Original Investigation

Impact of Symptoms on Quality of Life in Patients with Chronic Wounds

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ABSTRACT

OBJECTIVE: To analyze the occurrence of symptoms and quality of life (QoL) among patients with chronic wounds and the impact of chronic wounds on QoL.

METHODS: Researchers evaluated 200 patients with chronic wounds using a general information questionnaire, a modified version of the Memorial Symptom Assessment Scale, and the Chinese version of the Cardiff Wound Impact Questionnaire. They performed correlation and linear regression analyses to explore the impact of symptoms on QoL.

RESULTS: Mean symptoms scores were all moderately severe and ranged as follows: 0 to 7.06 ± 3.85 for mean total symptom, 0 to 2.69 ± 1.33 for mean frequency, 0 to 2.27 ± 1.02 for mean severity, and 0 to 2.29 ± 1.29 for mean distress. Scores on the three dimensions of QoL (daily life, social life, and well-being) were 51.61 ± 14.73, 48.63 ± 17.20, and 47.45 ± 8.65, respectively. Patients' symptoms on each subscale were negatively correlated with the dimensions of QoL ($r = –0.383$ to –0.559, $P < .01$). Multiple linear regression analyses showed that 9 symptoms collectively explained 66.1% of the total variance of daily life ($P < .01$); 7 symptoms explained 59.0% of the total variance of social life ($P < .01$); and 10 symptoms explained 59.6% of the total variance of well-being ($P < .01$).

CONCLUSIONS: Patients with chronic wounds had high levels of psychological symptoms and moderate QoL, scoring lowest on well-being. Sleep disruption, limitations in activity, and scarring were the main symptoms affecting their QoL. Nurses should prioritize managing these symptoms to improve patients' QoL.

KEYWORDS: chronic wounds, influencing factors, nursing, quality of life, symptoms

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INTRODUCTION

Chronic wounds are those that fail to heal in an orderly and timely manner and do not achieve anatomic and functional integrity. The overall prevalence of chronic wounds ranges from 2.00 to 3.55 per 1,000 people.[1] Chronic wounds have a long course; are prone to recurrence; and cause disability, high mortality, and high treatment costs. Approximately 1% to 2% of the world's population is affected by chronic wounds that are prolonged and recurrent.[2] Patients with chronic wounds experience various degrees of local symptoms, such as pain, exudate, and odor; daily life symptoms, such as difficulty sleeping and limitation of activities; and psychological symptoms, such as anxiety, depression, and fear of social interaction.[3,4] These symptoms negatively affect patients' quality of life (QoL).[5,6] The multiple symptoms of chronic wounds interact with each other and produce a cumulative effect, which exacerbates the impact of a single symptom on functional status and QoL.[7] Therefore, the accurate assessment of symptoms in patients with chronic wounds is a prerequisite for the implementation of effective symptom management measures and the basis for the promotion of wound healing.

Few studies have assessed symptoms in patients with chronic wounds, including the symptoms and management of cancerous wounds.[3,8,9] In addition, there is a lack of systematic descriptions and analyses of multiple symptoms: Because the assessment of chronic wound symptom occurrence, severity, degree of interference, and healing is not yet comprehensive, no in-depth research has been performed.

Therefore, in this study, the authors aimed to use the symptom experience model, which describes the multiple symptoms that an individual experiences and how they interact with each other, as a guide to identify symptoms in patients with chronic wounds and assess their impact on patients' QoL. These findings will provide a basis for effective symptom management and improved QoL. Providing treatment with traditional

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Chinese medicine, care aimed at symptom improvement, and psychological counseling interventions can help patients achieve physical and mental comfort and a state of life satisfaction.

METHODS

The researchers used convenience sampling to select survey respondents from patients with wounds who were admitted in an outpatient setting in a tertiary hospital between October 2022 and January 2023. Individuals were included in the study if they were between 18 and 90 years of age, were diagnosed with a chronic wound with wound duration of 1 month or longer (based on *International Classification of Diseases, Tenth Revision*, to include all types of chronic wounds), were conscious, had some reading and verbal expression ability, and had no communication barriers. Individuals were excluded if they had a clear diagnostic history of mental illness, serious injuries to an internal organ (heart, brain, and kidney, etc), serious systemic serious infection, or chronic wounds combined with a malignant tumor.

Survey Instruments

General information questionnaire. This questionnaire included demographic information (eg, age, occupational status, self-care ability) and disease-related information (eg, type of wound, amount of exudate).

Symptom assessment questionnaire. The researchers revised the questionnaire used in this study with reference to the original Memorial Symptom Assessment Scale (MSAS). The Chinese version of the MSAS was translated and revised by Cheng et al.[9] The researchers reviewed the literature and consulted experts to compare the MSAS with a chronic wound symptom assessment scale validated by a large sample of people with different chronic wound types conducted by Toronto scholars.[10]

After determining common symptoms experienced by patients with chronic wounds, the researchers added these to the open-ended question of "other symptoms" at the end of the original scale and revised relevant items. The aim was to provide a more comprehensive assessment of symptoms in patients with chronic wounds. A total of 15 wound care experts evaluated the new items and formed a symptom assessment questionnaire to test the content validity of the questionnaire, which was 0.89; the content validity of each entry was approximately 0.80 to 1.00.

The MSAS is divided into four subscales: somatic symptoms, psychological symptoms, total distress index, and total MSAS score. In the final scale used in this study, the first 30 items were the original scale items, and the last 10 items were new items. If a symptom is not present, the symptom score is 0; if a symptom is present, the symptom score is the average of the frequency, severity, and distress scores. Through the presurvey, the Cronbach α coefficients of the three dimensions of the revised MSAS were .776, .832, and .837, respectively.

Chinese version of the Cardiff Wound Impact Questionnaire. The questionnaire is a self-report scale with a total of 26 items across three dimensions: daily life (12 entries), social life (7 entries), and well-being (7 entries). The questionnaire is scored on a 5-point Likert-type scale; the third item in the well-being dimension is reverse scored. After scoring, the total score for each dimension is converted into a standardized score. The total possible standardized score is 100 points. The Cardiff Wound Impact Questionnaire does not have a specific method for calculating a total QoL score, but higher scores of each dimension indicate better QoL in that dimension.

For this study, the authors used the Chinese version of the Cardiff Wound Impact Questionnaire to evaluate and measure the QoL of patients with chronic wounds.[11] The questionnaire is highly specific and practical, with Cronbach α for each dimension of the questionnaire ranging from 0.79 to 0.93 and 1-week retest reliability r values ranging from 0.90 to 0.93.[12]

Self-management. Activities of daily living were assessed according to the Barthel Index rating scale to determine participants' level of self-care ability. Scores were divided into four levels: severe dependence (total score < 40; all needs must be met by others), moderate dependence (total score 41-60; most needs must be met by others), mild dependence (total score 61-99; a small number of needs are met by others), and no dependence (total score 100 points; no needs met by others).

Wound pain level. Wound pain was rated using a numerical rating scale. Score ranges were 0 (no pain), 1-3 (mild pain, sleep is not affected), 4-6 (moderate pain, sleep is affected), and 7-10 (severe pain, sleep is seriously affected).

Wound exudate. Exudate levels were divided into the following categories based on the exudate's effect on the dressing: dry, moist, wet, saturated, and leaking.

Odor. The wound odor was divided into six grades. Grade 0: odor can be smelled as soon as you enter the ward or consultation room; grade 1: odor can be smelled at a distance of one arm's length from the patient; grade 2: odor is noticeable at a distance of less than one arm's length from the patient; grade 3: odor is present when close to the patient; grade 4: usually only the patient can smell the odor; grade 5: no odor.

Survey Methodology

This study was approved by the Ethics Committee of the Nursing Department, Sun Yat-sen University (approval no. L2022SYSU-HL-079). The data collection process followed the principles of voluntary participation,

informed consent, and protection of privacy. Patient data were deidentified. Most patients completed the questionnaire in person during an outpatient visit; a small number of patients completed the questionnaires online.

Statistical Analyses

Statistical analyses were performed with SPSS 25.0 (IBM Corp). For descriptive analyses, the researchers recorded the number and percentage of cases, mean and SD, or the median and quartile. For univariate analysis, a *t* test was used to compare the means of two samples that conformed to a normal distribution with homogeneous variance, and an analysis of variance was used to compare the means of multiple samples. A nonparametric test (eg, Mann-Whitney *U* test or Kruskal-Wallis *H* test) was used to compare the means of samples that were not normally distributed or that had heterogeneous variance. Multiple linear regression analyses were used to explore the factors influencing the QoL of patients with chronic wounds. The level of significance was set at .05.

RESULTS

Participant Characteristics

From October 2022 to January 2023, 200 patients with chronic wounds who met the criteria were invited to participate. A total of 199 questionnaires were collected, a return rate of 99.50%. Of these, 4 questionnaires were not fully completed and not included in analyses, and 195 questionnaires were valid, a validity rate of 97.99%.

Of the 195 patients with chronic wounds who were included in this study, there were slightly more men (117, 60.0%) than women (40.0%). Participants ranged in age from 18 to 88 years, with an average age of 50.79 ± 18.02 years; 60.5% were older than 45 years. The plurality of participants (47.2%) had a per-capita monthly household income of US $278 to $695. Among wound types, perioperative wounds and diabetic foot ulcers were most common, accounting for 28.2% and 15.9% of wounds, respectively. Further, 46.1% of the patients' chronic wounds occurred in the lower limb area, and wounds ranged in surface area from 0.50 to 800.00 cm^2. The average wound duration was 77.22 ± 104.23 days, and 36.4% of participants had a duration of 60 days or longer. See Table 1 for details.

Occurrence of Symptoms in Patients with Chronic Wounds

Symptom scores on each subscale. The researchers assessed patients' level of symptoms experienced using addendum entry symptoms as well as those from the original MSAS scale. Higher scores corresponded to the patient experiencing higher levels of that symptom. The symptom scores of the subscales and addendum entries were tested for normality and found to have a normal distribution (Table 2).

Table 1. DEMOGRAPHIC CHARACTERISTICS OF PATIENTS WITH CHRONIC WOUNDS (N = 195)

Characteristics	n (%)
Sex	
Men	117 (60.0)
Women	78 (40.0)
Age, mean ± SD, y	50.79 ± 18.02
18-45	77 (39.5)
46-60	55 (28.2)
61-90	63 (32.3)
Occupational status	
Nonworking	126 (64.6)
Working	69 (35.4)
Careers	
Worker	25 (12.8)
Farmer	41 (21.0)
Individual	39 (20.0)
Staff/professional or technician	34 (17.5)
Unemployed	56 (28.7)
Monthly per capita household income, USD	
<278	31 (15.9)
278-695	92 (47.2)
>695	72 (36.9)
Self-management	
Full self-care	100 (51.3)
Minor self-care	32 (16.4)
Mostly self-care	48 (24.6)
Completely needs help from others	15 (7.7)
Wound odor class	
Level 0	33 (16.9)
Level 1	29 (14.9)
Level 2	35 (17.9)
Level 3	26 (13.3)
Level 4	43 (22.1)
Level 5	29 (14.9)
Wound area, cm^2	
<1.0	16 (8.2)
1.0-5.0	77 (39.5)
5.1-10.0	40 (20.5)
>10.0	62 (31.8)
Wound type	
Vascular ulcer	24 (12.3)
Diabetic foot ulcer	31 (15.9)
Infectious/inflammatory	28 (14.4)
Stress injury	11 (5.6)
Traumatic ulcer	22 (11.3)
Poorly healing postsurgical wound	55 (28.2)

(continues)

Table 1. DEMOGRAPHIC CHARACTERISTICS OF PATIENTS WITH CHRONIC WOUNDS (N = 195), CONTINUED

Characteristics	n (%)
Other	24 (12.3)
No. of wounds	
1	179 (91.8)
2	16 (8.2)
Wound duration, mean ± SD, d	77.22 ± 104.23
30-60	124 (63.6)
61-90	30 (15.4)
>90	47 (21.0)
Level of pain during wound dressing change	
No pain	19 (9.8)
Mild pain	97 (49.7)
Moderate pain	61 (31.3)
Severe pain	18 (9.2)
Wound exudate	
Dry	22 (11.3)
Moist	78 (40.0)
Wet	48 (24.6)
Saturation	28 (14.4)
Leakage	19 (9.7)
No. of periwound skin complications	
≤1	100 (51.3)
2	42 (21.5)
≥3	53 (27.2)
Wound location	
Head and face	9 (4.2)
Torso	46 (21.8)
Upper limbs	9 (4.2)
Buttocks	50 (23.7)
Lower limbs	40 (19.0)
Foot	57 (27.1)

Table 2. SYMPTOM EXPERIENCE SCORES BY SUBSCALE

MSAS Subscale	Score, Mean ± SD (Range)
Somatic symptoms	2.84 ± 0.77 (0.00-4.38)
Psychological symptoms	3.50 ± 1.50 (0.00-8.17)
Overall distress index	2.60 ± 0.53 (0.00-3.50)
Addendum entry symptom total score	2.96 ± 0.79 (0.00-4.33)
Total MSAS score	2.88 ± 0.62 (0.00-3.42)

Abbreviation: MSAS, Memorial Symptom Assessment Scale.

Occurrence of each symptom. The researchers recorded patients' total incidence of symptoms, the proportion of frequency, the proportion of severity, and the proportion of distress to describe the occurrence of symptoms in patients with chronic wounds (Table 3).

The number of symptoms experienced by patients with chronic wounds ranged from 0 to 25, with a mean of 9.18 ± 5.06 symptoms and a median of 9 symptoms. For each symptom, incidence ranged from 0% to 73.3%. The following five symptoms had the highest incidences: pain during wound dressing changes (73.3%), anxiety (59.5%), limited activity (53.8%), sleep disturbance (50.3%), and skin changes around the wound (48.7%). The mean total score of each symptom in patients with chronic wounds ranged from 0 to 7.06 ± 3.85. The five highest-scoring symptoms were anxiety (7.06 ± 3.85), pain during wound dressing changes (6.98 ± 3.31), sleep disruption (5.86 ± 3.30), itching of the wound and surrounding skin (5.51 ± 3.00), and pain between wound dressing changes or in other anatomic locations (5.34 ± 2.94).

The mean scores of symptoms that occurred frequently ranged from 0 to 2.69 ± 1.33. The five most frequent symptoms were 2.69 ± 1.33 for pain during wound dressing change, 2.64 ± 1.55 for anxiety, 2.12 ± 1.30 for sleep disruption, 2.08 ± 1.28 for itching of the wound and surrounding skin, and 1.94 ± 1.18 for pain between wound dressing changes or in other anatomic locations.

The mean severity scores of each symptom ranged from 0 to 2.15 ± 0.98. The symptoms with the highest severity scores were wound pain during dressing changes (2.15 ± 0.98), anxiety (2.13 ± 1.14), limited activity (2.03 ± 1.16), sleep disruption (1.81 ± 1.00), and skin changes around wounds (1.79 ± 0.95).

The mean distress scores for each symptom ranged from 0 to 2.29 ± 1.29. The symptoms with the highest mean distress scores were anxiety (2.29 ± 1.29), wound pain during dressing changes (2.13 ± 1.19), limited activity (2.11 ± 1.28), sleep disruption (1.92 ± 1.13), and itching of wounds and surrounding skin (1.77 ± 1.02).

QoL of Patients with Chronic Wounds

Patients' scores on the daily life, social life, and well-being dimensions of the Chinese version of the Cardiff Wound Impact Questionnaire were 51.61 ± 14.73, 48.63 ± 17.20, and 47.45 ± 8.65, respectively (Table 4).

Analysis of the Impact of Symptoms on QoL in Patients with Chronic Wounds

Correlation between number of symptoms and QoL. The number of symptoms in patients with chronic wounds was negatively correlated with the dimensions of QoL: daily life ($r = -0.493$), social life ($r = -0.489$), and well-being ($r = -0.536$) (P's < 0.01). Thus, a higher number of symptoms indicated worse QoL (Table 5).

Correlation between symptoms and QoL for each subscale. The results of the Pearson correlation analysis showed a negative correlation between the symptoms of

Table 3. OCCURRENCE OF EACH SYMPTOM AND SYMPTOM EXPERIENCE SCORE

Symptom	Frequency, Mean ± SD[a]	Severity, Mean ± SD[a]	Distress, Mean ± SD[a]	Total Incidence, n (%)	Symptom Score, Mean ± SD[b]
Trouble concentrating	1.27 ± 0.75⑨	1.20 ± 0.59	1.18 ± 0.59	25 (12.8)	3.65 ± 1.85
Wound pain during dressing changes	2.69 ± 1.33①	2.15 ± 0.98②	2.13 ± 1.19③	143 (73.3)	6.98 ± 3.31②
Pain in other areas or after dressing changes	1.94 ± 1.18⑤	1.70 ± 0.88⑦	1.71 ± 0.99⑦	89 (45.6)	5.34 ± 2.94⑤
Lack of vigor/lack of energy	1.55 ± 1.05⑦	1.42 ± 0.85	1.43 ± 0.90	48 (24.6)	4.39 ± 2.71
Cough	1.08 ± 0.39	1.05 ± 0.23	1.04 ± 0.24	9 (4.6)	3.17 ± 0.80
Mental stress	1.17 ± 0.58	1.13 ± 0.44	1.14 ± 0.49	18 (9.2)	3.45 ± 1.47
Xerostomia (drying of the mouth)	1.15 ± 0.49	1.13 ± 0.41	1.11 ± 0.39	20 (10.3)	3.38 ± 1.23
Nausea	1.02 ± 0.16	1.02 ± 0.16	1.02 ± 0.22	2 (1.0)	3.05 ± 0.52
Drowsiness	1.16 ± 0.60	1.10 ± 0.39	10.08 ± 0.35	14 (7.2)	3.34 ± 1.28
Numbness or tingling in the hands and feet	1.56 ± 1.07⑥	1.39 ± 0.77	1.41 ± 0.89	51 (26.2)	4.36 ± 2.61
Sleep disruption due to wounds	2.12 ± 1.30③	1.81 ± 1.00⑤	1.92 ± 1.13⑤	98 (50.3)	5.86 ± 3.30③
Feeling swollen/bloated	1.22 ± 0.72⑩	1.17 ± 0.57	1.2 ± 0.69	20 (10.3)	3.58 ± 1.91
Difficulty urinating	1.19 ± 0.76	1.12 ± 0.49	1.14 ± 0.57	13 (6.7)	3.46 ± 1.79
Tightness or difficulty breathing	1.06 ± 0.36	1.04 ± 0.25	1.06 ± 0.38	6 (3.1)	3.16 ± 0.97
Constipation	1.10 ± 0.49	1.08 ± 0.40	1.09 ± 0.45	9 (4.6)	3.28 ± 1.31
Sad	1.28 ± 0.77⑧	1.19 ± 0.55	1.23 ± 0.68	24 (12.3)	3.7 ± 1.96
Perspiration	1.14 ± 0.54	1.09 ± 0.38	1.08 ± 0.40	13 (6.7)	3.31 ± 1.27
Anxiety over the wound healing process	2.64 ± 1.55②	2.13 ± 1.14③	2.29 ± 1.29①	116 (59.5)	7.06 ± 3.85①
Loss of interest in sex or difficulty having sex	1.06 ± 0.38	1.05 ± 0.30	1.05 ± 0.32	6 (3.1)	3.16 ± 0.97
Itching of the wound and surrounding skin	2.08 ± 1.28④	1.66 ± 0.80	1.77 ± 1.02⑤	92 (47.2)	5.51 ± 3.00④
No appetite	1.17 ± 0.64	1.13 ± 0.49	1.14 ± 0.54	15 (7.7)	3.44 ± 1.65
Nephritis	1.12 ± 0.51	1.10 ± 0.45	1.12 ± 0.52	12 (6.2)	3.34 ± 1.45
Dysphagia	1.07 ± 0.41	1.05 ± 0.30	1.06 ± 0.38	6 (3.1)	3.18 ± 1.08
Irritable	1.12 ± 0.50	1.09 ± 0.36	1.09 ± 0.36	12 (6.2)	3.29 ± 1.20
Canker sore	—	1.03 ± 0.17	1.03 ± 0.20	6 (3.1)	3.06 ± 0.36
Changes in eating tastes	—	1.10 ± 0.41	1.11 ± 0.46	12 (6.2)	3.21 ± 0.86
Weight loss	—	1.30 ± 0.64	1.27 ± 0.64	41 (21.0)	3.57 ± 1.23
Hair loss	—	1.07 ± 0.37	1.07 ± 0.41	8 (4.1)	3.14 ± 0.77
Insomnia	—	1.08 ± 0.34	1.08 ± 0.37	11 (5.6)	3.15 ± 0.68
Swelling or edema of the arms or legs	—	1.35 ± 0.78	1.38 ± 0.86	40 (20.5)	3.73 ± 1.62
Feeling "I do not look like myself"	—	1.11 ± 0.40	1.12 ± 0.45	16 (8.2)	3.23 ± 0.83
Periwound skin changes	—	1.79 ± 0.95⑤	1.69 ± 0.94	95 (48.7)	4.48 ± 1.81
Redness and swelling and around the wound, increased skin temperature	—	1.39 ± 0.72	1.41 ± 0.80	52 (26.7)	3.8 ± 1.46
Restriction of movement due to wounds	—	2.03 ± 1.16③	2.11 ± 1.28③	105 (53.8)	5.14 ± 2.36
Changes in the shape, color, etc, of the foot	—	1.39 ± 0.81	1.33 ± 0.78	44 (22.6)	3.72 ± 1.53
Scar formation	—	1.29 ± 0.73	1.20 ± 0.59	34 (17.4)	3.49 ± 1.25
Changes in body image due to wound dressing, etc	—	1.10 ± 0.42	1.07 ± 0.34	13 (6.7)	3.17 ± 0.73
Return-to-work concerns	—	1.24 ± 0.71	1.26 ± 0.80	22 (11.3)	3.50 ± 1.49
Low self-esteem, fear	—	1.12 ± 0.43	1.12 ± 0.46	15 (7.7)	3.24 ± 0.87

Note: The number in each ○ indicates the ranking of the symptom.
[a]Frequency, severity, and distress are the mean of the symptom scores for patients with chronic wounds.
[b]The symptom score is the mean of the symptom's frequency, severity, and distress scores.

Table 4. SCORES ON DIMENSIONS OF QUALITY OF LIFE

Dimension[a]	Possible Score Range	Observed Score Range	Total Score, Mean ± SD
Daily life	0-100	20.00-83.33	51.61 ± 14.73
Social life	0-100	20.00-88.57	48.63 ± 17.20
Well-being	0-100	20.00-70.00	47.45 ± 8.65

[a]Dimensions of the Chinese version of the Cardiff Wound Impact Questionnaire.

each subscale and the dimensions of QoL in patients with chronic wounds: daily life (r = −0.555), social life (r = −0.559), and well-being (r = −0.383; P's < 0.01; Table 5).

Multivariate analysis of the impact of symptoms on QoL. For multivariate analyses, patients' scores on the daily life (Table 6), social life (Table 7), and well-being (Table 8) dimensions of QoL were dependent variables, the symptom entries related to QoL in the correlation analyses were used as independent variables, and the scores of the independent variables were directly included in the model for multiple linear regression analyses. The researchers used the STEPWISE method (entry, α = .05; exclusion, α = .10; test level, α = .05). The results of the multiple linear regression analysis indicate that symptoms accounted for a low percentage of the variance in QoL dimensions (66.1%, 59.0%, and 59.6% for the daily life, social life, and well-being dimensions, respectively).

DISCUSSION

Patients with Chronic Wounds Experience Multiple Symptoms

Patients with chronic wounds experience different frequencies and severities of symptoms and different levels of distress. This variability is likely due to different wound etiologies, stages, and treatment modalities. Most prior research on symptoms experienced by patients with chronic wounds has focused on individual symptoms. The purpose of this study was to assess the common symptoms of patients with chronic wounds from three dimensions—frequency, severity, and pain—to provide a basis for multidimensional evaluation.

The number of simultaneously experienced symptoms among participants ranged from 0 to 25, with a median of 9. This occurrence of symptoms in patients with chronic wounds is similar to those reported among patients who have had a stroke,[13] have cancer,[14] or have heart failure.[15] The prevalence of each symptom ranged from 0% to 73.3%, and wound exudation, wound pain during dressing changes, anxiety, activity limitation, and sleep disturbances were the symptoms with the highest frequency of occurrence, thus reflecting the need for multidimensional assessment of symptoms.

Table 5. CORRELATION ANALYSIS BETWEEN SYMPTOMS AND QUALITY OF LIFE

Variable	Everyday Life	Social Life	Well-being
Somatic symptoms	−0.390[a]	−0.458[a]	−0.211[a]
Psychological symptoms	−0.455[a]	−0.490[a]	−0.393[a]
Overall distress index	−0.411[a]	−0.450[a]	−0.240[a]
Total MSAS score	−0.555[a]	−0.559[a]	−0.383[a]
Additional entries	−0.485[a]	−0.367[a]	−0.322[a]
No. of symptoms	−0.493[a]	−0.489[a]	−0.536[a]

[a]P < .01.

The high variability in symptom scores and interindividual variability among patients with chronic wounds may be related to variation in the cause of injury, wound site, and degree of injury.[16] The main symptoms experienced by patients with chronic wounds are wound-related symptoms and symptoms derived from them that affect psychological and somatic activities.[17] A quantitative study by Leren et al[18] found that 80.0% of patients with chronic leg ulcers experienced wound-related pain; moreover, moderate to severe pain was associated with decreased sleep quality and health status.[19] The majority of patients with chronic wounds also experience symptoms related to itchy skin, odor, limited mobility, anxiety, and depression.[20] Patients with chronic wounds experience multiple symptoms, thus resulting in an unpleasant symptomatic experience that has a significant impact on their daily life, social activities, and mood. Healthcare professionals should be aware of the influencing factors of chronic wounds to effectively assess and manage patients' symptoms.

Patients with Chronic Wounds Have a Lower QoL

Chronic wound healing progression is a long-term process, and with the accelerated aging process and changing disease spectrum, chronic wounds are becoming more common in older adults. Therefore, there is an urgent need for healthcare professionals and patients to manage the symptoms of chronic wounds to improve QoL.

In the present study, QoL scores were at a medium level. Scores were lowest on well-being, which aligns with the results of Huang et al,[21] who evaluated 154 patients with chronic wounds. The QoL scores of patients with chronic wounds were significantly lower in the present study than in those evaluating patients in Australia,[22] New Zealand,[23] and Canada.[24] The impact of well-being on QoL for patients with chronic wounds was the most

Table 6. MULTIVARIATE ANALYSIS OF THE DAILY LIFE DIMENSION

	Bias Regression Coefficient		Standardized Regression Coefficient		
Item	***B***	**SE**	β	***t***	***P***
(Constant)	81.280	1.589	—	51.141	.000
Wound pain during dressing changes	–0.868	0.325	–.195	–2.667	.008
Numbness or tingling in the hands and feet	–0.852	0.373	–.151	–2.287	.024
Sleep disruption due to wounds	–1.225	0.337	–.274	–3.634	.000
Feeling swollen/bloated	1.252	0.538	.162	2.330	.021
Nephritis	1.428	0.673	.140	2.123	.035
Irritability	–1.757	0.710	–.143	–2.473	.015
Swelling or edema of the arms or legs	–1.731	0.683	–.190	–2.532	.012
Restricted movement due to wounds	–1.769	0.503	–.283	—3.516	.001
Changes in the shape, color, etc of the foot	–2.325	0.651	–.242	–3.574	.000

Abbreviation: SE, standard error.

severe, thus suggesting that well-being is the primary aspect influencing patients' overall QoL status. One possible reason for this effect may involve uncertainty about the progress of wound healing, which affects patients' daily life and social interactions and gives rise to anxiety and worry. Conversely, this effect may be related to distress caused by the prominent symptoms of chronic wounds, such as wound odor, large amounts of exudate, and pain, among other factors, in addition to the fear of changing one's own lifestyle and the impact on family members.[25] Encouraging patients with chronic wounds to adhere to treatment guidelines to manage the wound and its symptoms and to express any inner negative emotions can help improve their psychological condition and QoL. Medical staff can combine psychological interventions with symptom management.

Symptoms of Patients with Chronic Wounds Have Significant Impacts on QoL

Multiple and complex symptoms are the primary independent factors affecting the QoL of patients with chronic wounds, which not only affect their own work, school, and daily life activities but also hinder their interpersonal and social interactions.

The results of this study indicate that having a greater number of symptoms corresponded to a worse QoL among patients with chronic wounds. Moreover, there was a negative correlation between symptom scores and QoL, which is similar to the results of studies evaluating patients with esophageal cancer, stroke, and AIDS.[13,26,27] The results of multiple linear regression indicated that wound exudation, wound pain during dressing changes, anxiety, activity limitation, and sleep disturbance were the five main symptoms affecting QoL.

Davies[28] found that the severity of symptoms (eg, leg pain, swelling, exudation) in patients with chronic venous disease can affect patients' QoL to varying degrees. Similarly, in a qualitative study, Liu et al[8] found that patients with cancerous wounds experience various degrees of physical (eg, itchy skin, odor), psychological (eg, anxiety, depression), and social and spiritual symptoms (eg, social phobia, body image worries), which can have a devastating impact on patients and

Table 7. RESULTS OF MULTIVARIATE ANALYSIS OF THE SOCIAL LIFE DIMENSIONS

	Bias Regression Coefficient		Standardized Regression Coefficient		
Item	***B***	**SE**	β	***t***	***P***
(Constant)	49.646	1.190	—	41.704	.000
Sleep disruption due to wounds	–0.679	0.252	–.223	–2.688	.008
Loss of interest in sex or difficulty having sex	1.808	0.873	.175	2.071	.040
Have no appetite	–1.549	0.628	–.254	–2.466	.015
Dysphagia	–2.136	0.656	–.229	–3.257	.001
Restricted movement due to wounds	–1.390	0.377	–.327	–3.691	.000
Scar formation	–1.296	0.571	–.162	–2.268	.025
Changes in body image due to wound dressing, etc	1.992	0.990	.144	2.013	.046

Abbreviation: SE, standard error.

Table 8. RESULTS OF MULTIVARIATE ANALYSIS OF THE WELL-BEING DIMENSION

	Bias Regression Coefficient		Standardized Regression Coefficient		
Item	***B***	**SE**	***β***	***t***	***P***
(Constant)	24.382	1.194	—	20.429	.000
Sleep disruption due to wounds	0.640	0.253	0.208	2.529	.012
Feeling swollen/bloated	–0.958	0.404	–0.180	–2.373	.019
Difficulty urinating	1.017	0.430	0.179	2.364	.019
Anxiety because of fear of healing	0.668	0.235	0.253	2.846	.005
Loss of interest in sex or difficulty having sex	–2.076	0.875	–0.199	–2.371	.019
Insomnia	–3.091	1.042	–0.207	–2.966	.004
Swelling or edema of the arms or legs	1.124	0.513	0.180	2.190	.030
Changes in wound dressing color, saturation, etc	–1.279	0.470	–0.234	–2.724	.007
Restricted movement due to wounds	1.518	0.378	0.353	4.019	.000
Scar formation	1.264	0.573	0.156	2.206	.029

Abbreviation: SE, standard error.

negatively affect their QoL. A randomized controlled study concluded that a combination of traditional Chinese medicine and dietary therapy had a positive effect on improving the pain and itching symptoms of eczema and promoting symptom recovery in patients with eczema caused by oozing, infection, and other factors.[29]

In this study, local wound symptoms and symptoms that affect patients' psychological or social life as a result of the local symptoms were critical in influencing patients' QoL. The QoL of patients with chronic wounds would be enhanced if their wound care providers could mitigate these symptoms. The five primary symptoms (exudate, pain, anxiety, activity limitation, and sleep disruption) are the focus of nurses and can be managed by providing support (such as self-care skills), physical interventions, and psychological counseling to improve patients' physical and mental comfort and life satisfaction.

Limitations

This study surveyed patients with chronic wounds from the outpatient clinic of a single tertiary hospital, limiting the external validity. Further, the selection of study subjects was not representative, and the results of the study were poorly generalized. Patients' symptom scores were evaluated at only a single time point. Future research should aim to increase the sample size, and a multicenter study would further validate the present results. Interventional studies could also help improve symptom management symptom and QoL in response to the experienced symptoms.

CONCLUSIONS

Most patients with chronic wounds experience multiple symptoms. The most common and bothersome symptoms included pain, exudation, anxiety, activity limitation, and sleep disturbances. Participants' QoL was moderate, with the lowest scores being observed in the well-being dimension. Symptoms are the key factors affecting patients' QoL, and the management of these symptoms should be prioritized by clinicians to effectively improve patients' QoL.

In this study, the authors explored the distribution of symptoms in a specific population of patients with chronic wounds and analyzed the impact of symptoms on QoL. The present findings can help healthcare professionals identify individuals with higher symptom scores for early interventions, such as providing traditional Chinese medicine treatment, life care, physical interventions, and psychological counseling to improve patients' physical and mental comfort and life satisfaction. ●

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