienced. There were significant positive relations between some of the constructs: social functioning, general health, role function, mental health and physical health, but to a lesser degree with the experience of pain. There was no significant difference in the mean scores of the underlying constructs of HRQoL for male and female VLU patients. There were gender differences in relational status. Although increasing in age was associated with an increased HRQoL, the correlations were not significant.

The themes identified from the interviews provide another perspective and enhance the understanding of living with VLUs and the affected underlying constructs of HRQoL. It was clear that all six constructs were integrated in describing patients' personal situations in their own words. This was the result of integration of qualitative and quantitative research, ensuring a more comprehensive study.

This section completes chapter 4. A discussion of the results follows in the next chapter.

Chapter 5: Discussion of results

Chapter 5 discusses the results described in Chapter 4. The chapter will start by briefly reviewing the purpose, expectations and approach of the study. Results will then be discussed with reference to available literature in order to derive suitable conclusions.

5.1 Background

The present study focuses on the HRQoL of VLU patients in SA. In today's environment of increased sensitivity toward human rights and personal QoL, insight into VLU patients' subjective needs should enable positive management outcomes of their HRQoL (Corbin & Strauss, 1988; Ebbeskog, 2001; Husband, 2000). There is a lack of research done in SA regarding the VLU patient's subjective needs and the extent to which the underlying constructs of HRQoL are affected. The aim of this study was to investigate a local sample.

Suffering from a VLU is regarded as a chronic illness (Husband, 2001a) and this condition is predominantly present in the elderly (Ebbeskog, 2001; Lindsay, 2000). It is known as a condition of long duration (Nelzen et al., 1997; Ruckley, 1998) and due to a multitude of factors has an adverse impact on the patient's HRQoL (Persoon et al., 2004). A distinct relationship between age and the prevalence of leg ulcers has been observed (Lamping et al., 2003; Lindsay, 2000; Nelzen, 1997). Several researchers have suggested that the marked increase in the number of patients with VLUs may be associated with a growing elderly population, brought about by increased longevity (Ebbeskog, 2001; Lees & Lambert, 1992; Lindholm et al., 1993). It is thus becoming increasingly important to understand the impact of age-related changes in SA, as greater numbers of senior citizens are living with chronic disabling conditions (De Araujo, 2003; Kurz et al., 2001; Lamping et al., 2003; Lindsay, 2000; Nelzen, 1997).

Although some studies showed that female VLU patients slightly outnumbered male patients, (Canonico et al., 1998; Lindholm et al., 1993; Margolis et al., 2002; Nelzen et al., 1996; Phillips et al., 1994) no consensus regarding these differences could be reached in the literature. In the present study there were more females than males.

Health professionals dealing with VLU management in Pretoria suggested that, because their focus was rather on acute signs and symptoms of pathology of the VLU, it might result in under-recognition and under-diagnosis of psychological symptoms like depression and decreased HRQoL (Dr F J Cronje, personal communication, February 3, 2005). By investigating their HRQoL and gaining insight of a VLU patient's subjective needs, this study might contribute to more positive management outcome in SA.

5.2 The context

As discussed in chapters one and two, HRQoL as used in this study referred to the VLU patients' overall well-being and their ability to function in the ordinary tasks of daily living (Ebbeskog, 2001). VLU patients generally have a poorer HRQoL compared to healthy people, with profound implications for HRQoL of the older VLU patients and the strategies needed to maintain and enhance their HRQoL (Persoon, et al., 2004; Phillips et al., 1994; Pieper et al., 2000; Price & Harding, 1996). Franks and Moffat (1998) found that the individual's own sense of well-being and subjective needs were the most important factors when considering HRQoL of VLU patients.

Ruggeri et al. (2001) suggested that both objective and subjective measures were necessary for assessing HRQoL. In this present study, objective data were obtained from the SF-36 questionnaire and demographic questions, and subjective information was gained by informal interviews. The SF-36 questionnaire was regarded as the most suitable, reliable and valid instrument for investigating the relevant underlying constructs of HRQoL (Brem et al., 2004; Cali & Bruce, 1999; De Araujo, 2003; Kline, 2000; Lindsay, 2000; Margolis et al., 2004; McHorney et al. 1992; Mostow et al., 2005; Smith et al., 2000; Stewart et al., 1988; Ware & Sherbourne, 1992; Volkers et al., 2004). The SPSS (version 12.0) statistical package (SPSS Inc.) was used to analyse the data.

The methodological approach involved a qualitative study (interviews) combined with a quantitative study (questionnaires), since measurement of a VLU patient's HRQoL should be based on both subjective and objective information (Ebbeskog, 2001). Information gained from interviews was grouped according to themes based on VLU patients' subjective experiences while undergoing treatment and enhanced the interpretation of objective data.

Elderly people experience VLUs more frequently than younger individuals (Ebbeskog, 2003; Lindsay, 2000; Lamping et al., 2003; Nelzen, 1997), therefore the questionnaire was administered to VLU patients aged between 50 and 90 years. The same SF-36 questionnaire was administered to the non-VLU group (similar size, age range, gender composition and socio-economic status). A post hoc design was used to compare the two groups in terms of HRQoL. Any participants with serious illnesses, other than common age-related illnesses, were excluded from the non-VLU group. The questionnaire was translated to Afrikaans to ensure that all participants fully understood all questions.

The first of four hypotheses to be tested was that the experience of living with a VLU has a negative impact on all constructs of HRQoL. The second hypothesis concerned possible differences between the HRQoL of males and females with VLUs. Hypothesis three related to the relation between age and overall HRQoL of patients with VLUs, while hypothesis four investigated the interrelation between the underlying constructs of HRQoL of patients with VLUs.

5.2.1 Effect of demographic variables on HRQoL

The questionnaire was administered to 30 VLU patients of whom 11 were male and 19 were female. Both groups were aged between 50 and 90 years, with the non-VLU group on average the older group. The non-VLU group was essentially a non-random convenience sample, matched demographically with the VLU patients.

The two groups were very similar in terms of size, level of education, employment status, presence of other illnesses, living arrangements, family history of depression and weekly contact with friends. The comparability of the groups controlled for the possibility of these factors acting as nuisance variables. However significant differences between the groups were found in terms of age, relationship status, contact with friends, mood ratings and alcohol consumption. These differences will be discussed separately.

There was a significant difference between the average age of the two groups, the VLU group being the younger group. Associated with aging is the frequent presence of chronic conditions and physical illnesses (Harper, 1991). Age-associated health conditions may also spark negative thoughts and feelings about the self (Demo, 1992; Kaplan, 1979). However, the older non-VLU group had fewer other long-standing physical illnesses and the majority had a happy mood state compared to the younger VLU group. Although chronic conditions and physical illnesses occur commonly amongst the elderly (Margolis et al., 2003) having VLUs may therefore contribute substantially to the presence of other illnesses, which can also decrease HRQoL.

Hypothesis three stated that there is a relationship between age and HRQoL of patients with VLUs. Although a distinct positive relationship between age and the prevalence of VLUs has been observed in the literature (Lamping et al., 2003; Lindsay, 2000; Nelzen, 1997), no significant relationship was found in the present study. This may be because of the small number of participants in the present study as well as the restricted age range. A negative correlation between age and overall HRQoL (r=-0,314) existed, but it was not significant. This correlation indicated that older VLU patients tend to have better HRQoL. This result is in line with the idea that life experience cultivates self-knowledge (Neugarten, 1977), enabling older VLU patients to cope more effectively with limitations and disabilities (Franks & Moffat, 1998; Phillips et al., 1994).

The two groups also differed regarding their relationship status. Significantly more VLU patients were in relationships than the non-VLU group. This may imply that VLU patients need caretaking or perhaps that they were the younger group and more likely to still be in a relationship. There is considerable evidence showing that having a partner or living with someone is a major source of support, and that the presence of that person significantly contributes to the patient’s physical and psychological well-being (Dykstra, 1993; Monroe & Rubin, 1983).

Although the VLU group and the non-VLU group were similar in terms of living arrangements, there were differences between male and female VLU patients. Both males and females generally prefer not to live alone (males= 81,8%, females= 68,4%), but the frequency of males living with someone was much higher than females. The only significant difference between male and female VLU patients was in relational status, with fewer female patients in relationships. More males were involved in relationships or living with someone than females and logically had more contact with relatives. Females tend to be able to cope more effectively with their emotional and social limitations and disabilities than males (Price & Harding, 1996), implying less need from external sources for support and therefore an overall better HRQoL. The females' support may primarily come from friends, whereas males' support is from family members due to their living arrangements. Females may be better able to reach out for social support whereas men tend not to and perhaps do not want to loose face by disclosing their needs or limitations. The difference in HRQoL of male and female VLU patients will be discussed in 5.5.2.

Regarding the VLU patients' mood, doctors and nurses in Pretoria suggested that they may be more negative and down hearted. This is in line with findings that depression and decreased HRQoL are common in patients with physical illness (Franks & Moffatt' 1998; MacHale, 2002; Langemo, 2005). In the present study, there was a significant difference in mood state as the majority (77%) of the non-VLU group described their mood as happy, whereas only 40% of the VLU group describes their mood as happy. The majority of the VLU group described their mood as neutral or down. This results confirms Phillips et al.'s (1994) finding from a study where 62 individuals with chronic VLUs were interviewed. They found the condition was associated with negative emotional impact on life such as fear, social isolation, anger and depression. Pieper, Szczepaniak and Templin (2000) reported similar findings of a negative impact on mood and decreased HRQoL. Even though VLU patients had supportive relationships that should decrease their stress, they still experienced depressed mood. It was therefore likely that the mood associated with VLUs affected the patients' HRQoL.

Findings regarding their alcohol consumption indicated that significantly more VLU patients used alcohol than the non-VLU group. Attempting to cope with VLUs may contribute to increased alcohol consumption, as physical disabilities have been associated with struggles with medication and alcohol (Fresher-Samways, Roush, Choi, Desrosiers & Steel, 2003). This may imply that VLU patients used alcohol to try to escape from their current situation and to cope with their negative mood or that people with VLUs have less healthy lifestyles or fewer coping resources.

In comparison, the two groups were very similar in most respects of their health profile and it is therefore possible that living with VLUs was the main reason for the differences in relationship status, contact with friends, mood ratings and alcohol consumption.

5.3 The impact of VLUs on HRQoL

The first hypothesis stated that the experience of living with a VLU has a negative impact on all constructs of HRQoL. Results of the present study indicated that the non-VLU group obtained much lower scores than the VLU patients on all of the underlying constructs of HRQoL, but not to the same extent on all constructs. The finding therefore supports the first hypothesis.

There was a significant difference between the groups in the scores of general health. That is, the threshold of being able to manage basic activities of daily living (ADLs), such as the ability to dress, bath or walk without assistance (Brem et al., 2004; Cali & Bruce, 1999; De Araujo, 2003; Lindsay, 2000; Margolis et al., 2004; Mostow et al., 2005; Volkers et al., 2004). It was found that 23% of the variance in scores of general health, including fatigue levels, sleep problems and health perceptions (Hays & Stewart, 1990), was explained by VLUs. This was a very small proportion so it was possible that other factors like age-related illness probably played a role. The mean score of the non-VLU group indicated that they also experienced interference of their general health, which is likely to be age-related (Harper, 1991). However, this was the smallest difference between the groups and therefore VLUs were not an important factor in differences between general health scores.

The results of the present study in terms of mental health, defined here as the ability to have clear thoughts and to cope with what life demands (Hays & Stewart, 1990), showed that both groups obtained the lowest average score for the mental health construct in relation to the other constructs. This indicates that mental health was the construct that had the least effect on HRQoL. However, there were significant differences in mental health scores between the two groups. Having a VLU explained 29% of the variance in scores of subjectively perceived mental health. Any visible wound can lead to great emotional or psychological trauma, with feelings of shame, depression and embarrassment often present (Langemo, 2005; MacHale, 2002). During the interviews, the VLU patients described VLUs' interference in their lives in terms of imprisonment in an altered body that leads to change in social life, while on the other hand, having hope for possible healing and achieving freedom from a burdensome body. The difference in mental health scores was fairly small and therefore other factors besides VLUs are important for mental health, such as intrapersonal reasons and social circumstances that are beyond the scope of the present study.

There was a significant difference in social functioning scores between the two groups and 49% of the variance in scores of social functioning was explained by VLUs. Social discomfort associated with VLUs can lead to adversely affected relationships and a sense of social isolation (Phillips et al., 1994; Pieper et al., 2000; Price & Harding, 1996). During interviews the VLU patients expressed the longing for freedom and to engage in social activities and interactions. It was as if their condition caused them to feel imprisoned and that they were not "allowed" to socialise anymore. The difference in social functioning scores is more likely due to physical restrictions associated with VLUs, in not being able to walk or move freely as they used to do.

It is generally held that VLUs pose a threat to physical health (Lindsay, 2000, Margolis et al., 2004, Mostow et al., 2005; Pieper et al., 2000; Price & Harding, 1996). This was confirmed in the present study with significant differences in physical health scores between the two groups. The magnitude of the differences in the means was large (eta squared=0,67). The results of the present study confirmed that 67% of the variance in physical health scores was explained by VLUs. Physical health was also addressed during interviews and the VLU patients expressed difficulty in learning to live with the unusable leg, immobility and living a restricted daily life. The impact of VLUs on social functioning and physical health was quite considerable. Physical restrictions are expected to affect self-image as well as role function, as discussed above, mental health and social behaviour.

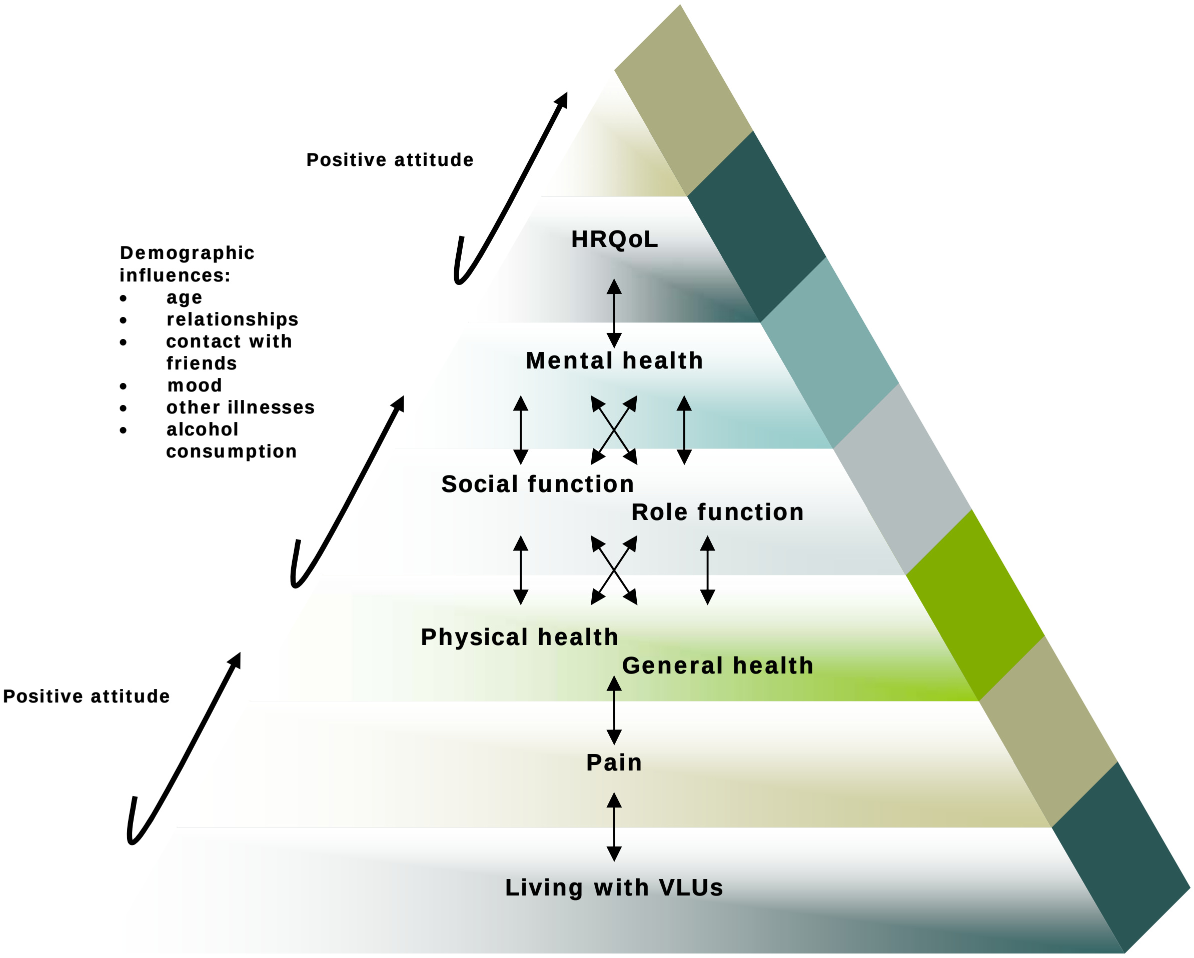
Role function describes aspects relating to fulfilling one’s role in the community (Hays & Stewart, 1990; Laing, 1992). There were significant differences in role functioning scores between the two groups. The magnitude of the differences in the means was large (eta squared=0,77). Problems with performing basic tasks increased VLU patients’ dependence on others (Mostow et al., 2005; Price & Harding, 1996; Pieper et al., 2000), and this was confirmed by the present study’s findings that 77% of the variance in role functioning scores was explained by VLUs. Patients revealed during interviews that they tried to carry on with their lives despite the pain and limitations imposed by the wound, but that the dressing prevented them from performing routine daily activities and roles. VLU patients may find themselves in situations where they had trouble fulfilling the role they suppose play. It appears that living with VLUs makes a large contribution to restriction in role functioning.

Pain was the biggest factor separating the groups, as expected because of the pain related to VLUs. The magnitude of the differences in the mean pain scores was the largest (eta squared= 0,92) of all the six constructs. A general conclusion may be that patients experienced time only filled with pain and this cascades negatively to all the other constructs.

Using the scores of the non-VLU group as baseline, it appears that the HRQoL of the VLU group is affected most by pain, followed by restrictions on role functioning, social functioning, mental health, physical health and general health respectively. Investigation of the relations among the six constructs yielded significant correlations, indicating that the constructs are interrelated (Figure 5), except for the correlation between pain and role function. VLUs explained 77% of the variance in the scores of role function affecting HRQoL and 92% of the variance in the scores of pain. Although role functions generally decrease with age, most elderly people try to remain functional in the community despite the frequent presence of age-related chronic conditions and physical illnesses (Harper, 1991). Therefore, the variance in role function was most likely a result of decreased physical health as a result of the pain. Pain correlated strongly with general health and physical health, and less with mental health and social health. As expected, these results suggest that pain was more related to physical inability and general health and indirectly related to mental health and social functioning. Role function was affected by physical health rather than pain as such. Results suggest that effects are not isolated and that these results are most likely the the cascading effects of living with VLUs.

Having a VLU penetrates different aspects of life and therefore encouragement, support and guidance to overcome constant thoughts of pain and to deal with the emotional aspects of pain may initiate a more positive attitude towards this reality, impacting upon the other interrelated constructs as illustrated in Figure 5

Figure 5: The impact of VLUs on HRQoL



5.4 Difference in HRQoL of male and female VLU patients

Price and Harding (1996) reported that females had poorer HRQoL for physical functioning aspects of HRQoL than males. Although not significant, the difference was also evident in the present study and consistent with existing SA literature (Westaway et al., 2000).

Role functioning was determined by the extent to which respondents' performance of their roles in daily activities was impeded by their physical and emotional state of health (Hays & Stewart, 1990). Although the difference was not significant in the present study, male patients seemed to experience greater impact of VLUs on role function than females. Phillips et al. (1994) have shown that men feel more ashamed, socially withdrawn, and emotionally disturbed due to VLUs, compared to women. For men, self image is also strongly related to success and independence. This may relate to the fact that self image is strongly related to role fulfillment, based on the association of the man as provider for the family and defender from physical threat.

It appeared that for males, physical functioning and pain have less impact on HRQoL than for females. Females also seem to experience a better HRQoL regarding social functioning, mental health and role function than the males. These differences were not significant, and it was concluded that there was no relation between gender and HRQoL of patients with VLUs in this present study. However, females are more likely than males to reach out for social support, which could help to minimise the negative consequences of living with a VLU.

Results in the literature appeared to vary in relation to pain and gender (Brem et al., 2004; Cali & Bruce, 1999; De Araujo, 2003; Lindsay, 2000; Margolis et al., 2004; Mostow et al., 2005; Volkers et al., 2004). The results of the present study do not confirm any significant differences between males and females regarding experiences of pain. According to Walshe (1995) pain is an overwhelming feature that causes significant restrictions in daily living for males and females. It is likely that coping with pain depends more on other personal characteristics rather than gender. Alternatively, there may be greater within group differences than differences between the gender groups.

The results of the present study showed that there was no significant difference between male and female mean overall HRQoL scores. This may be because of the small number of participants in the present study. Although there are some reports that female VLU patients generally have poorer HRQoL than male VLU patients, (Franks & Moffat, 1990), there is no consensus regarding this relationship (Lindholm et al., 1993; Margolis et al., 2002; Persoon et al., 2004; Phillips et al., 1994), and this was confirmed by the present study's results.

5.5 Themes emerging from the qualitative study

During the interviews, it became clear that some of the VLU patients did not raise even modest agendas of other problems during their visits at the clinics. Gaps in communication potentially reduce the effectiveness of medical care, by failing to address symptoms of treatable conditions that influence HRQoL.

Major themes that emerged from the interviews seemed to be linked to the way these VLU patients regarded themselves, as created by their own feelings and experiences. The three themes that emerged, namely (i) freedom vs. imprisonment, (ii) gain vs. loss, and (iii) hope vs. despair, encapsulated distinct categories associated with their HRQoL. The respective categories were (i) emotional consequences of an altered body image, and living a restricted daily life (ii) gaining well-being despite dealing with a painful wound and loss of time and (iii) the struggle between hope and despair during a lengthy healing process. These are the meanings in their worlds, in terms of how their ideas and attitudes were developed over time within the social and community's context.

Themes identified in the interviews linked to all six underlying constructs of HRQoL as measured by the SF-36. Emotional consequences of an altered body image and perceived fluctuation between hope and despair have an effect on mental health, and this corresponds to the finding that VLUs explained 29% of the variance in the subjective perception of mental health

During the interviews, physical health was described as an altered body image. This is in line with the physical inability and psychological trauma, associated with feelings of shame, depression and embarrassment as reported (Langemo, 2005; MacHale, 2002). VLU patients described living a restricted daily life that referred to problems with physical health, performing basic tasks, increasing dependence on others and a decrease in role functionality (Mostow et al., 2005; Price & Harding, 1996; Pieper et al., 2000). This present study found that VLUs explained 77% of the variance in role function. Patients found it difficult to fulfil their roles and revealed that they tried to carry on with a purposeful live despite the pain and physical and emotional limitations imposed by the wound. Patients expressed the longing for freedom, to be able to walk around freely, to engage in physical and social activities and the difficulty to fulfil their roles. Feelings of imprisonment were strengthened by disrupted sleeping patterns, as pain interrupted sleep at night, causing them to rest during the day.

By participating in the interviews, the VLU patients could share and tell their personal obstacles and burdens in life. Helping VLU patients to relate and speak in another way could possibly promote physical and mental health, and promote future communication within their healthcare system and encourage the construction of a positive and purposeful reality with increased HRQoL. Completion of questionnaires alone would not make these valuable subjective understandings possible.

5.6 Summary

Definite differences were noted when scores of the VLU patients and the non-VLU group were compared. Results show that VLU patients have a poorer HRQoL than the non-VLU group. In comparison with the non-VLU group’s scores, constructs most affected in descending order were pain, then role function that was more affected than physical health, then social functioning, then mental health and least general health. The effect of VLUs on patients’ HRQoL was confirmed by pain that correlated strongly with general health and physical health, and less with mental health and social health. As expected, these results suggest that pain was more related to physical inability and general health and indirectly related to mental health and social functioning. Role function was affected by physical health rather than pain as such. Results suggest that effects of living with VLUs are not isolated.

Chapter 6: Summary and recommendations

6.1 Implications for patient care and pain management

Pain appears to be the main factor affecting HRQoL and therefore more detail regarding the general management of this construct will follow. Inadequate pain management results in unnecessary human suffering (Frohlich, Shipton, 2007). Intuitively, patients (and many doctors) expect psychological well-being and physical functioning to improve as a natural consequence of pain reduction. This is rarely the case unless all aspects of the patient's suffering are managed simultaneously (Odendaal, 2006).

The mind plays an important role in chronic pain management (Liew et al. 2000; Phillips et al., 1994) and therefore the VLU patient should be encouraged to teach themselves to manage the sensation of pain and to rather focus on a positive reality. Using the mind to control chronic pain, or "coping strategies" for managing persistent pain, may be used with other pain management therapies. Ideally, use of the chronic pain management techniques can help patients feel less dependent on pain killers and feel more empowered and in control. The causes of pain should be explained to the patient and some reassurance about the safety of planned physical activity can help to overcome inappropriate pain behaviour. In partnership with the patient, the healthcare team should discuss treatment options and devise an appropriate management plan. Realistic goals should be set and the VLU patient's expectations should be moderated sensitively. If expectations are too low, VLU patients may become despondent, if they are too high, they will be disappointed when they are not achieved.

It is regarded as important to move the patient's attention from pain and pain relief towards maintenance and improvement of daily HRQoL. Complete freedom from pain may not be an achievable goal. However, effective pain management can usually lead to improved symptoms and functionality. Some form of education and support is critical in helping patients to cope especially if symptoms are not relieved. Patients should be encouraged to be as active and independent as possible, to join support groups and to take an active role in all pain management decisions. In addition to these general measures, specific psychological treatments may be indicated. Social construction can aim to change patterns of experiencing the world as negative to encouraging a more positive experience of the world, people and relationships (Odendaal, 2006).

From a social constructivists view, the challenge for caregivers is to shift focus from physical wound management to understanding the specific emotional needs of each individual, within the context of their daily social lives. By understanding the nature of the individual's subjective experience of VLUs, caregivers can anticipate problems and provide care that is more sensitive.

6.2 Research limitations

A number of limitations of the present study should be acknowledged. These relate to language use, cultural and racial limitations, wound classification, and methodological concerns.

Regarding the questionnaire, some participants found responses like "slightly agree/disagree" and "slightly satisfied/dissatisfied" difficult to understand and therefore some misinterpretations might be possible. The study also had cultural and racial limitations in the sense that only white VLU patients participated in the study.

Consequently, these findings cannot be confidently generalised beyond their specific context. Future research could benefit from including VLU patients from settings or contexts other than these clinics, as well as the exclusion of other variables like hypertension and diabetes. A much wider and broader context therefore needs to be included to determine if future studies could yield similar themes or results. Limited information regarding ulcer size, type, duration and other relevant variables may also limit the interpretation of the research outcomes.

The small sample size raises issues of statistical power. The sample group of ulcer patients was not a random sample and might not have accurately reflected the responses of elderly VLU patients in general. Because of the scope of the present study, only a small number of VLU patients were included. With a bigger sample there might be significant differences (e.g. gender, age) whereas the present study only found trends. Findings may apply only to VLU patients who were treated in the participating clinics and may therefore not be generalised easily to other VLU patients.

There is a growing awareness of the importance of understanding the patient's own perspective regarding chronic illness experiences. The perspective of a patient's life means that the human being is considered, in everyday life and during the treatment of VLUs. This implies seeing, understanding, describing and analysing the VLU patient's world. Suffering from an illness involves conscious sensations that one reflects upon. The course of the chronic illness is difficult to predict and acute phases often alternate with resting phases. This implies considerable disability, which not only causes physical limitations, but also worries, anxiety and social withdrawal. People react differently according to their personalities and individual situations. Another limitation was that these diverse reactions of different individuals to the same circumstances were not measured in the present study eg. the ability to cope with stress, discomfort or pain, social circumstances and the VLU group did not had a homogeneous contribution of other illnesses.

However, despite these limitations it seems useful to view the present research as a pilot study in a neglected area of healthcare research and in that sense may offer a number of tentative generalisations.

6.3 Future recommendations

The findings of this study illustrate the need for further research to discover the needs of persons receiving treatment for active ulceration and in particular, their needs regarding care of painful VLUs. Strategies that allow patients to actively participate in their own treatment should be developed.

South Africa, a developing country with both first-world and (largely) third-world socio-economic circumstances, has transformed with the transition to democracy (Frohlich & Shipton, 2007). Unfortunately, health resources are limited and directed at catering for a growing population where life-threatening conditions like HIV/AIDS, violent crime and poverty prevail (Frohlich & Shipton, 2007). Chronic pain creates a major public health problem that impacts negatively on HRQoL issues and healthcare costs. Pain severity accounts for more than one-fourth of the variance in physical disability in those older than 65 years (Frohlich & Shipton, 2007). Healthcare in South Africa does not recognise chronic pain as a separate medical entity (Frohlich & Shipton, 2007), therefore nurses and relatives must realise the importance of their role in the VLU patient’s life.

Collaboration between theory and practice could promote knowledge and skills for VLU management. They can also provide a centre in SA for nurses and educators to develop skills in VLU management and increase good practice, based on nursing care research (Harding et al., 2002). Developing appropriate clinical services and clinical research are only some of the suggestions in this important and neglected regard. An active assessment of patients with chronic VLUs, including medical diagnosis, prognostic factors for healing and an individualised care programme, could probably change the outcome of care. In the long term, these measures may lead to less suffering for the VLU patient and to a more cost-effective care for society in SA.

6.4 Ongoing emotional and support services: Addressing relatives, caregivers and health professionals

In line with the social constructionism approach, family, friends and professional counsellors or psychologists at the clinics should be available to provide continuous emotional support to VLU patients and construction of a positive reality for VLU patients. Social support and personal control are possibly the two most important factors that predict well-being, morbidity and mortality.

Social interaction and support among the VLU patient and relatives, friends, nurses, healthcare professionals and also other VLU patients, may all help to construct a positive sense of well-being. Social support can come in many different forms, including emotional support, practical help (to complete the basic tasks of ADL) and sharing points of view to develop a better understanding of the situation. Elderly VLU patients, who may sometimes view their existence as hopeless and meaningless, need to be loved and reminded of their value to the community and to other people. The knowledge of continued emotional support may encourage VLU patients to live life in a positive way, despite their wounds and pain. Evidence increasingly lends support to the use of an interdisciplinary approach where multiple therapies are provided in a co-ordinated manner to provide support to the patient. Home visits by community nurses alone cannot provide the social and psychological support required (Lindsay, 2000). Eagle (1992, as cited by Lindsay) stated that isolation due to pain, odour, bandages etc. contribute to the development of low self-esteem and depression. Friedland et al. (1996) found that providing social support and assistance to people living with a chronic disease contribute to development of coping strategies that are important resources in alleviating the stress experienced by patients.

The challenge is to ultimately create an organisational and wound care unit that can accommodate both the physiological and psychological human aspects. This includes active interaction and a common philosophy that promotes active patient involvement among each other. In the South African context, a core-team may consist of a pain management physician, a wound care nurse and available relatives of the patient. After initial screening, the core-team will then decide which additional members will be needed for the initial assessment/management of the VLU patients, e.g. an occupational therapist, a psychologist and two or three relatives who can provide weekly support. The comprehensive evaluation will lead to recommendations for treatment depending on the needs and expectations of the VLU patient. For some individuals education and social support may be sufficient, others may need an intensive rehabilitation programme, including formal social constructivist therapy. The roles of team members may also overlap and the psychotherapist may also be responsible for education, an exercise program and the implementation of the principles of social constructivism. Therefore, communication between the team members is essential. Care should include assessment of the lived illness experience, preventative actions and to maintain hope and confidence among the patients before the wound becomes too difficult to heal. Hope should be constructed as the product of the quality of relationships in which VLU patients spend their time.

Team members can make alternative meanings possible to VLU patients, to be able to construct themselves in ways that are more beneficial. In the present study, this can imply that a patient will co-create his/her own reality about suffering from a VLU within his/her social and cultural context, and his/her situation will be influenced by the dominant belief systems of his/her particular social and cultural context. When a VLU patient has a positive experience of the world, his/her HRQoL would be better than that of a person with a negative experience of the world around him/her. If a patient is accepting the fact that he/she is suffering from a VLU and furthermore the society and culture around him/her understand and support his/her situation, HRQoL will definitely be better. To connect it to the original aim of HRQoL of patients suffering from VLUs is, therefore, to connect true HRQoL to perceived HRQoL.

Benard (cited in Saleeby, 1996) believes that the goal should be "to reconnect people to health in themselves" first, and then to "direct them in ways to bring forth the health of others in their community". Therefore, intervention and diverse analysis of the HRQoL of patients suffering from VLUs could make effective contributions to future treatments for similar patients.

6.5 Focussing on the VLU patient and not the symptoms

To improve the symptoms, VLU patients are advised to walk for 30 minutes a day, twice if possible, to practise leg and foot exercises when sitting, to elevate the legs above waist level when sitting, not to allow dependence whenever possible and not to stand for long periods. Relaxation techniques, coping skills and imagery are often of great value

(Meyer, 2007). Engaging in pleasurable, stimulating, distracting creative and social activities is a powerful means to limit disability and to assist patients in regaining control of their lives (Baumann, 2003). Education of the VLU patient is also vital, particularly to prevent recurrence of a healed ulcer and to anticipate problems pro-actively.

There are many treatment options for VLUs, including compression bandages, stockings, oral pentoxifylline, cultured allogenic bilayer skin replacement, oral flavonoids, oral sulodexide, systemic mesolycan, just to mention a few (Enoch & Price, 2004; Hyland et al., 1994; Liew et al., 2000; Ryan, Eager & Sibbald, 2003). However, chronic suffering from VLUs and the associated pain defines the limits of modern research, technology and medicine. VLU patients should be encouraged to view the pain related disability not exclusively in physical terms (Meyer, 2007), but also with the associated psychosocial implications (Persoon et al., 2004). Improving their HRQoL and restructuring a sense of meaning in life are more appropriate goals than the elimination of the pain, or VLUs. Suggested objectives in constructing a positive reality for the VLU patients can include to change their view of pain from overwhelming to manageable and to change their self-perception from passive and helpless VLU patients to active and competent individuals.

6.6 The role of the researcher in the study

The researcher’s notion of science was informed by a social constructionist understanding, which asserts that what one perceives is a consequence of how one participates in perceiving within a social context. Keeney and Ross (1985) argue that what one sees or perceives, reveals more about the perceiver and his context than about the object of study. The researcher acknowledges that the flow of the study has been influenced by her beliefs, values, likes and attitudes. This means that the researcher upholds the value of subjectivity in creating knowledge through research.

Freeman and Combs (1996) mention that research from a social constructionist approach is a social creation, an unfolding process that consists of multiple conversations. According to these authors, the researcher cannot and should not try to exclude herself from the research process, but should rather accept that her perspectives and values influenced the research. Interviews allowed a personal, subjective encounter and ensured a background and introduction to the literature regarding everyday living with slow healing leg ulcers and the enormous impact on the VLU patient's HRQoL. In this way understanding could be negotiated between the researcher and the VLU patient, between objective and subjective data. It is important to remember that the researcher, having been involved in interviews with VLU patients prior to undertaking the current study, had specific assumptions about the state of the VLU patients. Therefore, the research results consist of multiple conversations and subjective meanings and interpretations of the researcher that may have influenced this present research study's results.

6.7 Summary

To conclude, living with a chronic, slow-healing VLU implies considerable disability with physical limitations, worries, pain, anxiety and treatment sessions that become a way of life (Pieper et al., 2000).

Results from the present study indicated that having a VLU explained 23% of the variance in general health, 67% of physical health, 29% of mental health, 49% of social functioning, 77% of role functioning and 92% of pain experienced. Suffering from VLUs is commonly associated with pain, and therefore the 92% of the variance in pain was expected. But the variance in role functioning might indicate the considerable effect that

VLUs have on performing routine daily activities and roles, resulting in an increased VLU patients’ dependence on others.

The present study showed the importance of seeing the unique human being filled with emotions and not only a patient with a painful wound, requiring medical treatment. It is important to help the patient to acknowledge the reality of suffering from VLUs, identify the affected constructs, set appropriate goals and assist with continuing support. The present study can contribute to understanding the subjective experience of painful VLUs and the impact on HRQoL, the collaboration between theory and practice, and may lead to more focused and effective future patient care.

Appendix 1: Questionnaire and informed consent

Informed consent

Dear Patient,

Request for Participation in a Study On Quality Of Life For Patients With Venous Ulcers

We would like to invite you to participate in a study to evaluate the impact of your wound on your quality of life. This information will assist us to provide better service to patients- such as you- and to be more effective in the treatments we offer.

Your participation involves completion of a questionnaire. The study is being done by Bernhardett Theron; a masters degree student at Unisa.

The aim of the study is to gain a better understanding of how venous ulcers affect patient's lives. Your participation is voluntary and has no impact on the treatment and care you will receive at the center. You can withdraw from the study at any time. You are also under no obligation to answer any questions. We assure you that the information you provide is confidential and will not influence your treatment at the center.

I ………………………………………………………………… hereby confirm my understanding that my participation in the study is voluntary. The nature of the study has been explained to me. I accept that no payment will be made for my participation in this study. I understand that the results will be used for statistical purposes and personal information will not be disclosed.

Please sign consent for voluntary participation in the study.

Initial and surname:………….……………………

Social scientist: B. Theron

Date:………….……………………

Thank you for your cooperation.

Quality of life questionnaire

Date:	Clinic:	Initials:	Date of birth:	No:

Thank you for taking time to participate in a study to evaluate the impact of your wound on your quality of life. Please answer freely and honestly. The information will be used for statistical purposes only.

Demographic Information:

1) Age in years: ☐☐

2) Sex: 1 Male 2 Female

3) Highest school grade passed: (8 =Grade 8 12=Matrix) ☐☐

4) Further academic qualifications:
   1 Degree 2 Diploma 3 Certificate 4 Other (Please specify): ______________________________

5) Home language or language of your choice:
   1 Afrikaans 2 English 3 Other

6) Relationship status: 1 Single 2 With a partner

7) Do you live alone? 1 Yes 2 No

8) Are you working? 1 Yes 2 No

9) If yes, what is your occupation? If you are a pensioner, what did you do before retiring?
   ____

10) Except for the ulcer/s, do you have any other long-standing illness or disability that affects your daily life? 1 Yes 2 No

11) If yes, please specify?____
    ____

12) What medications do you take at present (including herbal or homeopathic)?
    ____

13) Do you drink any alcohol? If so, how many drinks a week (on average)? (1 = 250 ml wine/ 375 ml Beer / 1 metric tot Liquor)
    ____

14) How do you rate your experience of therapy at the unit so far? (On a scale of 1 to 5, where 1=bad and 5=good) ☐ (If this is your first visit, write N/A)

Comments: ______________________________

15) Please describe your mood at the moment?

Cheerful	Neutral	Down

16) Is there family history of depression or other psychiatric condition?

(Please specify) ______________________________

17) How often do you see / have contact with relatives? (times per WEEK / MONTH)

☐ **times per** ☐

18) How often do you see/have contact with close friends? (times per WEEK/ MONTH)

☐ **times per** ☐

Part 1: General Health

19) **In general, would you say your health is:**

Excellent	Very good	Good	Average	Poor
5	4	3	2	1

20**) Rate the following in general:**

	Excellent	Very good	Good	Average	Poor
Appetite	5	4	3	2	1
Sleep	5	4	3	2	1
Vision	5	4	3	2	1
Hearing	5	4	3	2	1
Energy level	5	4	3	2	1
Mobility	5	4	3	2	1

Part 2: Health in relation to your ulcer

This questionnaire is designed to enable us to understand how your life is influenced by your ulcer/s.

21a) How long have you have your present leg ulcer? Date of onset

21b) If it has healed fully before or a similar wound occurred; when was the first time it occurred)

____

____

Rate the following from 3 (all the time) to 0 (not at all) for the period of the last 2 weeks:

		All the time	Regularly	Seldom	Not at all
22	I experience pain because of my ulcer.	3	2	1	0
23	I am unhappy about the way my legs look because of my ulcers/ bandages.	3	2	1	0
24	I feel depressed because of the ulcer/s on my legs.	3	2	1	0
25	I struggle to walk because of the ulcer/s on my legs.	3	2	1	0

The ulcer/s on my legs prevent/s me from doing the following (consider the period of the last 2 weeks):

		All the time	Regularly	Seldom	Not at all
26	To attend social functions	3	2	1	0
27	To meet friends and family	3	2	1	0
28	To go on holiday	3	2	1	0
29	To enjoy hobbies	3	2	1	0
30	To make use of public transport/ to drive	3	2	1	0
31	Participating in physical exercise	3	2	1	0

How TRUE is each statement regarding the ulcer/s on your legs?

		Definite True	True	Not Sure	False	Definite False
32	My ulcer slows me down in general	1	2	3	4	5
33	My ulcer places stress on personal relationships	1	2	3	4	5
34	The discharge/smell from my ulcer/s is a problem	1	2	3	4	5
35	My leg ulcer prevents me from performing everyday activities	1	2	3	4	5
36	I think a lot about my ulcer	1	2	3	4	5
37	My leg ulcer prevents me from doing what I want to do	1	2	3	4	5
38	I am concerned that my ulcer/s will never heal	1	2	3	4	5
39	It bothers me that I spend so much time in the care of my wounds	1	2	3	4	5

The dressings for my legs are a problem because of:

		Big problem	Average Problem	Small Problem	No Problem
40	Huge bandages	1	2	3	4
41	Appearance of the bandage	1	2	3	4
42	The way it influences the clothes I can wear	1	2	3	4

Part 3 General well-being

Please indicate how often each of the following statements applied during the last two weeks, from 3 (all the time) to 0 (not at all):

		All the time	Regularly	Seldom	Not at all
43	I have crying spells or feel like crying	3	2	1	0
44	I feel downharted/sad	3	2	1	0
45	I feel afraid for no reason at all	3	2	1	0
46	I feel anxious/ have panic attacks	3	2	1	0
47	I have difficulty with my memory	3	2	1	0
48	I get upset easily	3	2	1	0
49	I feel energetic, active and powerful	3	2	1	0
50	I feel dull or sluggish	3	2	1	0
51	I have difficulty in making decisions	3	2	1	0
52	I feel good about myself	3	2	1	0
53	I feel stressed out	3	2	1	0
54	I feel tired and worn out	3	2	1	0
55	Getting going in the morning is difficult	3	2	1	0
56	I feel hopeless and worthless	3	2	1	0
57	I have difficulty with concentration	3	2	1	0
58	I wake up well rested and fresh.	3	2	1	0
59	I am happy and satisfied with my personal life.	3	2	1	0
60	I often have negative thoughts	3	2	1	0
61	I have the life that I have always wanted.	3	2	1	0
62	I have felt eager to tackle my daily tasks or make new decisions	3	2	1	0
63	I feel that I can easily cope with serious problems and changes in my life.	3	2	1	0
64	I feel depressed	3	2	1	0

Part 4: Personal quality of life

Assign numbers on a scale of 1 (completely unsatisfied) to 5 (completely satisfied). If the question does not apply to you, indicate it with 0.

		Unsatisfied			Satisfied		N/A
65	How satisfied are you with yourself?	1	2	3	4	5	0
66	How satisfied are you with your partner?	1	2	3	4	5	0
67	How satisfied are you with your family?	1	2	3	4	5	0
68	How satisfied are you with your friends?	1	2	3	4	5	0
69	How satisfied are you with the amount of time you have to do things?	1	2	3	4	5	0
70	How satisfied are you with people around you?	1	2	3	4	5	0
71	How satisfied are you with your income?	1	2	3	4	5	0
72	How satisfied are you with your social life?	1	2	3	4	5	0
73	How satisfied are you with your health?	1	2	3	4	5	0
74	How satisfied are you with your well-being?	1	2	3	4	5	0
75	How satisfied are you with your life in general?	1	2	3	4	5	0

76) Do you think that you control the way your life unfolds? (1 not at all to 5 very much)

☐

77) How do you see yourself in 5 years time? ____________________

____

Part 5: Social support & life events

78	Are you dependent on others for daily needs?	Yes	No

On a scale of 1 (none / not at all) to 5 (many / a lot), please rate the following:

		none		some		many
79	Number of close friends	1	2	3	4	5
80	People you can tell your problems to	1	2	3	4	5
81	Support from friends/family members/neighbours/others	1	2	3	4	5
82	Dependant on others for daily needs	1	2	3	4	5

Did you experience any of the following events in the past 12 months?

83	Death of spouse/parent/child	Yes	No
84	Death of relative	Yes	No
85	Onset of a serious illness or accident affecting a relative	Yes	No
86	Marital separation	Yes	No
87	Ending of friendship/relationship	Yes	No
88	Serious problem with a close friend/neighbour/relative	Yes	No
89	Financial crisis	Yes	No
90	Theft/loss of an item of personal value	Yes	No
91	Traumatic event (eg burglary, hijack)	Yes	No
92	Loss of work	Yes	No
93	Other traumatic/ disturbing events	Yes	No

If there is anything you would like to comment on regarding your ulcers, please do so here:

____

____

____

Thank you for your assistance

Geagte pasiënt

Hiermee ‘n vriendelike versoek vir u deelname aan ‘n navorsingsstudie wat pasiënte met wonde se lewenskwaliteit beoordeel.

Ons wil u graag uitnooi om deel te neem aan ‘n studie wat die impak van wonde op lewenskwaliteit het. Hierdie inligting sal ons instaat stel om beter diens aan u – as pasiënt - te lewer en ook meer effektief te wees in die behandeling wat ons pasiente met soorteglyke probleme aanbied.

Die studie behels die invul van ‘n vraelys. Die studie word uitgevoer deur Bernhardett Theron; ‘n meestersgraad student by UNISA.

Die doel van die studie is om ‘n beter begrip te verkry van hoe pasiënte se lewensgehalte deur hul wonde beïnvloed word. U deelname is vrywillig en dit sal geen impak hê op die behandeling en diens wat u vanaf die kliniek ontvang nie. U het ten alle tye die vrye reg om te onttrek indien u nie meer deel wil wees van die studie nie. Daar is ook geen verpligting om alle vrae te beantwoord nie. Ons kan u verseker dat die inligting wat u verskaf as vertroulik hanteer sal word en geen invloed sal hê op u behandeling nie.

Ek.. gee my vrywillige toestemming tot deelname aan hierdie studie. Die aard en omvang van die studie is aan my verduidelik en ek verstaan dat ek nie vir deelname vergoed sal word nie. Ek verstaan voorts dat die inligting vir statistiese doeleindes gebruik sal word en alle persoonlike inligting konfidensiëel hanteer sal word.

Teken asseblief as bewys van u onderneming

Voorletters en van (drukskrif asb): Navorser: B. Theron

…………………………………………………….

Datum: ……………………..………..

Baie dankie vir u samewerking

Lewenskwaliteit vraelys

Datum:	Kliniek:	Voorletters:	Geboorte datum:	Nr:

Dankie vir die tyd wat u bereid is om af te staan om deel te wees van 'n studie wat die impak van u wond op u lewenskwaliteit bepaal.

Demografiese inligting:

1) Ouderdom in jare: ☐☐
2) Geslag: ☐ 1 Manlik ☐ 2 Vroulik
3) Hoogste graad geslaag:(Graad 8=8 Matriek=12) ☐☐
4) Verdere akademiese kwalifikasies:
   ☐ 1 Graad ☐ 2 Diploma ☐ 3 Sertifikaat ☐ 4 Ander (Spesifiseer): ____________________
5) Huistaal of taal van voorkeur:
   ☐ 1 Afrikaans ☐ 2 English ☐ 3 Ander
6) Verhouding status: ☐ 1 Enkel ☐ 2 Het 'n maat
7) Bly u alleen? ☐ 1 Ja ☐ 2 Nee
8) Werk u? ☐ 1 Ja ☐ 2 Nee
9) Indien ja, wat is u beroep? Indien u 'n pensionaris is, wat was u beroep voor u aftrede?
   ____
10) Buiten vir die wond, het u enige ander langtermyn gebreke of siektes wat u daaglikse lewe affekteer? ☐ 1 Ja ☐ 2 Nee
11) Indien ja, spesifiseer asb? ____________________
   ____
12) Watter medikasie gebruik u op die oomblik(insluitende homopaties/natuurlike produkte)
   ____
13) Gebruik u alkohol? Indien wel, hoeveel drankies gemiddeld per week?(1 = 250 mL wyn/ 375 ml Bier / 1 sopie sterk drank)
   ____
14) Hoe sal u die diens oordeel by die eenheid? (1=swak 5=goed) ☐
   (Indien u eerste besoek, skryf n.v.t)
   Enige kommentaar: ____________________

15) Beskryf u gemoed op die oomblik?

Gelukkig	Neutraal	Neerslagtig

16) Is daar geskiedenis van depressie of ander psigiatriese siektes in u familie? (Spesifiseer asb) ______________________________

17) Hoe gereeld sien u/het u kontak met naaste familie?(hoeveelheid per week/maand)

______ keer per ______

18) Hoe gereeld sien u/ het u kontak met goeie vriende?(hoeveelheid per week/maand)

______ keer per ______

Deel 1: Algemene Gesondheid

19) **In die algemeen, sal u sê u gesondheid is:**

Uitstekend	Baie goed	Goed	Gemiddeld	Sleg
5	4	3	2	1

20**) Merk die volgende oor die algemeen:**

	Uitstekend	Baie goed	Goed	Gemiddeld	Sleg
Aptyt	5	4	3	2	1
Slaap	5	4	3	2	1
Visie	5	4	3	2	1
Gehoor	5	4	3	2	1
Energie vlakke	5	4	3	2	1
Beweeglikheid	5	4	3	2	1

Deel 2: Gesondheid ten opsigte van u wond

Hierdie vraelys is ontwerp om ons beter te laat verstaan hoe u lewe beïnvloed word deur u wond.

21a) Hoe lank het u al die huidige wond/e? Vanaf watter datum?

____

21b) Het u al van tevore hierdie sort wonde gehad. Indien wel, wanneer was die eerste keer wat u dit gekry het?

____

Beoordeel die volgende vanaf 3 (konstant) tot 0 (glad nie) hoe van toepassing op u in die laasste 2 weke:

		Konstant	Gereeld	Selde	Glad nie
22	Pyn agv my wond	3	2	1	0
23	Ongelukkig oor hoe my bene lyk agv die wonde en verbande	3	2	1	0
24	Depressief agv die wonde op my bene	3	2	1	0
25	Sukkel om te loop agv die wonde op my bene.	3	2	1	0

Die wonde op my bene het my verhoed om die afgelope 2 weke die volgende te doen:

		Konstant	Gereeld	Selde	Glad nie
26	Om sosiale funksies by te woon	3	2	1	0
27	Om vriende en familie te ontmoet	3	2	1	0
28	Om op vakansie te gaan	3	2	1	0
29	Om stokperdjies te geniet	3	2	1	0
30	Om van vervoer gebruik te maak of om self te bestuur	3	2	1	0
31	Om deel te neem in fisiese aktiwiteite	3	2	1	0

Hoe WAAR is elk van die volgende stellings tov u wonde op u bene?

		Defnitief Waar	Waar	Nie seker	Vals	Defnitief Vals
32	My wonde maak my stadiger oor die algemeen	1	2	3	4	5
33	My wonde plaas spanning op persoonlike verhoudings	1	2	3	4	5
34	Die afskeidings/reuke van my wonde is ‘n probleem	1	2	3	4	5
35	My wonde verhoed my om daaglikse aktiwiteite te doen	1	2	3	4	5
36	Ek dink baie aan my wonde	1	2	3	4	5
37	My wonde verhoed my dat ek kan doen wat ek graag wil doen	1	2	3	4	5
38	Ek is bekommerd dat my wonde nooit sal genees nie	1	2	3	4	5
39	Dit pla my dat dit soveel tyd nee mom my wonde te versorg	1	2	3	4	5

Die verbinding van my bene is 'n probleem omdat:

		Groot probleem	Gemiddelde probleem	Klein probleem	Geen probleem
40	Lomp/groot verbande	1	2	3	4
41	Voorkoms van verbande	1	2	3	4
42	Dit beïnvloed die klere wat ek kan dra	1	2	3	4

Deel 3: Algemene geestestoestand

Dui asb aan hoe gereeld die volgende stellings van toepassing was die afgelope 2 weke met 3 as (konstant) tot 0 (glad nie):

		Konstant	Gereeld	Selde	Glad nie
43	Ek wil huil vir geen rede	3	2	1	0
44	Ek voel ongelukkig en neerslagtig	3	2	1	0
45	Ek voel bang vir geen spesifieke rede	3	2	1	0
46	Ek voel angstig en het paniek aanvalle	3	2	1	0
47	Ek sukkel met my geheue	3	2	1	0
48	Ek raak maklik onsteld	3	2	1	0
49	Ek voel vol energie en lus vir die lewe	3	2	1	0
50	Ek voel dof of traag	3	2	1	0
51	Ek sukkel om besluite te neem	3	2	1	0
52	Ek voel goed oor myself	3	2	1	0
53	Ek voel gespanne	3	2	1	0
54	Ek voel moeg en uitgeput	3	2	1	0
55	Om op te kom in die oggend is moeilik	3	2	1	0
56	Ek voel hopeloos en niks werd	3	2	1	0
57	Ek sukkel met konsentrasie	3	2	1	0
58	Ek staan uitgerus en vars op soggens	3	2	1	0
59	Ek is gelukkig en tevrede met my persoonlike lewe	3	2	1	0

		Konstant	Gereeld	Selde	Glad nie
60	Ek het negatiewe gedagtes	3	2	1	0
61	Ek het die lewe wat ek altyd wou hê	3	2	1	0
62	Ek pak my daaglikse take gewillig aan en maak maklik keuses	3	2	1	0
63	Ek kan ernstige probleme en veranderinge in my lewe maklik hanteer	3	2	1	0
64	Ek voel depressief	3	2	1	0

Deel 4: Persoonlike lewenskwaliteit

Ken punte toe op ‘n skaal van 1 (Totaal ontevrede) tot 5 (Heeltemal tevrede).

0 beteken nie van toepassing.

		Ontevrede			Tevrede		Nvt
65	Hoe tevrede is jy met jouself?	1	2	3	4	5	0
66	Hoe tevrede is jy met jou maat?	1	2	3	4	5	0
67	Hoe tevrede is jy met jou familie?	1	2	3	4	5	0
68	Hoe tevrede is jy met jou vriende?	1	2	3	4	5	0
69	Hoe tevrede is jy met die hoeveelheid tyd tot jou beskikking om dinge te doen?	1	2	3	4	5	0
70	Hoe tevrede is jy met die mense rondom jou?	1	2	3	4	5	0
71	Hoe tevrede is jy met jou inkomste?	1	2	3	4	5	0
72	Hoe tevrede is jy met jou sosiale lewe?	1	2	3	4	5	0
73	Hoe tevrede is jy met jou gesondheid?	1	2	3	4	5	0
74	Hoe tevrede is jy met jou algemene welstand?	1	2	3	4	5	0
75	Hoe tevrede is jy met jou lewe oor die algemeen?	1	2	3	4	5	0

76) Dink jy dat jy self in beheer is hoe jou lewe uitdraai? (1 glad nie tot 5 definitief) ☐

77) Hoe sien jy jouself oor 5 jaar? ____

____

Deel 5: Sosiale ondersteuning en lewens gebeurtenisse

78	Is jy afhanklik van ander vir jou daaglikse behoeftes?	Ja	Nee

Het jy die volgende gebeurtenisse ondergaan binne die afgelope 12 maande?

79	Afsterwe van wederhelf/ouer/kind	Ja	Nee
80	Afsterwe van ‘n naasbestaande	Ja	Nee
81	Ernstige siekte of ongeluk van ‘n naasbestaande	Ja	Nee
82	Egskeiding	Ja	Nee
83	Beïndiging van ‘n vriendskap of verhouding	Ja	Nee
84	Ernstige probleem met ‘n goeie vriend/ naasbestaande/ buurmense	Ja	Nee
85	Finansiëele krisis	Ja	Nee
86	Diefstal of verlies van ‘n item met persoonlike waarde	Ja	Nee
87	Traumatiese gebeurtenis (inbraak, “hijack”)	Ja	Nee
88	Verlies van werk	Ja	Nee
89	Ander traumatise of ontwrigtende gebeure	Ja	Nee

Op ‘n skaal van 1 (geen) tot 5 (baie), merk asb af soos op u van toepassing:

		Geen				Baie
90	Hoeveelheid goeie vriende	1	2	3	4	5
91	Mense met wie jy jou probleme kan deel	1	2	3	4	5
92	Ondersteuning van vriende/familie/ bure/ ander	1	2	3	4	5
93	Afhanklikheid van ander vir daaglikse behoeftes	1	2	3	4	5

Indien daar enige kommentaar tov u wonde is, deel dit asb met ons hier:

____

____

____

Baie dankie vir u ondersteuning

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QUALITY OF LIFE OF ADULTS WITH VENOUS LEG ULCERS

Abstract

Health related quality of life (HRQoL) refers to the impact of disease and treatment on disability and daily living. Living with a venous leg ulcer (VLU) has a negative impact on HRQoL. The aim of the present study was to investigate the aspects of HRQoL affected by VLUs in a local SA sample. A post hoc research design was utilised comparing 30 VLU patients and 30 non-VLU participants. Four hypotheses were investigated: (1) the experience of having a VLU on HRQoL, (2) the relation between gender and HRQoL of VLU patients, (3) the relation between age and HRQoL of VLU patients and (4) the interrelation between the underlying constructs of HRQoL of VLU patients. A structured questionnaire was used to obtain information on demographic variables and HRQoL using the SF-36 questionnaire. Interviews were conducted to obtain qualitative data to complete the investigation. Correlation analysis and t-tests confirmed that having a VLU negatively affected HRQoL, and that interrelations existed among the constructs of HRQoL. Pain appears to be the main factor affecting HRQoL. There were no significant relations between gender, age and HRQoL of VLU patients. In line with the social constructivist approach, social support and restructuring a sense of meaning in life to increase HRQoL, are important goals in the management of painful VLUs.

Keywords: HRQoL; VLU; pain; role function; general health; physical health; mental health; social function

1. Introduction

Having a venous leg ulcer (VLU) is regarded as a chronic illness (Husband, 2001). Chronic leg ulcers occur in a large majority of the population (Husband, 2001; Kurz et al., 2001), predominantly in the elderly (Ebbeskog, 2001; Lindsay, 2000). It is known as a condition of long duration (Nelzen, Bergqvist & Lindhagen, 1997; Ruckley, 1997) and has a major impact on a patient's health related quality of life (HRQoL) (Persoon et al., 2004; Ruckley, 1998). In a democratic world, where people have the right to live fulfilling lives, investigation of HRQoL is increasingly important.

It is widely accepted among healthcare professionals (Corbin & Strauss, 1988; Ebbeskog, 2001; Husband, 2001) that the individual needs of the VLU patient should be considered, and that a positive management outcome and increased QoL can be influenced by the VLU patient's insight into the severity of the condition. Unfortunately, little research has been done regarding the VLU patient's subjective needs and the extent to which the underlying constructs of QoL are affected. The aim of this study is to investigate a local sample in South Africa (SA).

A chronic leg ulcer is often defined as a wound below the knee, including the foot, which does not heal within six weeks (Bergqvist, Lindholm & Nelzen, 1999; Lindholm, Bjellerup, Christensen & Zederfeldt, 1993; Nelzen Bergqvist & Lindhagen, 1995; Nelzen, 1997). Symptoms include swelling and aching of the legs (Margolis, Knaus & Bilker, 2004). The condition is typically cyclical, with periods of healing followed by recurrence due to the underlying condition that remains (Bland, 1999; Ebbeskog, 2001; Husband, 2001; Kurz et al., 2001; Lindholm, 2002; Nelzen, 1997; Ruckley, 1998). Due to increased longevity, the number of patients requiring care is increasing (Bland, 1999; De Araujo, 2003; Lamping, Schroter, Kurz, Kahn & Abenhaim, 2003; Lindsay, 2000; Nelzen et al., 1997). A distinct relationship between age and the prevalence of leg ulcers has been observed (Lamping et al., 2003; Lindsay, 2000; Nelzen, 1997), while the relationship between the prevalence of VLUs and gender is less clear from the literature (Margolis, Bilker, Santana & Baumsgarten, 2002).

HRQoL refers to VLU patients' emotional, social and physical well-being, and their health related ability to function in the ordinary tasks of living (Ebbeskog, 2001). The underlying constructs of HRQoL consist of general health, physical health, mental health, role functioning, social functioning and pain (Ebbeskog, 2001; Kline, 2000; Stewart, Hays & Ware, 1988). Possible predictors for decreased HRQoL of VLU patients are increased pain (Bland, 1999; Hofman et al., 1997; Hyland, Ley & Thomson, 1994; Liew, Law & Sinha, 2000; Persoon et al., 2004; Pieper, Szczepaniak & Templin, 2000), decreased mobility (Mostow, Haraway, Dalsing, Hodde & King, 2005; Walters et al., 1999, as cited by Persoon et al., 2004), sleep disturbances (Hyland et al., 1994), decreased emotional well-being (Franks & Moffat, 1998; Margolis et al., 2004), social isolation (Bland, 1999; Lindsay, 2000; Phillips, Stanton, Provan & Lew, 1994; Pieper et al., 2000) and increasing financial costs (De Araujo, 2003; Harding, Morris & Patel, 2002; Kurz et al., 2001; Lamping et al., 2003; Lindsay, 2000; Phillips et al., 1994). A relevant measurement of HRQoL would therefore be one that covers all of the above constructs.

The main hypothesis to be tested was that the experience of having a VLU has a negative impact on all constructs of HRQoL. In addition hypothesis two included testing for a relation between the HRQoL of males and females with VLUs. Hypothesis three stated a relation between age and HRQoL of patients with VLUs, followed by hypothesis four that focused on the interrelation between the underlying constructs HRQoL of patients with VLUs.

2. Methodology

Measurement of a VLU patient's HRQoL is difficult (Ebbeskog, 2001). The present study utilised both qualitative and quantitative methods of data collection.

Qualitative data was collected by means of informal interviews and the information was grouped according to themes. This provided a subjective understanding of VLU-related HRQoL and served to complement the questionnaire. Quantitative instruments for determining HRQoL should include multiple health concepts and a range of health states pertaining to general functioning and well-being (Ebbeskog, 2001; Kline, 2000; Smith, Guest, Greenhalgh & Davies, 2000; Stewart et al., 1988), while adhering to conventional standards of reliability and validity (Stewart et al., 1988). Research has shown that the Short Form 36-item (SF-36) Health Survey is a well-validated generic measure of health status (Ebbeskog, 2001; Kurz et al., 2001; Smith et al., 2000) and it has previously been used in SA (Westaway, Rheeder, Van Zyl & Golele, 2000). The SF-36 has been translated for use in more than 40 other countries, including South Africa (Ware & Sherbourne, 1992). The questionnaire was translated into Afrikaans by the researcher and checked for clarity by Doctor Frans Cronje. The use of the SF-36 questionnaire was regarded as most suitable for identifying the relevant underlying constructs of HRQoL (Brem, Kirsner & Falanga, 2004; Cali & Bruce, 1999; De Araujo, 2003; Lindsay, 2000; Margolis et al., 2004; Mostow et al., 2005; Volkers et al., 2004).

2.1 Study population

Since elderly people experience VLUs more frequently than younger individuals, (Ebbeskog, 2001; Lindsay, 2000; Lamping et al., 2003; Nelzen, 1997), the questionnaire was administered to 30 VLU patients and 30 non-VLU participants, aged between 50 and 90 years (Ebbeskog, 2001; Lindsay, 2000; Lamping et al., 2003; Nelzen, 1997). Inclusion criteria for the VLU group were an established history of VLUs of at least six months, with or without healing or recurrence. Exclusion criteria were VLU patients with a diagnosis of VLUs at age younger than 50 years. The non-VLU group included participants with no serious illness other than diabetes, hypertension/heart problems and arthritis, (illnesses present in the VLU group).

2.2 Research design

A post hoc design was used, comparing the HRQoL of VLU patients with a non-VLU group, similar in age range, gender composition, socio-economic status and geographical vicinity. The study was undertaken at several wound care clinics in Pretoria, including Unitas Hospital, Meulmed Hospital, Loftus Wound Care Clinic, Eugene Marais Hospital, Kloof Hospital and Montana Clinic. The treating nurses were present during the interviews and questionnaire completion of the VLU patients. Non-VLU participants completed the questionnaires at their homes.

2.3 Procedure

A list of VLU patients was obtained from the abovementioned participating clinics. Both groups were contacted to request participation in the study, to explain the purpose of the study and to set up an appointment for the interviewing and questionnaire completion. During the first meeting, the participants were introduced to the researcher and the purpose of the study was explained again. The researcher administered the questionnaire and interviews during the patients' treatment sessions over a six-month period (July-December 2005). Participants were required to sign a consent form indicating voluntary participation and their rights to confidentiality, anonymity, and withdrawal from the study. The researcher was responsible for the questionnaires and interviews, as well as the quality of data collection. Approval for the study was obtained from the ethics committee of the Department of Psychology at Unisa.

2.4 Demographic information

Although the present study was not conducted across different cultural settings, several demographic questions were added to ensure a more comprehensive and VLU-specific questionnaire.

Information was obtained on factors that could impact HRQoL such as age, gender, education, language, relationship status, living status, occupational status, dependency status, psychiatric condition, current mood, medication use and other long-standing illness or disabilities (Westaway et al., 2000). This ensured more inclusive information for hypotheses testing.

3. Results

The VLU sample size was limited by the availability of patients with VLUs during this period and consisted of 11 males and 19 females. The non-VLU sample consisted of 12 males and 18 females, which is very similar to the VLU group.

The average age of the VLU group (average age = 71,27, sd= 10,82) differed significantly from the non-VLU group (average age = 77,80, sd= 6,48; t (47,41)= -2,84, p=0,01), with the non-VLU group the significantly older group. The majority of the VLU patients (80%) were pensioners and only 20% of the VLU patients were still employed. The whole non-VLU group was unemployed or on pension, which may be related to their age group. Educational levels of both groups ranged between grade 8 and grade 12. Both groups had similar post-school qualifications. The majority (80%) of both groups spoke Afrikaans as their first language, and the remaining 20% spoke English as their first language. It was therefore evident that both groups were able to understand either the Afrikaans or English questionnaire.

There was a significant difference between the groups in terms of relationship status (i.e. are you in a relationship? yes, no) with more VLU patients in a relationship (yes =18, no =12) than the non-VLU participants (yes =17, no =13; t (23,11)=-4,42, p=0,00). Whereas 27% of the VLU patients lived alone, only 17% of the non-VLU group lived alone, but the difference was not significant.

Although the groups had similar amounts of contact with friends, there was a significant difference between the VLU and non-VLU groups in contact with relatives per week, with the VLU patients (M=4,47, sd=2,29) having more contact with relatives than the non-VLU participants (M=2,97, sd=0,96; t (39,01)=3,31, p=0,02).

3.1 Health profile

The entire VLU group had long-standing illnesses or disabilities other than VLUs, compared to 60% of the non-VLU participants who had other illnesses. These illnesses included hypertension or heart related illnesses, diabetes and arthritis. Diverse conditions such as osteoporosis and cancer, accounted for the remaining illnesses. This confirmed that it is likely for individuals with VLUs to have other illnesses (as listed above), contributing to a decrease in HRQoL (Margolis et al., 2004).

Very few participants had a family history of depression or other psychiatric conditions. The majority (77%) of the non-VLU group described their mood as happy, whereas only 40% of the VLU group described their mood as happy. Neutral mood was indicated by 40% of the VLU group and 23% of the non-VLU group. None of the non-VLU group described their mood as down, compared to 20% of the VLU group. The difference in mood status was significant with more VLU patients (M=1,80, sd=0,761) describing their mood as neutral than the non-VLU participants (M=1,23, sd=0,43; t (45,81)=3,56, p=0,01). There were also significant differences in alcohol consumption. More VLU patients (yes=14, not at all =16) used alcohol than non-VLU participants (yes=6, not at all =24; t (55,38)=-2,25, p=0,01).

Comparing the two groups regarding their health profile, they were very similar in most respects, except that the VLU group indicated decreased mood levels, increased alcohol consumption and a greater incidence of other illnesses.

3.2 Reliability of the scale

To test the reliability of the scale, only the VLU groups' scores were used. The Cronbach coefficient of the scale was 0,914, which can be interpreted as an excellent reliability coefficient (Arias & de Vos, 1996). All corrected total correlation coefficients of the subscales exceeded the criterion of ≥ 0,40 and ranged from 0,498 to 0,908. Each alpha value decreased when subscales were excluded or deleted from the scale, except the subscale that measured pain. A possible methodological reason for this result could be the fact that the pain subscale only consisted of one item. The present study confirmed the reliability of the SF-36, as reported in other studies (Kline, 2000; Smith et al., 2000; Stewart et al., 1988; Ware & Sherbourne, 1992).

3.3 Comparison of VLU and non-VLU groups' HRQoL

All items in the SF-36 questionnaire were treated as equally important (equal weight scores), by converting raw scores to standard scores according. The data obtained from the SF-36 were transformed to global scores between 0 and 100 to an equation suggested by Stewart et al. (1988), with zero indicating the least interference with HRQoL and 100 indicating the most interference with HRQoL. It follows that the lower the score, the better the HRQoL . Scoring options of some of the questions in SF-36 had to be reversed.

An independent t-test was conducted to compare the groups' scores, with definite differences noted. T-tests for unequal variances were used because the scores were not normally distributed (p>0,05) and variances were not equal (p>0,05).

The non-VLU group obtained much lower scores on all of the underlying constructs of HRQoL than the VLU patients, therefore indicating a better HRQoL than the VLU group. There was a large range in the VLU patients' scores (see Table 1), indicating the variation in the degree of affected underlying constructs. This was not true for pain, with a range of only 33,33, and a minimum score of 66,67, indicating that all VLU patients experienced a considerable amount of pain, more or less to the same degree. The maximum score of the non-VLU participants' pain construct was equal to the minimum score of pain of the VLU patients. It was evident that pain was a very prominent factor in the VLU patients' lives.

There was a significant difference between general health scores for VLU participants (M=61,31, sd=17,37) and the non-VLU participants (M=47,26, sd=6,41; t (36,5)=4,16, p=0,00). The magnitude of the differences in the means (eta squared) was 0,23. Therefore, 23% of the variance in general health, including fatigue levels, sleep problems, psychophysiological symptoms, health perceptions (Hays & Stewart, 1990), was explained by VLUs (more specifically, VLU group membership). The mean score of the non-VLU group indicates that they also experienced poorer general health but to a lesser extent (Figure 1). This is likely to be age-related, as described by Harper (1991).

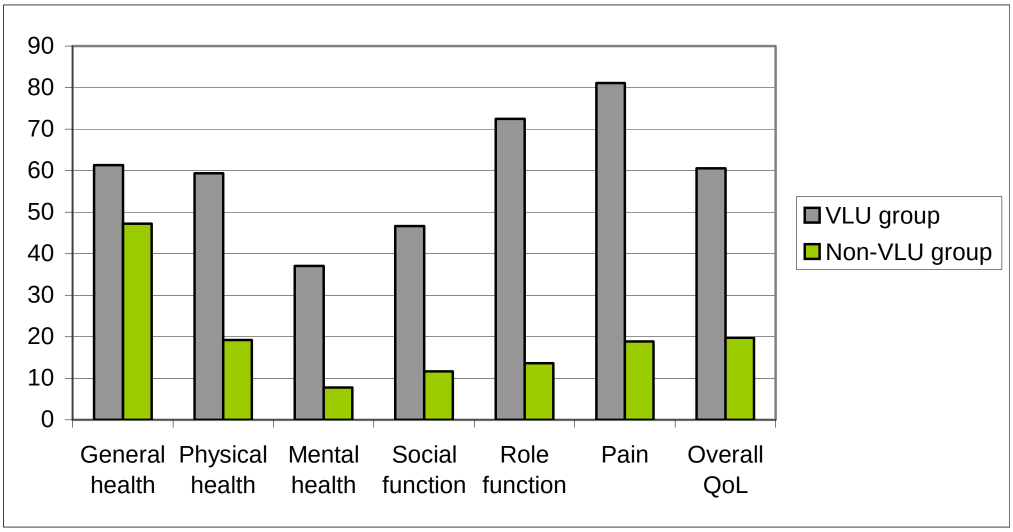
There was a significant difference between physical health scores for VLU participants (M=59,39, sd=29,44) and non-VLU participants (M=19,20, sd=11,65; t (28,00)=10,86, p=0,00). The magnitude of the differences in the means was 0,67. VLUs pose a threat to physical health and loss of mobility (Lindsay, 2000, Margolis et al., 2004, Mostow et al., 2005; Pieper et al., 2000; Price & Harding, 1996) and this present study confirmed that 67% of the variance in physical health was explained by having VLUs.

Table 1: Comparing scores of the underlying constructs of VLU patients and the non-VLU group

N=30	**Range**		**Minimum**		**Maximum**		**Mean**		**Std. Deviation**	
	VLU	**Non-VLU**	**VLU**	**Non-VLU**	**VLU**	**Non-VLU**	**VLU**	**Non-VLU**	**VLU**	**Non-VLU**
General health	78,57	21,43	10,71	39,29	89,29	60,71	61,30	47,26	17,37	6,41
Physical health	100,00	44,44	0,00	0,00	100,00	44,44	59,38	19,26	29,43	11,65
Mental health	88,89	33,33	0,00	0,00	88,89	33,33	37,03	7,78	30,51	10,17
Social function	100,00	40,00	0,00	0,00	100,00	40,00	46,66	11,67	33,97	10,85
Role function	100,00	33,33	0,00	0,00	100,00	33,33	72,50	13,61	28,37	11,26
Pain	33,33	66,67	66,67	0,00	100,00	66,67	81,11	18,89	16,80	22,63
Overall HRQoL	73,28	25,45	23,08	7,14	96,36	32,59	60,55	19,74	21,09	6,46

According to MacHale (2002), depression and decreased HRQoL are more common in patients with physical illness. This finding was not confirmed by the results of the present study that showed that both groups obtained the lowest average score for the mental health construct in relation to the other constructs. There was a significant difference between mental health scores for VLU participants (M=37,04, sd=30,51) and non-VLU participants (M=7,78, sd=10,17; t (35,37)=4,89, p=0,00). The magnitude of the differences in the means (eta squared) was 0,29. Therefore 29% of the variance in mental health, which can include depression, fear, anger and anxiety (Phillips et al., 1994; Pieper et al., 2000; Price & Harding, 1996), was explained by having VLUs.

Figure 1: Comparing mean scores of underlying constructs of VLU patients and the non-VLU group



In this context, social functioning referred to social activities and interaction with family members, friends and neighbours. There was a significant difference between social functioning scores for VLU participants (M=46,66, sd=33,97) and non-VLU participants (M=11,67, sd=10,85; t (29,00)=7,52, p=0,00). The magnitude of the differences in the means was 0,49. Therefore, 49% of the variance in social functioning was explained by having VLUs, which can lead to adversely affected relationships and a sense of isolation (Phillips et al., 1994; Pieper et al., 2000; Price & Harding, 1996).

Role function described aspects relating to fulfilling one's role in the community (Hays & Stewart, 1990; Laing, 1992). There were significant differences in role functioning scores between VLU participants (M=72,5, sd=28,38) and non-VLU participants (M=13,61, sd=11,26; t (29,00)=13,99, p=0,00). The magnitude of the differences in the means was 0,77. The finding that problems with performing basic tasks increased VLU patients’ dependence on others (Price & Harding, 1996; Pieper et al., 2000) was confirmed by the present study’s finding that 77% of the variance in role functioning was explained by having VLUs. Therefore the results of this local SA study confirmed the findings in the literature that living with VLUs have a detrimental effect on patients' execution of roles in their daily lives (Mostow et al., 2005).

When scores for the pain construct were considered, the non-VLU group’s maximum score for pain was equal to the minimum score for pain of the VLU patients. There was a significant difference between pain scores for VLU participants (M=81,11, sd=16,80) and non-VLU participants (M=18,89, sd=22,63; t (29,00)=26,44, p=0,00). The magnitude of the differences in the means was 0,92. It was clear that a large amount (92%) of the variance in pain experienced was explained by having VLUs.

4. Discussion

4.1 Themes emerging from the qualitative study

Major themes that emerged from the interviews seemed to be linked to the way these VLU patients regarded themselves, as created by their own feelings and experiences. The three themes that emerged, namely (i) freedom vs. imprisonment, (ii) gain vs. loss, and (iii) hope vs. despair, encapsulated distinct categories associated with their HRQoL. The respective categories were (i) emotional consequences of an altered body image, and living a restricted daily life (ii) gaining well-being despite dealing with a painful wound and loss of time and (iii) the struggle between hope and despair during a lengthy healing process. These are the meanings in their worlds, in terms of how their ideas and attitudes were developed over time within the social and community’s context.

Themes identified in the interviews linked to all six underlying constructs of HRQoL as measured by the SF-36, specifically pain. Patients found it difficult to fulfill their roles and revealed that they tried to carry on with a purposeful live despite the pain that leads to physical and emotional limitations. Feelings of imprisonment were strengthened by disrupted sleeping patterns, as pain interrupted sleep at night, causing them to rest during the day. A general conclusion may be that patients experienced time only filled with pain.

4.2 The impact of VLUs on HRQoL

In comparison, the two groups were very similar in most respects of their health profile and it is therefore possible that living with VLUs was the main reason for the differences in relationship status, contact with friends, mood ratings and alcohol consumption.

The results of the present study confirm that the experience of living with a VLU has a negative impact on all constructs of HRQoL, as stated in hypothesis one. Using the scores of the non-VLU group as baseline, VLU participants' construct most affected due to VLUs in descending order was pain (92%). The intense pain may be the reason for not being able to fulfill their role function (77%). Role function and physical health (67%) are closely related and may result in a decreased social functioning (49%) affecting overall mood, attitude and mental health (29%), which further reflects negatively on their general health (23%). Investigation of the relations among the six constructs yielded significant correlations, indicating that the constructs are interrelated, but less so for pain, as expected due to the presence of the VLUs.

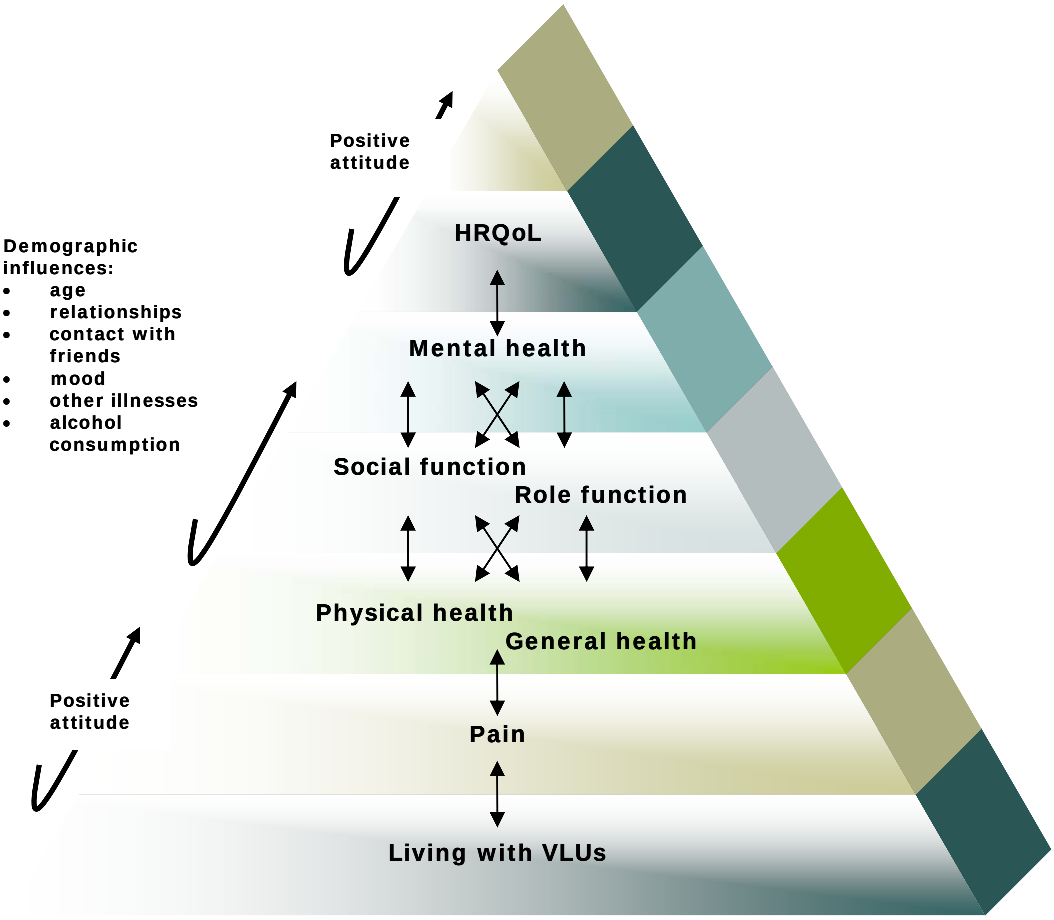
Pain correlated strongly with general health and physical health, and less with mental health and social health. As expected, these results suggest that pain was more related to physical inability and general health and indirectly related to mental health and social functioning. Role function was affected by physical health rather than pain as such. Results suggest that effects are not isolated. Having a VLU penetrates different aspects of life, some more than others.

Suffering from VLUs is commonly associated with pain, and therefore the 92% of the variance in pain explained by having VLUs was expected. But the variance in role functioning might indicate the considerable effect that VLUs and associated physical limitations have on performing routine daily activities and roles, resulting in an increased VLU patients' dependence on others. This may be linked to the inability to fulfill their role in society, and the physical inability that limits their social interaction. This may lead to feelings of isolation, described during the interviews, initiating further negative feelings of hopelessness and remorse. This might form a vicious cycle from which they cannot escape.

Results of the present study showed that there was no significant difference between male and female overall HRQoL scores, as stated in hypothesis two. This may be because of the small number of participants in the present study. Although there are some reports in the literature that female VLU patients generally appeared to have poorer HRQoL than male VLU patients, (Franks & Moffat, 1998), there is no consensus regarding this relationship (Lindholm et al., 1993; Margolis et al., 2002; Persoon et al., 2004; Phillips et al., 1994), and this was confirmed by the present study's results.

Having a VLU penetrates different aspects of life and therefore encouragement, support and guidance to overcome constant thoughts of pain and to deal with the emotional aspects of pain may initiate a more positive attitude towards this reality, impacting upon the other interrelated constructs as illustrated in Figure 2. Results suggest that effects of living with VLUs are not isolated and management should include a combination of different approaches.

Figure 2: The impact of VLUs on HRQoL



5. Limitations

A number of limitations of the present study should be acknowledged. These relate to language use, cultural and racial limitations, wound classification, and methodological concerns.

The study had cultural and racial limitations in the sense that only white VLU patients participated in the study. Future research could benefit from including VLU patients from settings or contexts other than these clinics, as well as the exclusion of other variables like hypertension and diabetes. Limited information regarding ulcer size, type, duration and other relevant variables may also limit the interpretation of the research outcomes. The small sample size raises issues of statistical power. The group of ulcer patients was not a random sample and might not have accurately reflected the responses of elderly VLU patients in general. Because of the scope of the present study, only a small number of VLU patients were included. Diverse reactions of different individuals to the same circumstances were not measured in the present study.

However, despite these limitations it seems useful to view the present research as a pilot study in a neglected area of healthcare research and in that sense may offer a number of tentative generalisations.

6. Future recommendations

The findings of this study illustrate the need for further research to discover the needs of persons receiving treatment for active ulceration and in particular, their needs regarding care of painful VLUs.

Chronic pain creates a major public health problem that impacts negatively on HRQoL issues and healthcare costs. Pain severity accounts for more than one-fourth of the variance in physical disability in those older than 65 years (Frohlich & Shipton, 2007). Healthcare in SA does not recognise chronic pain as a separate medical entity (Frohlich & Shipton, 2007), therefore it is recommended that nurses and relatives should realise the importance of their role in the VLU patient's life.

Collaboration between theory and practice could promote knowledge and skills for VLU management. It can also provide a centre in SA for nurses and educators to develop skills in VLU management and increase good practice, based on nursing care research (Harding et al., 2002). In the long term, these measures may lead to less suffering and more cost-effective care for the VLU patient.

The present study showed the importance of seeing the unique human being filled with emotions and not only a patient with a painful wound, requiring medical treatment. It is important to help the patient to acknowledge the reality of suffering from VLUs, identify the affected constructs, set appropriate goals and assist with continuing support.

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