

## Health-related quality of life in patients with chronic leg ulcers in a developing country

Ganiyu Oyediran Oseni,<sup>1</sup>  
Cletus Ikechukwu Otene,<sup>2</sup>  
Peter Babatunde Olaitan,<sup>1</sup>  
Adesina Ajibade,<sup>3</sup> Olawale Adebayo  
Olakulehin,<sup>3</sup> David Adekunle Onilede<sup>4</sup>

<sup>1</sup>Burns and Plastic Surgery Unit, Ladoke Akintola University of Technology Teaching Hospital, Osogbo, Osun State; <sup>2</sup>Department of Surgery, Delta State University, Abraka, Delta State; <sup>3</sup>Orthopaedic surgery Unit, Ladoke Akintola University of Technology Teaching Hospital, Ogbomoso, Oyo State; <sup>4</sup>Burns and Plastic surgery Unit, Ladoke Akintola University of Technology Teaching Hospital, Ogbomoso, Oyo State, Nigeria

### Abstract

Poverty with inadequate care prolongs duration of ulcers healing with attendant complications. The impact of this on the quality of life of patients in an economic depleted environment needs to be evaluated. Quality of life of patients with chronic leg ulcers was assessed using validated Cardiff wound impact schedule questionnaires in two teaching Hospitals in Nigeria. The result was analyzed using SPSS Version 17 with frequencies and means. Post traumatic ulcers were the most common cause of chronic leg ulcers (33.7%), followed by diabetes mellitus (31.3%), venous ulcers (16.9%), and sickle cell ulcers (4.8%). Tropical ulcers and others like vasculitis and chronic osteomyelitis accounted for 13.3%. The ulcers have deleterious effects on the patients' occupation, finances, mobility and social interaction with negative self-image. All the symptoms assessed significantly correlated with overall quality of life (QoL). However, physical symptoms dimension is the most highly correlated with QoL score, followed by social life dimension. The least correlated is well-being dimension. Symptoms associated with chronic leg ulcer tend to have negative impact on quality of life of these patients. Therefore, these should be borne in mind and incorporated in the management of these patients.

### Introduction

Skin ulcers on the legs have a chronic, relapsing course and are often a significant management challenge. Highly exuding wounds are common, can result in mal-odour, pain, maceration, infection and unsightly soiled dressings, which can have a negative impact on an individual's quality of life.<sup>1</sup> It has been observed that despite appropriate treatment of underlying pathologies and wound care practice, a significant proportion of chronic wounds still fail to heal.<sup>2</sup>

Patients with chronic leg ulcers, therefore, have significantly more pain, more restrictions regarding social functions, less vitality, and limitations with respect to emotional roles compared to the respective controls. Other problem areas which have been identified include restrictions in work capacity, recreation, social interaction, psychological well-being, as well as problems caused by treatment regimens.<sup>3</sup> The treatment of chronic leg ulcers remains a big burden to the patients especially in Nigeria, due to the inadequate facilities and materials for care, leg ulcers being a chronic disease that demands a long duration of treatment, with materials that are expensive but have to be purchased by the poor patients, who most of the time could not afford them. Unfortunately, again, practice of health insurance is often poor in most of the developing countries and patients have to pay out of pocket for their care. Often, many resorts to unorthodox method of care which further prolongs the healing period and make the patients susceptible to complications and loss of job and social interaction. The current study is aimed at assessing the impact of chronic leg ulcers on the quality of life of these patients using structured questionnaires and Cardiff wound impact schedule as the instruments of assessment and to identify the factors responsible for reduction in quality of life.<sup>4</sup> This would be used as a basis for organizing health education and proper planning for the management of leg ulcer patients in our society.

### Materials and Methods

This was a cross sectional study of chronic leg ulcer patients who presented to the Plastic surgery units of Ladoke Akintola University of Technology Teaching Hospital, Osogbo, Nigeria and Delta state University, Asaba, Nigeria between August 2012 and August 2013. All adult patients who presented with chronic leg ulcers and who consented to be involved in this study were recruited following ethical approval

Correspondence: Ganiyu. Oyediran Oseni, Burns and Plastic Surgery Unit, Ladoke Akintola University of Technology Teaching Hospital, Osogbo, Osun State, Nigeria. Tel.: +2348032950477 E-mail: oseniayediran@yahoo.co.uk

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from Ladoke Akintola University of Technology, College of Health Sciences Institution Review Board. Patients with leg ulcers that persist for more than six weeks and show no tendency of healing after 3 or more months are considered chronic ulcers. All patients above 16 years presenting with leg ulcers of more than six weeks duration and consent to take part in the study are included whereas, patients that are less than 16 years, refused to give consent or have incomplete questionnaires are excluded from the study.

Structured questionnaires and Cardiff wound impact schedule were administered to the patients over the period. The questionnaires documented the Bio-data, types of ulcers, effects of ulcers on the patients, as well as quality of life of the patients. The

Cardiff wound impact schedule (CWIS), which has been validated in Nigeria, measures three dimensions, namely: physical symptoms and daily living, social life and well-being. Data analysis was performed with SPSS Version 17. Frequencies and percentages were calculated. Response categories were scored from 1 (the least desirable) to 5 (the most desirable) ranging from *Always to Not at all*, *Very to Not at all* and *Strongly agree to Strongly disagree* for the physical symptoms and daily living, social life and wellbeing dimensions respectively. The scores were summed to obtain quality of life score for each dimension and an overall quality of life score from the sum of all dimension scores. In accordance with the number of items in each dimension the range of total obtainable score was 7-35 for the social life and wellbeing dimensions, 12-60 for the physical symptoms and daily living dimension and 26-130 for the overall quality of life score.

## Results

A total of 83 patients with chronic leg ulcers were involved attending the surgical outpatient clinic or admitted into the two hospitals were involved in this study. Their ages ranged between 18 and 83 years (mean of  $45.46 \pm 17.45$  years). Patients of less than 40 years of age was the most commonly affected (36, 43.4%), followed by age range 40-64 years (34, 41.0%) while patients 65 years and above were 13 (15.7%).

### Socio demographic characteristics

There were 50 (60.2%) males and 33 (39.8%) females. Their ages ranged between 18 and 83 years (mean of  $45.46 \pm 17.45$  years). Fifty-seven (68.7%) of the patients were married, 23 (27.7%) were single, 3 (3.6%) were divorced. Thirty-five (42.2%) of them were traders/businessmen and women, 12 (14.4%) were artisans, 10 (12.0%) each were students and unemployed/retirees, 6 (7.2%) were civil servants, 4 (4.8%) farmers, 3 (3.6%) teachers and 3 (3.6%) were clergy men (Table 1).

### Etiology and duration of ulcers

Post-traumatic ulcers constitute the largest subgroup 28 (33.7%), followed by diabetic leg and foot ulcers 26 (31.3%) of the patients. Venous ulcers 14 (16.9%), sickle cell and malignant ulcers with 4 (4.8%) each, tropical and other ulcers like vasculitis, rheumatoid arthritis, chronic osteomyelitis constitute about 7 (8.5%). Ulcers involved only the left legs in 37 (44.6%), right leg alone in 36 (43.4%) and both legs in 10 (12.0%) (Table 1).

Ulcers' duration showed that 41 (49.4%) were present for less than one year, 24 (28.9%) for 1-3 years, 8 (9.6%) for 4-10 years and 10 (12.0%) for more than 10 years.

### Socio-demographic characteristic of leg ulcers

While 8 (9.6%) of the patients did not have any formal education, 26 (31.3%) had primary education, 33 (39.8%) had secondary education, and 16 (19.3%) had up to tertiary education. Only 15 (18.1%) of the patients lived alone, while 68 (81.9%) of them lived with other people in the house. Twenty-two (26.5%) of the patients lived in one room apartment, 57 (68.7%) lived in flats, while 4 (4.8%) lived in duplex houses. Location of their habitation revealed 12

(14.5%) lived in villages, 71 (85.5%) lived in major towns or urban areas (Table 2).

### Physical symptoms dimension

Only 19 (22.9%) of the patients did not have their sleep disturbed while the others have a range of disturbance to their sleep. Forty-four (53.0%) of the patients were ambulant, 23 (27.7%) had their mobility slightly hindered while 16 (19.3%) of them were bedridden (Table 3).

Pain was the most common symptom (62 or 74.7%) reported among the patients with 26 (31.3%) having only pain while 36 (43.4%) others have pain in addition to other symptoms. Other symptoms include exudation, only 13 (15.7%), exudation with other symptoms, 26 (31.3%); depression interested only 3 respondents (3.6%), while

**Table 1. Socio-demographic characteristic of leg ulcers.**

Factors	Frequency (n)	Percentage (%)
Sex		
Male	50	60.2
Female	33	39.8
Marital status		
Married	57	68.7
Single	23	27.7
Divorced	3	3.6
Occupation		
Trading	35	42.2
Artisan	12	14.4
Schooling	10	12.0
Unemployed	10	12.0
Civil service	6	7.2
Farming	4	4.8
Teaching	3	3.6
Clergy	3	3.6
Education		
None	8	9.6
Primary	26	31.3
Secondary	33	39.8
Tertiary	16	19.3

**Table 2. Socio-demographic characteristic of leg ulcers.**

Factors	Frequency (n)	Percentage (%)
Habitation		
Live alone	15	18.1
Live with family member	68	81.9
Nature of house		
One room apartment	22	26.5
Flat	57	68.7
Duplex	4	4.8
Location of habitation		
Village	12	14.5
Major town/cities	71	85.5
Type of ulcers		
Diabetes mellitus	26	31.3
Traumatic	28	33.7
Venous	14	16.9
Sickle cell	4	4.8
Tropical ulcers and others like infective ulcers, Vasculitis and Osteomyelitis	11	13.3

depression in addition to other symptoms was reported by 26 (31.3%). Insomnia only was reported by 1 (1.2%) patient and in addition to other symptoms by 18 (24.1%) patients (Figure 1).

Leakage from the wound and difficulty from bandaging/dressing were only absent among 8 (9.6%) of the patients while all the rest have leakages and difficulty from bandaging at varying degrees. Unpleasant odor or smell from the wounds was reported by 73 (88.0%) of the patients while varying degree of problems from everyday task such as shopping was reported by 55 (66.3%) of the patients. Difficulty in finding appropriate foot wear was reported by 50 (60.2%) while only 33 (39.8%) reported having no such difficulty.

Problems with the amount of time needed to care for the wound site was reported to be absent only by 11 (13.2%) while the remaining 72 (86.7%) reported varying degrees of problem with the amount of time needed to care for the wound. Finally, financial difficulty as a result of the wound was reported as absent by only 38 (45.8%) of the patients. Seventy-one (85.5%) of the patients reported that the leg ulcers affect their job and indeed 54 (65.1%) of the patients have lost their jobs at one time or another because of the leg ulcers (Table 3).

Sixty-one (73.5%) of the leg ulcers' patients have had the ulcers affecting their finances and 67 (80.7%) found the ulcers burdensome. Only 16 (19.3%) of the patients never got angry about the ulcers while only 21 (24.1%) never had fear concerning the ulcers. Sixty-one (73.5%) of the patients have one level of social isolation or another while 44 (53.1%) of the patients have some forms of depression and 59 (71.1%) have varying levels of negative self-image.

### Social life dimension

Sixty-nine (83.1%) of the patient reported varying level of difficulty in getting around while 14 (16.9%) never had any such difficulty (Table 4). Sixty-eight (81.9%) of the patients relied more on others while 15 (18.1%) never had to rely on anybody. Family and friends were reported as being protective among 63 (75.9%) while 20 (24.1%) of the patients reported there was no such protection from the family/friends. Fifty-eight (69.9%) of the

patients also reported being unable to enjoy their usual social life while 25 (30.1%) gave a contrary report. Desire to withdraw from people was the most commonly reported social life dimension among 67 (80.7%) of the patients while only 6 (7.2%) did not report any such desire (Table 4).

Finally, the mean social life dimension was 19.786.29 with a minimum of 7 and a maximum of 32. The mean well being dimension was 19.98±3.47 with a minimum of 8 and maximum of 27 while the mean

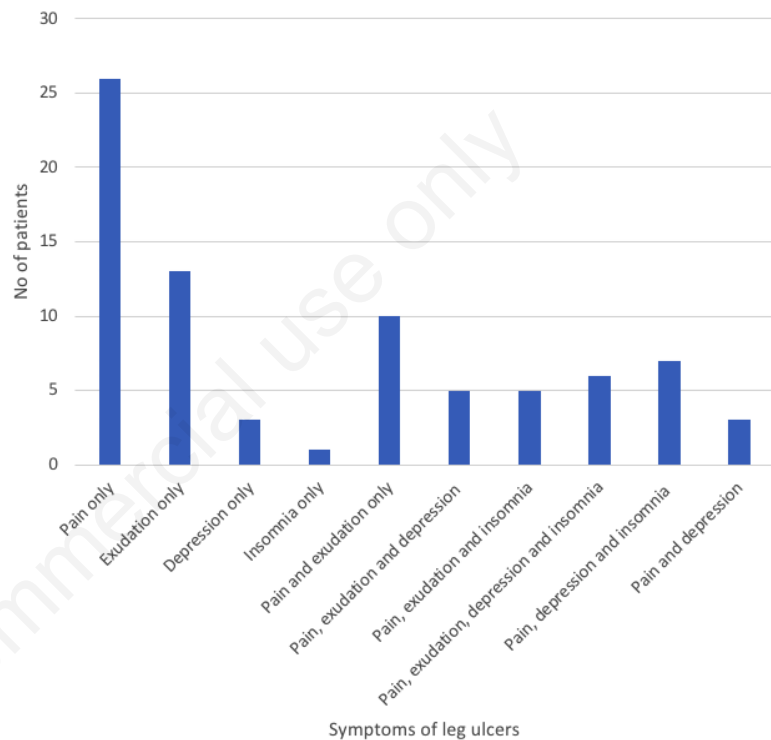


Figure 1. Symptoms associated with leg ulcers.

Table 3. Physical symptoms and daily living.

How stressful has it been for you in the last seven days	Always	Frequently	Sometimes	Seldom	Not at all
Disturbed sleep	19	13	17	15	19
Difficult bathing	26	13	14	8	22
Immobility outside the home	40	9	9	9	16
Immobility around the home	33	15	13	4	18
Leakage from the wound	24	29	15	7	8
Associated pain	61	9	8	5	0
Difficulty from bandaging/dressing	35	21	10	9	8
Unpleasant odour from wound site	44	15	9	5	10
Problem from every day task e.g. shopping	23	16	5	11	28
Difficulty in finding appropriate foot wear	24	10	8	8	33
Problem with amount of time needed for care of the wound	28	21	13	10	11
Financial difficulty from the wound	12	8	14	11	38

physical symptoms dimension was 31.26±9.43 (minimum 15 and maximum 53). Overall, mean quality of life score was 71.02±9.43 with a minimum of 42 and maximum of 98. All the three dimensions are significantly correlated with overall quality of life (QoL) score. However, physical symptoms dimension is the most highly correlated with QoL score, closely followed by social life dimension. The least correlated is well-being dimension.

Age does not have a linear relationship with overall quality of life score. Attempts at transformation (log, reciprocal, square root, power) were made, but non-linearity persisted. Consequently, age was categorized so that it could be included in the multiple linear regression model.

There was a lack of linear relationship between over-all quality of life score and age. This is further depicted in the scatter plot (Figure 2).

### Discussion

Chronic leg ulcers are a major challenge in the developing world. Often, patients carry these ulcers over a very long period with devastating morbidity and loss of man hour to the care of the ulcers and to the associated morbidity. Chronic leg ulcer impacts the quality of life in a number of ways such as reduced mobility, pain, unpleasant odor, sleep disturbances, social isolation, among others.<sup>5</sup> In developing countries like Nigeria, chronic leg ulcers are commonly seen among the populace who have not treated the ulcers properly as a

result of poor understanding, poor facilities and poverty.

There are few reports in the literature on the effect of chronic leg ulcers and its associated problems on the quality of life of patients in the developing countries like Nigeria. Leg ulceration is a common, chronic, recurring condition and chronic leg ulcers are major health problem in Western countries. The treatment of chronic leg ulcers remains a formidable challenge in many patients. This often leads to reduction

in health-related quality of life and physical activities apart from the financial burden on the family.

The current study evaluated the health-related quality of life of patients with leg ulcers. These patients cut across different socio-economic, professional and educational strata (Table 1). Traumatic ulcers (33.7%) were the most common form of leg ulcers in this study. This is similar to previous reports by Rahman and Shukla.<sup>6,7</sup> This may be as a result of low incidence of vas-

Scatterplot of overall quality of life score of patients against age of patients

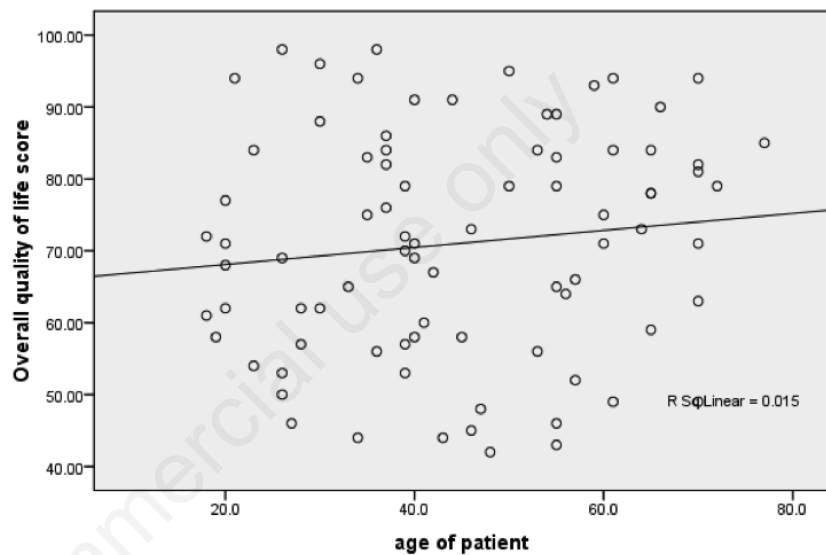


Figure 2. Scatterplot of overall quality of life score of patients against age of patients.

Table 4. Social life dimension and wellbeing.

How stressful has it been for you in the last seven days	Very	Quite a bit	Moderately	Slightly	Not at all
<b>Social life dimension</b>					
To get out and around	26	19	11	13	14
Relying more on others	27	11	22	8	15
Family/friends over protective	16	15	12	19	20
Unable to enjoy your usual social life	14	11	17	16	25
Limited contact with family/friends	16	16	24	10	17
Not going out for fear of bumping your wound site	20	17	22	11	13
Wanting to withdraw from people	31	18	18	10	6
<b>Well-being</b>					
	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
I feel anxious about my wound	6	11	55	10	1
I feel frustrated with the time it is taking for the wounds to heal	9	14	47	12	1
I am confident that the wounds I have will heal	4	12	62	5	0
I worry that I may get another wound in future	17	19	20	27	0
The appearance of the wound site is upsetting to me	8	11	42	22	0
I worry about bumping the wound site	11	11	35	24	2
I worry about the impact of the wound(s) on my family/friends	6	6	58	10	3

cular diseases and high incidence of vehicular accident and other traumatic injuries in the developing countries. This is followed by diabetic leg and foot ulcers (31.3%).

It has been observed that a significant proportion of chronic wounds fail to heal in response to treatment of underlying pathologies combined with good wound care practice.<sup>2</sup> Indeed, current treatment modalities for chronic leg ulcers are time consuming, expensive, and only moderately successful.<sup>8</sup>

A substantial proportion of patients in this study felt that leg ulcer treatments caused pain<sup>9</sup> and suggested that efforts should be made to reduce pain in this group of patients.<sup>2</sup> The current study reveals pain as the commonest associated problem in leg ulcers among 79.5% of the patients (Table 2). Wound pain has been observed to be a serious problem for elderly patients suffering from chronic leg ulcers, and it may lead to reduced wound healing rates and reduced quality of life.<sup>10</sup>

Our current study revealed depression as occurring among 33.6% of the patients. This confirms a previous observation by Wales that depression is common in people with chronic wound pain.<sup>11-13</sup>

In this study, the burden of the chronic leg ulcers on the finance of the patients was seen in 71 (85.5%) of the patients. This is mainly because most of the patients do not have health insurance coverage and have to pay out of pocket, from pension or rely on family for the care of their ulcers. In addition, patients were mostly of low socio-economic status and a prolonged period of treatment creates a significant financial and career burden with regards to cost of management and time taken from employment and family responsibilities. This finding is consistent with the previous reports by Nelzen and Edwards on the financial burden on chronic leg ulcer patients and their relatives.<sup>8,9</sup>

Venous ulcers have been described as a major health problem because of the increased costs of treatment and the refractory nature of the ulcers. The treatment cost is estimated to be around 1 billion dollars per year in the United States (US), and the average cost for one patient over a lifetime exceeds dollars 400,000.<sup>14</sup>

There was significant physical disturbance of the majority of the people who had chronic leg ulcers as well as problems with morbidity around the home and reduced mobility outside the home.

The majority 72 (86.7%) of the patients also reported problems with the amount of time needed to care for the wound site as many of the patients spend a lot of time daily in taking care of the ulcers either at

home or in a nearby health facility.

Finally, financial difficulty as a result of the wound was reported as absent by only 38 (45.8%) of the patients. Most 71 (85.5%) of the patients in this study report that the leg ulcers affect their jobs. Loss of job was also seen among many 54 (65.1%) of the patients suggesting reduced financial resources to a group of people who have chronic wounds and with no health insurance, as health insurance is not very common in the country.

A study in Netherland<sup>15</sup> shows major problems with leg ulcer patients being pain (85%), outdoor mobility (47%) and problems in finding appropriate footwear (60%) with statistical analysis showing no differences between patients with ulcers based on a venous etiology and ulcers based on mixed etiology.

The feelings of the patients show anger, fear, depression, negative self-image and stress.

It has been observed<sup>16</sup> that it is not uncommon to find that patients with venous leg ulcers have a reduced quality of life.

In spite of the aforementioned effects of the ulcers on the patients, many of the patients agree that the ulcers will heal. Most of the patients with leg ulcers in this study tend to have significant pain, exudates, less ambulant, more untoward effects on occupation, more stress, more restrictions regarding social functioning, and less vitality. Other problem areas, which have been identified, include financial burden, restrictions in work capacity, recreation, social interaction and activities, anxiety, and feeling of frustration. Psychological well-being, as well as problems caused by treatment, and psychological factors, including depression, should be a focus in assessment and ongoing review of patients with leg ulceration.<sup>17</sup>

These physical and psychological problems should be borne in mind in managing these patients and efforts should be made to alleviate them. The use of groups like *leg ulcers group*, though may be of help as a study has revealed that Club model appears to be more cost-effective than traditional home nursing for the treatment of ulcers.<sup>18</sup> It has been suggested that, increased awareness of the psychosocial dynamic in elderly patients should be integral to the wound care protocol.<sup>19</sup>

Also observed is that improved ulcer care reduced considerably the annual costs of wound management.<sup>20</sup> With improved ulcer care, the adverse symptoms and signs associated with leg ulcers are expected to reduce as this has been observed elsewhere with patients suffering from leg ulceration show modest improvements in perceived

health following 12 weeks of care. Improvements in practice may enhance the magnitude of these improvements<sup>21</sup> and this should be vigorously pursued by physicians taking care of patients with leg ulcers. Effective and timely intervention should be given when treating patients with chronic leg ulcers. The need for leg ulcer group is also emphasized to improve interaction of patients with leg ulcers.

## Conclusions

Pain has been found to be a major factor responsible for the delay in wound healing and reduction in socialization and quality of life of patients with chronic leg ulcers. Therefore, control of pain, implementation of leg ulcer group and improvement in health care insurance coverage to all cadres of citizen in developing countries will contribute immensely to the improvement in quality of life of these patients.

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