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Social Isolation, Loneliness, Anxiety, and Quality of Life in a Chronic Ulcer Population With and Without Stigma: An Observational Trial

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Abstract

Chronic leg ulcers impact millions worldwide, causing visible symptoms including discoloration, swelling, scarring, and requiring bulky bandaging, which often leads to stigma. Stigma may worsen other psychosocial impairments. This observational study examined stigma, social isolation, loneliness, anxiety, and quality of life (QOL) in adults aged 50+ receiving clinic-based wound care. Participants provided sociodemographic information and completed validated assessments. Among the 26 completers (13 with stigma/S+, 13 without stigma/S-), the average age was 63.2 years; 38% were female, and 58% Black/African American. Most (73%) had ≥high school education, 77% were single, and 42% were employed. Mean BMI was 38.7 kg/m², with 3.7 comorbidities. Stigma scores were higher in S+ (9.8 ± 4.6) versus S- group (6.0 ± 0.0). Loneliness was ≥40 for 15% (S-) versus 53% (S+). Social support was higher in S+ (77.0 ± 21.9) versus S- (64.5 ± 22.3), as was anxiety (50.5 ± 7.6 vs 43.3 ± 8.5). S+ reported lower QOL in appearance (2.8 ± 1.6) and clothing (2.4 ± 1.3). Findings underscore stigma's impact on health, warranting further research on protective and resilience interventions.

Keywords

chronic leg ulcers, stigma, social isolation, quality of life, psychosocial hardship

Introduction

Chronic nonhealing ulcers of the lower leg skin and feet, often caused by conditions such as peripheral vascular diseases, diabetes, obesity, and neuropathy, affect approximately 20 million people worldwide.[1] Unfortunately, when healing is poor or delayed, or when ulcers recur, individuals often experience long-term chronic ulcer disability. This condition is characterized by limitations in physical function and mobility, and poorer well-being and mental health. A common contributing factor to these limitations is stress, which can interfere with the immune function by disturbing the balance of immune cells and inflammatory signals in the skin. Research demonstrates this imbalance may weaken the skin's protective barrier, delay ulcer healing, and trigger the release of inflammatory molecules, further aggravating existing skin disorders associated with chronic ulceration.[2] These effects can ultimately disrupt basic and instrumental activities of daily living. In addition, chronic ulcer disability is associated with psychosocial hardship including frustration and helplessness, and substantial financial strain, all of which contribute to prolonged suffering and decreased quality of life (QOL).[3]

The visible and often misunderstood nature of chronic ulcers leads to stigma described as negative attitudes and beliefs society holds about individuals or groups based on perceived differences or characteristics such as a specific health condition.[4] Ulcer characteristics such as odor and drainage, and wound treatments such as bulky bandaging and special off-loading footwear affect appearance and contribute to heightened social isolation and loneliness. Stigmatization can exacerbate psychosocial hardship making it difficult to find and maintain employment, socially engage with others, and manage complex ulcer treatments.[5]

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Anxiety is highly prevalent among this population due to persistent pain and prolonged healing.[6] Stigma and anxiety, combined with low mobility and the long healing process, compound the disabling effects on well-being, creating a vicious cycle that hinders recovery and further diminishes QOL.[7] However, it is unclear whether psychosocial hardship including loneliness, social isolation, anxiety, and QOL are issues in a chronic ulcer population experiencing stigma. To address this gap, we conducted a pilot observational trial, for which data collection was carried out during routine clinic visits, aimed to explore baseline characteristics and differences in loneliness, social support, anxiety, and QOL between individuals with chronic leg ulcers perceiving stigma and those who did not.

Method

Participants

Patients were referred to the researchers by clinicians at 2 specialty wound clinics in the city where the research team was located and the study was implemented and were screened, provided written informed consent, and enrolled into the study. Eligibility criteria included: ages ≥50 years with chronic leg ulcers who were receiving treatment (wound debridement, compression therapy). Chronic ulcers were defined as a nonhealing status for at least 4 weeks prior to study enrollment. The researchers selected the lower age limit based on data that suggest chronic ulcers are typically associated with aging, and long-standing and severe venous disease, which is uncommon in younger adults.[8] Data were collected between October 2020 and September 2023.

Procedure

At baseline, participants had the option to complete electronic surveys independently via a secure link to the Research Electronic Data Capture (REDCap) study database or by having study personnel read survey items aloud during clinic visits or over the phone. Responses were entered directly into REDCap. This approach minimized potential bias by accommodating varying literacy levels, ensuring that all participants could respond accurately and without undue influence, regardless of their preferred method of survey completion. Participants received $75 (USD) in compensation.

Measures

At baseline, demographic data were collected, including age, sex, race, education level, annual household income, and disability status. Comorbidities were assessed using the Charlson Comorbidity Index.[9] Stigma was measured with the 6-item *Stigmatization Scale*, which uses a 4-point Likert scale to assess the level of perceived stigma due to the skin condition of having a chronic ulcer.[8] Scores range from "Disagree" (1) to "Strongly Agree" (4) to questions such as "*avoided me due to my ulcers*" or "*sometimes made annoying comments about my ulcers*". Scores range from 6 to 24; 6 indicates no stigma, and scores of ≥7 indicates the presence of stigma.[10] Social support was assessed with the Medical Outcomes Study Social Support Survey; 19 items within 4 subscales are rated on a 5-point Likert scale from "None of the time" (1) to "All of the time" (5), indicating the frequency of support available.[11] Scores range from 19 to 95, with higher scores indicating greater support. Loneliness was measured with the 20-item UCLA Loneliness Scale, with items rated on a 4-point Likert scale from "Never" (1) to "Often" (4) producing total scores ranging along a continuum from 20 to 80; higher scores indicate greater loneliness.[12] For our study, scores ≥40 were considered higher loneliness. Anxiety was assessed with the 6-item PROMIS instrument where items are scored on a 5-point Likert scale from "Never" (1) to "Always" (5) generating T-scores (mean 50, standard deviation [SD]10); higher scores indicate greater anxiety.[13] The QOL related to appearance was evaluated with 2 items from the 26-item VEINES-QOL/Sym scale, a disease-specific QOL instrument for individuals with chronic venous disease and has been used in studies of chronic leg ulcers, reflecting concerns about leg appearance and clothing choice.[14] The 2 questions "*How much of the time during the past 4 weeks have you felt concerned about the appearance of your leg(s)?*" and "*How often has the appearance of your leg(s) influenced your choice of clothing?*" were rated on a 6-point Likert scale from "None" (0) to "All of the time" (5). All measures demonstrated acceptable psychometric properties with Cronbach's alpha values exceeding the commonly accepted threshold of 0.70, indicating adequate to high internal consistency.

Statistical Analysis

Results are described using descriptive statistics including percentages for participant characteristics. Inferential statistics are reported as differences in means and SDs with 95% confidence intervals for psychosocial variables including loneliness, social isolation, anxiety, and appearance and clothing-related QOL.

Results

Total sample demographic data for 26 completers and per S- and S+ (n = 13/group) are reported in Table 1. For the total sample, participants were: 63.2 years of age, 38% female, 58% Black/African American, 73% had at least a high school education, and 77% were single. The average BMI was 38.7 kg/m^2, and the Charlson Index Score for comorbidities was 3.7. Data for the psychosocial variables are reported in Table 2, noting differences in stigma, social support, anxiety, and QOL.

Table 1. Baseline Characteristics and Outcomes per Group.

	Group assignment	
Characteristics	No Stigma (n = 13)	Stigma (n = 13)
Age		
Mean number of years	64.7 ± 9.3	61.7 ± 10.9
Sex		
Female	38% (5/13)	38% (5/13)
Male	62% (8/13)	62% (8/13)
Race		
American Indian or Alaskan Native	8% (1/13)	–
Black or African American	61% (8/13)	54% (7/13)
White	23% (3/13)	46% (6/13)
Other/More than one race	8% (1/13)	–
Ethnicity		
Non-Hispanic or Latino/a	100% (13/13)	100% (13/13)
Highest level of education completed		
Less than high school education	15% (2/13)	38% (5/13)
High school graduate	46% (6/13)	8% (1/13)
Some college, no degree	8% (1/13)	31% (4/13)
Associate degree and/or higher degree	31% (4/13)	23% (3/13)
Marital status		
Never married—single	31% (4/13)	39% (5/13)
Married	31% (4/13)	15% (2/13)
Separated	–	8% (1/13)
Divorced	23% (3/13)	23% (3/13)
Widowed	15% (2/13)	15% (2/13)
Employment status		
Disabled	8% (1/13)	39% (5/13)
Looking for work and/or unemployed	23% (3/13)	–
Retired	23% (3/13)	22% (3/13)
Working now	46% (6/13)	39% (5/13)
Number of chronic leg ulcers		
1	77% (10/13)	69% (9/13)
2	15% (2/13)	–
3-4	8% (1/13)	31 (4/13)
Health insurance		
Yes	92% (12/13)	100% (13/13)
Resides in rural area (HRSA census definition)		
Rural designation	–	7.7% (1/13)
Home ownership		
Owns property	77% (10/13)	31% (4/13)
Rents property	23% (3/13)	54% (7/13)
Occupies without paying monetary rent	–	15% (2/13)
Household income		
$19 999 or less	15% (2/13)	15% (2/13)
$20 000-$49 999	46% (6/13)	31% (4/13)
$50 000-$74 999	–	38% (5/13)
$75 000-$99 999	8% (1/13)	–
$100 000 or more	23% (3/13)	8% (1/13)
Prefer not to say	8% (1/13)	8% (1/13)
Body mass index (BMI)		
Mean BMI (kg/m^2)	37.0 ± 10.5	40.5 ± 11.0
Most prevalent comorbidities (top 6)		
Diabetes	23% (3/13)	46% (6/13)
Heart failure	23% (3/13)	23% (3/13)
Peripheral vascular disease	15% (2/13)	31% (4/13)
Chronic pulmonary disease	8% (1/13)	38% (5/13)
Ulcer disease	8% (1/13)	15% (2/13)
Lymphoma and multiple myeloma	–	23% (3/13)
Medications		

(continued)

Table 1. (continued)

Characteristics	Group assignment	
	No Stigma (n = 13)	Stigma (n = 13)
Psychotropics	8% (1/13)	38% (5/13)
Insulin	8% (1/13)	15% (2/13)
Diuretics	23% (3/13)	38% (5/13)
NSAIDS	23% (3/13)	38% (5/13)
Diabetes pills	23% (3/13)	31% (4/13)
Pain pills	15% (2/13)	46% (6/13)
Cholesterol meds	46% (6/13)	69% (9/13)
Antihypertensive	92% (12/13)	77% (10/13)
UCLA loneliness score		
Higher lonely (≥40)	15% (2/13)	54% (7/13)
Less lonely (≤39)	85% (11/13)	46% (6/13)

N = 26.
Abbreviations: HRSA, Health Resources and Services Administration; SD, standard deviation; UCLA, University of California Los Angeles.

Table 2. Psychosocial Variables (N = 26).

Variables	Groups		Differences in means ± SD	95% confidence interval
	No Stigma (n = 13)	Stigma (n = 13)		
UCLA Loneliness	33.6 ± 13.6	38.2 ± 9.6	[−4.6 ± 11.8]	[−14.2; 4.9]
MOSS Social Support	77.0 ± 21.9	64.5 ± 22.3	[−12.5 ± 22.10]	[−5.4; 30.4]
Quality of Life: Appearance	4.2 ± 1.9	2.8 ± 1.6	[1.3 ± 1.7]	[−0.1; 2.7]
Quality of Life: Clothing	4.6 ± 1.6	2.4 ± 1.3	[2.2 ± 1.4]	[1.1; 3.4]
PROMIS Anxiety *t* score	43.3 ± 8.5	50.5 ± 7.6	[−7.2 ± 8.0]	[−13.7; −0.7]

Abbreviations: MOSS, Medical Outcomes Study Social Support Survey; PROMIS, Patient-Reported Outcomes Measurement Information System; UCLA, University of California Los Angeles.

Discussion

In this study, we assessed a chronic ulcer population with and without stigma, a variable linked to psychosocial hardship including social support, loneliness, anxiety, and appearance-related QOL. The demographic characteristics of the study sample, which had an average age of 63 years, included >50% were Black/African American and >75% were single, aligning with research highlighting the vulnerability of older, minority, and single populations to stigma, loneliness, and anxiety.[15] Although male participants (62%) outnumbered females (39%), contrasting with studies reporting higher stigma in women, this finding may reflect unique socioeconomic or social support factors in this sample.[16]

The S+ group reported less social support and higher loneliness, consistent with literature linking stigma to social isolation.[17] While anxiety scores in the S+ group were higher, they aligned with general population norms, contrasting with findings associating stigma with worsened mental health.[18] The S+ group also had higher BMIs and more comorbidities, including diabetes and chronic pulmonary disease, reflecting a higher prevalence of obesity and concurrent health conditions, patterns common in chronic ulcer populations.[19]

The QOL scores for appearance and clothing were slightly higher in the S- group, suggesting stigma does not uniformly worsen QOL. Modest group differences may reflect resilience factors such as community support, buffering stigma's effects. Further research is needed to explore protective factors mitigating stigma's impact on well-being.[20]

Limitations

Limitations of this study include the appropriateness of the scale to measure stigma, which was not specific to chronic leg ulcers, thus might not have captured the experiences of this population such as forms of social rejection, perceived discrimination, or internalized stigma, resulting in an underestimation of stigma. Consequently, findings not specific to chronic leg ulcers might have yielded different results. The use of only 2 items from the VEINES/QOL is a limitation, as the validity and reliability of these 2 items have not been formally evaluated. A potential limitation is that 77% of participants were single, which may limit generalizability to broader populations. Exploring potential interventions, such as peer support groups, counseling services, or community outreach programs, could further illuminate ways to strengthen these protective factors. Although small, the

observational nature of the trial still provides valuable insights and may serve as a basis for generating hypotheses for further research. In addition, differences should be considered in relation to the actual scales to assess potential relevance and should be further investigated in larger longitudinal studies, especially those interventional in nature.

Conclusion

This pilot study highlights the complex interplay among stigma, social support, loneliness, anxiety, and QOL factors in individuals with chronic ulcers. Differences between stigma groups were observed, with higher loneliness and anxiety, and lower social support reported in the S+ group, affirming associations documented in previous literature. The findings suggest that stigma can exacerbate mental health challenges in vulnerable populations, particularly within older, minority, and single demographic groups. Notably, QOL scores related to appearance and clothing were higher in the S- group, indicating potential resilience factors or coping mechanisms, in managing stigma's impact on QOL. Future research should consider targeted stigma measures for chronic ulcers and explore protective factors to enhance well-being among those affected by this condition. These data may inform psychosocial or resilience interventions (peer/family support, meditation, creative activities) for clinical practice, community-based care guidelines, or policy changes aimed at reducing the impact of stigma, potentially improving ulcer healing and overall QOL.[21]

Chronic leg ulcers affect millions globally, leading to visible abnormal skin changes and the need for bulky dressings for treatment which can cause stigma associated with altered physical appearance. Stigma negatively affects socialization, leading to isolation, loneliness, anxiety, and poor quality of life. These psychosocial hardships, especially in older, minority, and single individuals who are more susceptible to stigma, highlight the need for targeted interventions delivered in clinical settings to mitigate stigma, which may positively support this vulnerable population.

Author Contributions

Conceptualization: TK, MM, MP, and MM[1]; Formal analysis: MM[1]; Funding acquisition: TK; Supervision: TK and MP; Investigation: TK, MM, MP, and MM[1]; Methodology: TK and MM[1]; Writing—original draft: TK; editing and revising: TK, MM[1], MP, and MM.

Data Availability Statement

Data are available and may be obtained from the first author upon request.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethics Approval

Ethical approval to report this case was obtained from Medical University of South Carolina, Charleston, SC Institutional Review Board (IRB) (#00102546) on August 28, 2020. All procedures in this study were conducted in accordance with the IRB-approved protocols. Written informed consent was obtained from the patients for their anonymized information to be published in this article.

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References

1. Martinengo L, Olsson M, Bajpai R, et al. Prevalence of chronic wounds in the general population: systematic review and meta-analysis of observational studies. *Ann Epidemiol*. 2019;29:8-15. doi:10.1016/j.annepidem.2018.10.005
2. Zhang H, Wang M, Zhao X, Wang Y, Chen X, Su J. Role of stress in skin diseases: a neuroendocrine-immune interaction view. *Brain Behav Immun*. 2024;116:286-302. doi:10.1016/j.bbi.2023.12.005
3. Crocker RM, Palmer KNB, Marrero DG, Tan TW. Patient perspectives on the physical, psycho-social, and financial impacts of diabetic foot ulceration and amputation. *J Diabetes Complications*. 2021;35(8):107960. doi:10.1016/j.jdiacomp.2021.107960
4. Germain N, Augustin M, François C, et al. Stigma in visible skin diseases: a literature review and development of a conceptual model. *J Eur Acad Dermatol Venereol*. 2021;35(7):1493-504. doi:10.1111/jdv.17110
5. Barreto M, van Breen J, Victor C, et al. Exploring the nature and variation of the stigma associated with loneliness. *J Soc Pers Relat*. 2022;39(9):2658-79. doi:10.1177/02654075221087190
6. Stechmiller JK, Lyon D, Schultz G, et al. Biobehavioral mechanisms associated with nonhealing wounds and psychoneurologic symptoms in older individuals with chronic venous leg ulcers. *Biol Res Nurs*. 2019;21(4):407-19. doi:10.1177/1099800419853881
7. Hohls JK, König H-H, Quirke E, Hajek A. Anxiety, depression, and quality of life—A systematic review of evidence from

longitudinal observational studies. *Int J Environ Res Public Health*. 2021;18(22):12022. doi:10.3390/ijerph182212022

8. Mayrovitz HN, Wong S, Mancuso C., Venous, Arterial, and neuropathic leg ulcers with emphasis on the geriatric population. *Cureus*. 2023;15(4):e38123. Published 2023 Apr 25. doi:10.7759/cureus.38123
9. Charlson ME, Pompei P, Ales KL, MacKenzie CR. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. *J Chronic Dis*. 1987;40(5):373-83. doi:10.1016/0021-9681(87)90171-8
10. Lu Y, Duller P, Valk P, Evers AWM. Helplessness as predictor of stigmatization in patients with psoriasis and atopic dermatitis. *Dermatol Psychosomat*. 2003;4(3):146-50. doi:10.1159/000073991
11. Sherbourne CD, Stewart AL. The MOS social support survey. *Soc Sci Med*. 1991;32(6):705-14. doi:10.1016/0277-9536(91)90150-B
12. Russell D, Peplau LA, Ferguson ML. Developing a measure of loneliness. *J Pers Assess*. 1978;42(3):290-4. doi:10.1207/s15327752jpa4203_11
13. Pilkonis PA, Choi SW, Reise SP, et al. Item banks for measuring emotional distress from the patient-reported outcomes measurement information system (PROMIS®): depression, anxiety, and anger. *Assessment*. 2011;18(3):263–83. doi:10.1177/1073191111411667
14. Lamping DL, Schroter S, Kurz X, et al. Evaluation of outcomes in chronic venous disorders of the leg: development of a scientifically rigorous, patient-reported measure of symptoms and quality of life. *J Vasc Surg*. 2003;37(2):410–9. doi:10.1067/mva.2003.152
15. Hawkley LC, Cacioppo JT. Loneliness matters: a theoretical and empirical review of consequences and mechanisms. *Ann Behav Med*. 2010;40(2):218-27. doi:10.1007/s12160-010-9210-8
16. Hughes O, Hutchings PB, Phelps C. Stigma, social appearance anxiety, and coping in men and women living with skin conditions: a mixed methods analysis. *Skin Health Dis*. 2021;2(4):e73. doi:10.1002/ski2.73
17. Taylor HO, Cudjoe TKM, Bu F, Lim MH. The state of loneliness and social isolation research: current knowledge and future directions. *BMC Public Health*. 2023;23(1):1049. doi:10.1186/s12889-023-15967-3
18. Gisondi P, Puig L, Richard MA, et al. Quality of life and stigmatization in people with skin diseases in Europe: a large survey from the 'burden of skin diseases' EADV project. *J Eur Acad Dermatol Venereol*. 2023;37(Suppl 7):6-14. doi:10.1111/jdv.18917
19. Garavello A, Fransvea P, Gilardi S, Fiamma P. Venous ulcers: look at the patient, not at the ulcer! risk factors and comorbid conditions in venous ulcers of lower limbs. *Minerva Cardiol Angiol*. 2023;71(5):575-81. doi:10.23736/S2724-5683.23.06130-6
20. Nowak M, Piechota D, Baranska-Rybak W. Gdansk wound-QoL questionnaire: pilot study on health-related quality of life of patients with chronic ulcers with emphasis on professional physician-patient relations. *Dermatol Pract Concept*. 2024;14(3):e2024138. doi:10.5826/dpc.1403a138
21. Topp J, Andrees V, Weinberger NA, et al. Strategies to reduce stigma related to visible chronic skin diseases: a systematic review. *J Eur Acad Dermatol Venereol*. 2019;33(11):2029-38. doi:10.1111/jdv.15734