

**CORRELATION BETWEEN HEALTH-RELATED
OUTCOMES AND PERCEIVED SOCIAL SUPPORT
IN PATIENTS WITH MILD AND MODERATE BURNS:
A CROSS-SECTIONAL STUDY**

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Abstract

Social support is vital for burn patients' recovery, yet research on its correlation with health outcomes has predominantly focused on severe cases, with limited studies on mild to moderate burns, particularly in China. This study aimed to address this gap.

A descriptive study was conducted from June to October 2023 with 343 adult patients with mild and moderate burns at the Gansu Provincial Burns Center. Data were collected using a general information questionnaire, the Adult Burn Outcome Questionnaire (ABOQ), and the Multidimensional Scale of Perceived Social Support (MSPSS). Data were analyzed using variance analysis and multiple linear regression.

The mean scores for perceived social support and burn outcomes were 67.64 ± 16.84 and 33.54 ± 7.86 , respectively. Perceived social support was significantly negatively correlated with overall health-related outcomes ($r = -0.20$, $P < 0.01$) and specific domains including physical function, perceived appearance, sexual function, emotion, and family function (all $P < 0.05$). Higher social support was associated with better outcomes.

Although patients with mild and moderate burns reported high levels of perceived social support, their quality of life remained poor. The findings underscore the need for nurses to prioritize these patients, address their physical and emotional needs, and leverage family and social support systems to enhance their quality of life.

Key words: burn, quality of life, social support

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Introduction. Burns represent a significant global health problem, yet research disproportionately focuses on severe cases, leaving the majority of patients underrepresented. Epidemiological data from China highlight this discrepancy: a 17-year retrospective study in the southwest found that patients with a Total Body Surface Area (TBSA) burn of 0–20% accounted for over 80% of all cases [1]. Similarly, a review from a major burn center reported that mild and moderate burns constituted 79.4% of pediatric, 72% of adult, and 67.57% of elderly patients [2]. Despite this high prevalence, the physical, psychological, and social conditions of mild and moderate burn patients remain poorly understood [3].

Social support is recognized as one of the most prominent and modifiable predictors of post-burn maladaptation [4]. Defined as a resource exchange intended to enhance well-being [5], it plays a crucial role in both physical and mental health across various populations [6–8]. Its therapeutic mechanism is widely considered a buffering effect, where social support mitigates the harmful impact of stress by altering the stressor's appraisal and improving emotional responses [9, 10]. This protective effect has been definitively confirmed in the context of burn patient recovery [11].

However, a critical research gap exists. There are few studies specifically examining the correlation between perceived social support and health-related outcomes in burn patients, and this area is particularly under-studied in China. Therefore, this study focuses specifically on the mild and moderate burn population. The objective is to explore the correlation between their perceived social support and key health-related outcomes, thereby providing a theoretical basis for developing interventions that help patients leverage family and social resources to promote their overall quality of life.

Materials and methods. Study design. This descriptive study was conducted from June to October 2023 in the outpatient clinic of the HeBei Province Burn Center, China.

Participants. Participants were recruited via convenience sampling. Inclusion criteria were: (1) age ≥ 18 years; (2) diagnosis of a mild or moderate burn (deep partial-thickness $< 30\%$ TBSA or full-thickness $< 10\%$ TBSA); and (3) voluntary participation. Exclusion criteria were: (1) inability to cooperate due to mental health issues or consciousness disturbances; and (2) physical disability or severe comorbidities unrelated to the burn. Informed consent was obtained from all participants.

Data collection and instruments. Data were collected through face-to-face interviews using three questionnaires: a General Information Questionnaire, the Multidimensional Scale of Perceived Social Support (MSPSS), and the Adult Burn Outcome Questionnaire (ABOQ). Burn area (TBSA) was assessed by two nurses using the Rule of Nines and the Rule of Palms, with clinical data supplemented from medical records.

General Information Questionnaire: Collected demographic data (e.g., age, sex, education, income) and burn-related data (e.g., etiology, TBSA).

Multidimensional Scale of Perceived Social Support (MSPSS): A 12-item scale measuring perceived support from family, friends, and significant others. Items are scored on a 7-point Likert scale, with higher scores indicating greater perceived support. The scale demonstrated excellent reliability in this sample (Cronbach's $\alpha = 0.967$).

Adult Burn Outcome Questionnaire (ABOQ): A 14-item scale assessing health-related outcomes across domains such as pain, physical function, appearance, and emotion. Higher scores indicate worse outcomes. The Chinese version used in this study showed good reliability (Cronbach's $\alpha = 0.773$).

Ethical approval. An ethics review was obtained from Gansu Provincial Hospital, China. All the information was confidential, and every patient was voluntary. All procedures performed in studies involving human participants were by the ethical standards of the institutional and/or national research committee.

Results. Participant sociodemographic characteristics. A total of 360 questionnaires were distributed and 343 questionnaires were returned (95.3%). Of the 343 participants, 44.61% were male and 55.39% were female. The mean age of participants in the study was 41.88 ± 16.82 years, and 200 patients (58.31%) aged 18–44 years, 89 (25.95%) aged 45–59 years, and 54 (15.74%) were elderly adults aged over 60 years. The mean %TBSA among the study population was $2.49 \pm 2.40\%$. According to the Chinese categorization, 316 cases (92.13%) were mild burn patients and 27 (7.87%) were moderate burns. Table 1 presents the sociodemographic characteristics.

The health-related outcomes in patients with mild and moderate burns. In this study, the overall score of ABOQ was 33.54 ± 7.86 (normal range 14–57). The score of patients in the low support group was 39.82 ± 6.78 , that of patients in the moderate support group was 34.71 ± 9.32 , and that of patients in the high support group was 32.63 ± 7.04 . The result of ANOVA showed there were significant differences between high, moderate and low support groups ($F = 8.352$, $P < 0.05$), that is, the higher the level of social support, the better the health-related outcome of mild and moderate burn patients. Table 2 presented the scores of each item of ABOQ.

Discussion. This study examined the correlation between perceived social support and health-related outcomes in patients with mild and moderate burns. The findings revealed that patients reported relatively high levels of perceived social support, with a mean MSPSS score of 67.64. This is notably higher than some international studies where burn patients report scores around 60–65. The high level of support in our cohort may reflect cultural factors in China, where family support systems remain strong and burn patients often receive extensive care from family members during recovery.

T a b l e 1

Burn patients' demographic characteristics ($N = 343$)

Variable	Category	Patients	Percent (%)
Sex	Male	153	44.61
	Female	190	55.39
Nationality	Han	326	95.04
	Others	17	4.96
Age (years)	18–44	200	58.31
	45–59	89	25.95
	≥ 60	54	15.74
Education level	Primary education	72	20.99
	Secondary education	161	46.94
	Tertiary education	110	32.07
Marital status	With spouse	246	71.72
	No spouse	96	27.98
Family per capita monthly income (RMB)	≤ 1000	14	4.08
	1001–2000	77	22.45
	2001–3000	151	44.02
	> 3000	101	29.45
Aetiology of burns	Hot liquid	206	60.06
	Hot solid	41	11.95
	Flame	58	16.91
	Chemicals	13	3.79
	Electricity	25	7.28
Burn severity	Mild	316	92.13
	Moderate	27	7.87

The negative correlation between perceived social support and health-related outcomes ($r = -0.20$, $P < 0.01$) confirms the protective role of social support in burn recovery. Higher social support was associated with better outcomes across multiple domains including physical function, perceived appearance, sexual function, emotion, and family function. This aligns with the stress-buffering hypothesis, suggesting that social support helps patients cope with the psychological and physical challenges of burn recovery.

Despite reporting high social support, patients' quality of life remained relatively poor, as indicated by the ABOQ scores. This paradox suggests that while social support is beneficial, it may not be sufficient to fully address the complex needs of burn patients. The findings underscore the need for comprehensive interventions that go beyond social support to address physical rehabilitation, psychological counselling, and occupational therapy.

Several limitations should be acknowledged. First, the cross-sectional design precludes causal inferences. Second, the study was conducted at a single center,

T a b l e 2

Scores of ABOQ in patients with mild and moderate burns

Items	Mean	SD	Theoretical range
1 Pain	2.80	1.32	1–5
2 Itch	1.86	1.29	1–5
3 Physical function	1.63	0.94	1–5
4 Fine motor function	1.59	0.95	1–5
5 Social function limited by physical function	1.81	0.43	0–1
6 Perceived appearance	2.13	1.28	1–5
7 Social function limited by appearance	1.75	0.43	0–1
8 Sexual function	2.17	1.48	1–5
9 Emotion	2.90	1.18	1–5
10 Family function (time limited)	2.52	1.13	1–5
11 Family function (activities interrupted)	2.48	1.19	1–5
12 Family concern	3.42	1.11	1–5
13 Satisfaction with symptom relief	3.08	1.09	1–5
14 Satisfaction with role	3.41	1.17	1–5
Total score of ABOQ	33.54	7.86	12–62
Low support group	39.82	6.78	$P < 0.05$
Moderate support group	34.71	9.32	
High support group	32.63	7.04	

Note: ABOQ = Adult Burn Outcome Questionnaire; SD = Standard Deviation

which may limit generalizability. Third, self-reported measures may be subject to recall bias. Future studies should employ longitudinal designs and multi-center sampling to validate these findings.

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