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Correlation between Illness Perception, Social Support and Quality of Life in Patients with Venous Leg Ulcer

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Abstract: *This study investigated the quality of life (QOL) and its associations with illness perception and social support in 326 patients with venous leg ulcer, selected via convenience sampling from three tertiary hospitals in Xi'an between November 2024 and May 2025. Assessments utilizing a general information questionnaire, the Brief Illness Perception Questionnaire, the Social Support Rating Scale, and a venous leg ulcer-specific QOL questionnaire revealed that patients experienced a moderately low QOL, with a mean total score of 69.17±23.26. Correlation analyses indicated a significant positive relationship between QOL and illness perception (r=0.709), suggesting that more negative perceptions of the illness were linked to poorer QOL. Conversely, QOL showed a significant negative correlation with social support (r=-0.619), while illness perception and social support were also negatively correlated (r=-0.562). All correlations were statistically significant (P<0.001). The findings conclude that the generally poor QOL observed in patients with venous leg ulcer is associated with negative perceptions of their illness and lower levels of social support.*

Keywords: *Venous Leg Ulcer, Quality of life, Illness perception, Social support, Correlation*

1. Introduction

With the global aging population continuing to grow, the prevalence of venous leg ulcers (VLU) is expanding. Often referred to as "aging leg ulcers," this condition affects approximately 1%-2% of adults, with rates soaring to 4% among those aged 65 and above[1-2]. As the most severe complication of chronic venous insufficiency, VLU accounts for about 70% of all lower limb chronic wounds. The core mechanism involves impaired blood flow due to venous hypertension, typically presenting as open wounds in the calves and ankles that are notoriously difficult to heal and often persist for extended periods[3-4]. The disease not only has a prolonged course but also maintains high recurrence rates. Patients endure chronic wound exudation, foul odors, and persistent pain, severely limiting daily activities. These challenges not only cause immense suffering but also place significant financial burdens on families and exacerbate healthcare system pressures. Despite advancements in wound care technologies and optimization of pressure therapy protocols, the slow healing process and persistent recurrence issues force patients into repeated medical visits and prolonged treatments. This results in substantial resource consumption while causing lasting physical and psychological impacts. Ultimately, quality of life fundamentally reflects individuals' comprehensive perceptions of their living conditions across cultural contexts, shaped by personal goals, expectations, and value systems[5]. Extensive research has demonstrated that patients with VLU experience significantly poorer quality of life compared to the general population and those with mild venous disease, requiring urgent therapeutic interventions to improve their condition[6]. The established correlation between illness perception and quality of life, combined with evidence supporting psychosocial support and medication adherence as effective strategies for enhancing health-related quality of life in chronic conditions[7-8], underscores the need for VLU-specific research. This study aims to evaluate the quality of life in VLU patients and investigate the relationships between illness perception, social support, and clinical outcomes, thereby providing evidence-based guidance for therapeutic interventions.

2. Materials and Methods

2.1 General Information

This study employed convenience sampling to investigate VLU treated at three Grade III-A hospitals in Xi 'an from November 2024 to May 2025. Inclusion criteria were: (1) VLU patients meeting the American Society of Phlebology diagnostic criteria (CEAP stage C6: skin changes + active ulcer); (2) Age ≥18 years; (3) ABI (ankle-brachial index) between 0.9 and 1.3; (4) Patients with clear consciousness, normal speech function, and adequate communication ability; (5) Informed consent from both patients and their families. Exclusion criteria included: (1) Patients with systemic organ failure (e.g., severe liver, lung, or kidney impairment) or malignancies; (2) Patients with cancerous lesions or deep vein thrombosis coexisting with wounds; (3) Patients with severe cognitive impairment, psychiatric history, or prior psychological interventions. Data screening excluded questionnaires with ≥20% blank responses, arbitrary selections, patterned item distributions, or logical inconsistencies. A total of 326 VLU patients were enrolled. The study received approval from our hospital's ethics committee (Approval No.: KY20252013-C-1).

2.2 Survey Tools

(1) General Information Form. This form was independently developed through literature review and consultation with experts in the relevant field. It primarily includes two categories of indicators: ① Demographic data: age, gender, body mass index (BMI), place of residence, living conditions, educational level, marital status, occupation, and average monthly household income; ② Medical data: affected side of the wound, wound-related issues (exudation, odor, itching, etc.), pain intensity, disease duration, recurrence frequency, and mobility.

(2) Venous Leg Ulcer Quality of Life Questionnaire (VLU-QoL). Developed by Hareendran[9], this instrument evaluates patients 'quality of life over the past four weeks. Gu Baodi[10]translated it into Chinese and validated its measurement properties in 2015, comprising 34 items across three dimensions: daily functioning, subjective well-being, and symptom distress. The 0-4 scale uses higher scores to indicate poorer quality of life. The scale demonstrates a Cronbach's α coefficient of 0.940 and test-retest reliability of 0.825, with a Cronbach's α coefficient of 0.974 in this study.

(3) The Brief Illness Perception Questionnaire (BIPQ), developed by Broadbent[11] in 2006, assesses multiple dimensions including disease impact, disease duration, perceived disease control, perceived treatment efficacy, symptom recognition, disease-related concern, emotional responses, disease awareness, and etiology cognition—all categorized under a single dimension. Items 3, 4, and 7 are reverse-scored, while items 1-8 employ a 10-point Likert scale, with total scores ranging from 0 to 80, where higher scores indicate greater negative perception of the disease. Item 9 is an open-ended question requiring patients to identify three key factors contributing to their illness. Sun Weiming[12] conducted localization of the BIPQ in 2015, yielding a Cronbach's α coefficient of 0.831 and a KM0 value of 0.852. In this study, the Cronbach's coefficient was 0.833.

(4) The Social Support Rating Scale (SSRS), developed by Chinese scholar Xiao Shuiyuan[13] in 1994, comprises three dimensions (subjective support, objective support, and utilization of social support) with 10 items. A total score ≤22 is classified as low social support, 23-44 as moderate, and 45-66 as high. The scale demonstrates a Cronbach's α coefficient of 0.896 and test-retest reliability ranging from 0.89 to 0.94. In this study, the Cronbach's α coefficient was 0.805.

2.3 The study employed a questionnaire-based approach for data collection

After receiving standardized training, the investigator and fellow researchers served as surveyors. They explained the research objectives and significance to participants before distributing questionnaires. To ensure data authenticity and reliability, all subjects and their families were thoroughly briefed on the study's purpose and content prior to the survey. Following their full comprehension and signed informed consent, the surveyors provided on-site guidance for completing the questionnaires, which were promptly collected upon completion.

2.4 Statistical analysis

Statistical analysis was performed using SPSS 26.0 software. The specific methods were as follows:

(1) Descriptive statistics: For quantitative data, normality testing was conducted first. Data conforming to normal distribution were presented as mean ± standard deviation, while non-normal data were described using median (or quartiles). Categorical data were reported as frequency (n) and percentage (%). (2) Correlation analysis: Pearson correlation analysis was employed to examine the relationships between quality of life, perceived illness, and social support in patients with lower limb venous ulcers.

3. Results

3.1 General Information of VLU Patients

The valid rate was 93.13%. The age of 326 VLU patients was 28-91 (66.27±12.24) years. (See Table 1 for other details.)

Table 1: General data of 326 patients with VLU.

Project	Subgroup	Number of cases	Percent (%)	Project	Subgroup	Number of cases	Percent (%)
Gender				Average monthly household income per person			
	Male	201	61.7		3,000 RMB or less	96	29.4
	Female	125	38.3		3,001 – 5,000 RMB	107	32.8
Age					5,001 – 7,000 RMB	96	29.4
	＜60 years old	88	27.0		More than 7,000 RMB	27	8.3
	61-69 years old	101	31.0	Lateral side of wound			
	70-79 years old	93	28.5		Unilateral	293	89.9
	≥80 years old	44	13.5		Bilateral	33	10.1
BMI				Wound problems (exudation, odor, itching, etc.)			
	＜18.5	14	4.3		None	36	11.0
	18.5-23.9	150	46.0		1	80	24.5
	24.0-27.9	146	44.8		≥2	210	64.4
	≥28.0	16	4.9	Pain level			
Domicile					Painless	31	9.5
	Village	138	42.3		Mild pain	125	38.3
	Town	188	57.7		Moderate pain	107	32.8
Residence status					Severe pain	63	19.3
	Living with family	292	89.6	Course of disease			
	Living alone	25	7.7		≤1 year	168	51.5
	Other	9	2.8		2 years	74	22.7
Degree of education					3 years	38	11.7
	Primary school and below	102	31.3		4 years	17	5.2
	Junior middle school	126	38.7		≥5 years	29	8.9
	High school or Vocational school	68	20.9	Recurrence count			
	Junior college	15	4.6		0	121	37.1
	Bachelor's degree or higher	15	4.6		1-3	150	46
Marital status					＞3	55	16.9
	Married	294	90.2	Capacity for action			
	Single, divorced, or widowed	32	9.8		No help needed	157	48.2
Profession					Need a little help from someone	122	37.4
	Farm	131	40.2		Required full assistance with activities	31	9.5

Table 1: General data of 326 patients with VLU.(Continue Sheet)

Project	Subgroup	Number of cases	Percent (%)	Project	Subgroup	Number of cases	Percent (%)
	Retire	128	39.3		Relied on a wheelchair or gurney	16	4.9
	Be on the job	67	20.6				

3.2 Quality of Life (QoL), Brief International Patient Questionnaire (BIPQ), and Short Health Rating Scale (SSRS) scores in VLU patients

The VLU-QoL total score was (69.17±23.26), with each item averaging (2.03±0.68), indicating a moderately low level. The item means across dimensions, in descending order, were: daily living, local symptoms, and subjective feelings. The BIPQ total score was (43.57±7.78), with each item averaging (5.42±0.97), reflecting a moderately high level and indicating a relatively negative perception of the disease. The SSRS total score was (37.24±7.60), with each item averaging (3.72±0.76), at a moderate level. The item means across dimensions, in descending order, were: subjective support, objective support, and social support utilization. (See Table 2.)

Table 2: Summarizes the VLU-QoL, BIPQ, and SSRS scores for the 326 VLU patients.

Project	Number of entries	Score range	Score	Even distribution	Reorder
VLU-QoL	34	0~136	69.17±23.26	2.03±0.68	-
Daily life	12	0~48	26.32±9.59	2.19±0.80	1
Subjective feeling	12	0~48	22.28±8.10	1.86±0.86	3
Local symptom	10	0~40	20.57±6.78	2.06±0.68	2
BIPQ	8	1~80	43.57±7.78	5.42±0.97	-
SSRS	10	13~66	37.24±7.60	3.72±0.76	-
Objective support	4	4~16	7.95±1.30	2.49±0.44	2
Subjective support	3	5~38	22.52±5.02	6.84±1.48	1
Utilization of social support	3	4~12	6.78±2.39	2.26±0.80	3

3.3 Correlation between VLU-QoL, BIPQ, and SSRS in VLU patients

Pearson correlation analysis showed that the quality of life of 326 VLU patients was negatively correlated with social support (*r*=-0.619, *P*<0.01) and positively correlated with illness perception (*r*=0.709, *P*<0.01), and negatively correlated with illness perception (*r*=-0.562, *P*<0.01).For detailed results, see Table 3.

Table 3: Correlation between VLU-QoL, BIPQ, and SSRS in VLU patients.

	1	2	3	4	5	6	7	8
2	0.959**							
3	0.953**	0.864**						
4	0.935**	0.841**	0.851**					
5	0.709**	0.690**	0.675**	0.647**				
6	-0.682**	-0.680**	-0.632**	-0.624**	-0.562**			
7	-0.676**	-0.672**	-0.618**	-0.627**	-0.554**	0.953**		
8	-0.433**	-0.428**	-0.413**	-0.387**	-0.322**	0.709**	0.537**	
9	-0.597**	-0.599**	-0.557**	-0.535**	-0.523**	0.886**	0.781**	0.504**

Note: 1.VLU-QoL; 2.Daily life; 3.Subjective feeling; 4.Local symptom; 5.BIPQ; 6.SSRS; 7.Subjective support; 8.Objective support; 9.Utilization of social support. ***P*< 0.01.

4. Discussion

The findings of this study indicate that patients with VLU exhibit a moderately low quality of life, consistent with previous research conclusions[14]. Analysis of dimension-specific scores reveals that the daily living impact dimension shows the highest score, aligning with Ni Xuan's[15] findings. This suggests that ulcers have caused the most severe overt interference to patients' basic life functions such as eating, walking, and personal hygiene, thereby becoming the primary factor dragging down their overall quality of life. The subjective perception dimension scores the lowest, likely due to the predominantly elderly patient population in this study. Elderly patients tend to focus more on "whether bodily functions are normal" rather than "subjective emotional well-being," with their quality of life evaluation criteria leaning toward "self-care ability" while paying less attention to subjective psychological states. This cognitive tendency may also explain why the subjective perception dimension scores lower than other dimensions[16]. At the subjective perception level, patients may have developed certain psychological adjustment and coping mechanisms during prolonged disease management, or developed relative desensitization to perceived pain intensity through gradual habituation, resulting in scores that do not reach the extreme highs seen in the "daily living impact" dimension.

Correlation analysis revealed that the total VLU-QoL score showed a significant negative correlation with the SSRS total score (r=-0.619, P <0.01) and a significant positive correlation with the BIPQ total score (r=0.709, P <0.01) among VLU patients. Additionally, there was a significant negative correlation between social support and perceived illness (r=-0.562, P <0.01). This association pattern aligns with the theoretical framework of the "Self-Regulation Common Sense Model"[15], which posits that patients develop specific cognitive and emotional representations of disease symptoms to guide coping behaviors and influence health outcomes[17]. In this study, intense negative illness perception represents an maladaptive psychological representation that may prompt patients to adopt avoidance strategies, thereby exacerbating burdens in daily functioning, symptom distress, and emotional experiences, leading to a comprehensive decline in quality of life. Further analysis of dimensions revealed that the total social support score and its components were negatively correlated with all quality of life dimensions, with the strongest negative correlation observed between "Subjective Support" and "Daily Living" dimensions (r=-0.672). This highlights the critical role of subjective support experiences such as emotional and empathetic understanding in alleviating psychological stress caused by limited daily activities due to mobility impairments and self-care difficulties, which may be more significant than objective material assistance. This finding aligns with Janke's research conclusions[18]. Furthermore, this study revealed a significant negative correlation between social support and illness perception, with subjective support (r=-0.554) demonstrating greater efficacy than objective support (r=-0.322). These findings suggest that a robust social support system—particularly the emotional support patients receive—may function as a positive psychological resource. It enables patients to reassess and reconstruct their understanding of the disease, ultimately fostering greater adaptability and reduced perceived threat.

In conclusion, this study demonstrates through systematic analysis that patients with VLU exhibit a close relationship between illness perception, social support, and quality of life. Negative illness perception serves as a significant risk factor for reduced quality of life, while adequate social support not only directly improves quality of life but also exerts indirect protective effects by modifying illness perception and alleviating psychological stress. This suggests that clinical nursing should transcend traditional physiological care limitations and incorporate psychosocial factors into comprehensive intervention systems. However, the cross-sectional survey design of this study only reveals correlations between variables, unable to establish a causal relationship between "negative illness perception leading to decreased quality of life" or capture dynamic changes in these three factors during disease progression. Additionally, the study's sample was limited to a single urban area, potentially introducing selection bias. Future research could conduct longitudinal follow-ups to clarify causal relationships and dynamic evolution patterns among these factors, while expanding sample coverage. By employing mixed methods to explore cognitive characteristics and support needs differences across populations, this study provides substantial evidence for achieving precise and individualized management of VLU patients.

References

[1] Azar J, Rao A, Oropallo A. Chronic venous insufficiency: a comprehensive review of management [J]. J Wound Care. 2022;31(6):510-519.

[2] Chi YW, Raffetto JD. Venous leg ulceration pathophysiology and evidence based treatment[J]. Vasc Med. 2015;20(2):168-181.

[3] O'Donnell TF Jr, Passman MA, Marston WA, et al. Management of venous leg ulcers: clinical practice guidelines of the Society for Vascular Surgery ® and the American Venous Forum[J]. J Vasc Surg. 2014;60(2 Suppl):3S-59S.

[4] Vasudevan B. Venous leg ulcers: pathophysiology and classification[J]. Indian Dermatol Online J. 2014;5(3):366–70.

[5] WHO. The development ofthe WHO Quality of Life assessment instrument[J]. Geneva: WH0. 1993.

[6] Jull A, Muchoney S, Parag V, Wadham A, Bullen C, Waters J. Impact of venous leg ulceration on health-related quality of life: A synthesis of data from randomized controlled trials compared to population norms[J]. Wound Repair Regen. 2018;26(2):206-212.

[7] Walburn J, Weinman J, Norton S, et al. Stress, Illness Perceptions, Behaviors, and Healing in Venous Leg Ulcers: Findings From a Prospective Observational Study[J]. Psychosom Med.

2017;79(5):585-592.

[8] JALALI-FARAHANI S, AMIRI P, KARIMI M. Perceived socialsupport and health-related quality of life(HRQoL)in Tehranianadults:Tehran lipid and glucose study[J].Health Qual Life Outcomes, 2018,16(1):90.

[9] Hareendran A, Doll H, Wild D J, et al. The venous leg ulcer quality of life (VLU-QoL) questionnaire: development and psychometric validation[J]. Wound Repair Regen,2007,15(4):465-473.

[10] Gu Baodi, Liu Zhunzhun, Xia Ling. Chinese localization and reliability and validity testing of the quality of life questionnaire for patients with lower limb venous ulcers[J]. China Practical Nursing Journal, 2015,31(14):1080-1084.

[11] Broadbent E, Petrie KJ, Main J, Weinman J. The brief illness perception questionnaire[J]. J Psychosom Res. 2006;60(6):631-637.

[12] Sun Weiming, Lou Qing, Yuan Yefeng, et al. Application of the Simplified Chinese Version of the Disease Cognition Questionnaire in Patients with Somatic Disorders[J]. Journal of Chongqing Medical University, 2015,40(8):1138-1142.

[13] Xiao Shuiyuan. Theoretical basis and research application of Social Support Rating Scale[J]. Journal of Clinical Psychiatry, 1994,4(2):98-101.

[14] Xia Ling, Gu Baodi, Qin Shujun, et al. Application of VLU-QoL questionnaire to analyze the quality of life and influencing factors in patients with lower limb venous ulcers[J]. Journal of Practical Medicine, 2017,33(1):137-139.

[15] Ni Xuan. A Study on the Quality of Life of Patients with Lower Extremity Venous Ulcer Based on the Theory of Self-regulation Common Sense Model[D]. Soochow University, 2020.

[16] Zenati N, Bosson JL, Blaise S, Carpentier P. Évaluation de la qualité de vie liée à l'insuffisance veineuse chronique (IVC). Revue systématique de la littérature [Health related quality of life in chronic venous disease: Systematic literature review][J]. J Med Vasc. 2017;42(5):290-300.

[17] Gehring MB, Lerret S, Johnson J, et al. Patient expectations for recovery after elective surgery: a common-sense model approach[J]. J Behav Med. 2020;43(2):185-197.

[18] Janke TM, Kozon V, Barysch M, et al. How does a chronic wound change a patient's social life? A European survey on social support and social participation[J]. Int Wound J. 2023;20(10):4138-4150.