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# Analysis of Spiritual Care Needs and Influencing Factors among Liver Cancer Patients

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## Abstract

**Objective:** This study aims to investigate the current status and influencing factors of spiritual care needs among liver cancer patients. Using the Chinese version of the Patient's Need for Spiritual Care from Nurses Scale, we quantitatively analyzed the current spiritual care need scores of liver cancer patients, compared differences in spiritual care needs across various sociodemographic and disease characteristics, analyzed the factors influencing spiritual care needs, and examined the relationship between spiritual care needs and social support as well as perceived burden. **Methods:** From February to November 2025, 200 liver cancer patients hospitalized in the gastroenterology departments of four Grade III Class A hospitals in Wuhan were selected using convenience sampling for questionnaire surveys. Survey tools included a general information questionnaire, the Chinese version of the Nursing Spiritual Care Scale (NSTS), the Self-Perceived Burden Scale (SPBS), and the Perceived Social Support Scale (PSSS). **Results:** The mean score for the Spiritual Care Needs Scale was (38.99 ± 6.34), indicating moderate demand. The mean Self-Perceived Burden Scale score was (38.56 ± 9.76), and the total social support score was (56.69 ± 9.67) points. The total spiritual care needs score of liver cancer patients showed a positive correlation with the total social support score ($r = 0.735$, $P < 0.01$), while it exhibited a negative correlation with the total self-perceived burden score ($r = -0.556$, $P < 0.01$). **Conclusion:** This study indicates that spiritual care needs are prevalent among liver cancer patients. However, implementing spiritual needs assessments and providing spiritual care in clinical settings faces significant challenges. Therefore, future efforts should incorporate spiritual care training into routine healthcare provider education and integrate theories related to spiritual needs into clinical practice. This will help healthcare providers fully recognize the importance of addressing spiritual needs in patient treatment and care.

**Keywords**

Spiritual Care Needs, Liver Cancer Patients, Social Support

## 1. Introduction

Primary liver cancer ranks as the sixth most common cancer and the third leading cause of cancer death globally (Sung et al., 2021). Its incidence exhibits significant age dependency, with most patients diagnosed after age 50 (Burton et al., 2021), primarily presenting as hepatocellular carcinoma (HCC). In recent years, key risk factors and lifestyle changes—such as the rising incidence of nonalcoholic steatohepatitis (NASH) (Asrani et al., 2019), hepatitis virus infections from unsafe intravenous drug use(LeFever, 2014; Modin et al., 2019), and alcohol abuse (GBD Alcohol Collaborators, 2018)—have contributed to a trend of younger age at diagnosis for liver cancer (Ugai et al., 2022). In recent years, advances in science and technology alongside improvements in medical care—including the combined application of thoracoscopic surgery, chemotherapy, molecular targeted therapy, and immunotherapy—have extended the survival period for liver cancer patients. However, symptoms of the disease, physical pain, treatment side effects, high treatment costs, and fear of death persist throughout the treatment and recovery process (Fan et al., 2022). During treatment and recovery, patients endure physical, psychological, and spiritual suffering and stress. They seek solace in their spiritual world, hoping to transcend pain, overcome adversity, attain inner peace, and improve their quality of life and spiritual well-being. As a particularly traumatic event, liver cancer poses a severe threat to patients' spiritual health. Domestic and international studies (Lazenby, 2018) indicate that nearly all cancer patients have spiritual care needs. Spiritual care (Vilalta et al., 2014) refers to the attitudes and behaviors adopted by clinical healthcare providers to assist patients in seeking meaning in life and restoring inner peace and tranquility, based on their beliefs and faith. This study aims to investigate the current status of spiritual care needs, anxiety and depression symptoms, and social support among liver cancer patients, and to analyze the correlations between spiritual care needs and self-efficacy management as well as social support among liver cancer patients. Quantitative analysis of the current status and influencing factors of spiritual care needs among liver cancer patients will enhance healthcare providers' awareness of assessing and intervening in these needs. It will also facilitate the development of targeted recommendations and strategies, providing practical guidance for creating individualized spiritual care intervention plans for liver cancer patients.

## 2. Material and Methods

### 2.1. Participants

Using convenience sampling, 200 hospitalized liver cancer patients admitted to

four Class A tertiary hospitals in Wuhan from February to November 2025 were selected as study subjects. Inclusion criteria: 1) Pathologically confirmed liver cancer diagnosis; 2) Age ≥ 18 years; 3) Ability to independently read or complete required questionnaires with researcher assistance; 4) Informed consent and voluntary participation.

Exclusion criteria: 1) Patients with impaired consciousness; 2) Patients with expressive language impairment; 3) Patients with comprehension difficulties; 4) Patients who had previously participated in similar research projects.

## 2.2. Instruments

1) General Patient Information Questionnaire

Based on a review of domestic and international literature and consultation with experts, a self-developed general patient information questionnaire was created. It includes details such as the patient's gender, age, ethnicity, religious beliefs, marital status, educational background, per capita monthly income, health insurance type, and employment status.

2) Chinese Version of the Nurse Spiritual Therapeutics Scale (NSTS)

Developed by Taylor & Mamier (2005), Xie Haiyan et al. (2017) translated, localized, and adjusted its items. With an S-CVI of 0.95 and Cronbach's α coefficient of 0.79, it demonstrates good reliability and validity, primarily measuring patients' demand for spiritual care. The Chinese version comprises 5 dimensions with 12 items: "Sharing Spiritual Insights" (5 items), "Facilitating Reflection" (3 items), "Creating a Supportive Environment" (2 items), "Exploring Spiritual Beliefs" (1 item), and "Supporting Religious Practices" (1 item). The scale employs a 4-point Likert scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree. Scores range from 12 to 48, with higher scores indicating greater patient need for spiritual care. In this study, the scale demonstrated high reliability with a Cronbach's α coefficient of 0.925.

3) Perceived Social Support Scale (PSSS)

Developed by Zimet et al. (1990), the Chinese version was adapted by Jiang Qianjin et al. (1999) to assess individuals' social support levels. The scale's Cronbach's α coefficient is 0.880. The scale comprises three dimensions with 12 items: "Family Support" (4 items), "Friends Support" (4 items), and "Other Support" (4 items). It employs a 7-point Likert scale, where scores 1 - 7 represent "Disagree" to "Strongly Agree". The total score ranges from 12 to 84 points, with 12 - 35 points, 36 - 60 points, and 61 - 84 points representing low, moderate, and high social support levels, respectively. Higher scores indicate greater social support. 84 points, with 12 - 36 points, 37 - 60 points, and 61 - 84 points representing low, medium, and high levels of social support, respectively. Higher scores indicate greater levels of social support. The Cronbach's α coefficient in this study was 0.969.

4) The Self-Perceived Burden Scale (SPBS)

Originally developed by Cousineau et al. (2003), the Chinese version was

adapted by Wu & Jiang (2010) to assess self-perceived burden among chronic disease patients. The Cronbach's α coefficient for this scale was 0.910. The scale consists of 3 dimensions and 10 items, namely "economic burden"—1 item, "emotional burden"—4 items, and "physical burden"—5 items. The scale uses the Likert 5-point rating method, with 1 to 5 representing from "never" to "always", and item 8 is a reverse-scored item. The total score ranges from 10 to 50. Scores of <20, 20 - 29, 30 - 39, and ≥40 respectively represent no burden, mild, moderate, and severe burden. The higher the score, the greater the self-perceived burden of the patients. The Cronbach's α coefficient in this study was 0.966.

## 2.3. Methods

This study is a cross-sectional investigation conducted from February to November 2025, involving a questionnaire survey of patients with advanced liver cancer in the gastroenterology department of four Grade A tertiary hospitals in Wuhan. A pilot study was conducted prior to the main survey to refine the questionnaire and research methodology. After obtaining informed consent from patients and their families, researchers distributed the questionnaires for self-completion by participants. The completion time was set to no less than 20 minutes and no more than 30 minutes. Patients filled out the questionnaires based on their own circumstances. For those unable to complete the questionnaire independently, researchers assisted through a question-and-answer format, providing clarification throughout the process. Completed questionnaires were collected immediately. Researchers reviewed each questionnaire for completeness, prompting patients to correct or supplement any omissions or incomplete responses.

A total of 210 questionnaires were distributed, with 200 valid responses collected, yielding a valid response rate of 95.20%.

## 2.4. Data Analysis

Data entry and statistical analysis were performed using Excel 16.0 and SPSS 24.0. A $P$ value < 0.05 was considered statistically significant. Statistical methods employed included descriptive statistics, questionnaire reliability testing, normality tests, independent samples t-tests and Mann-Whitney U tests, one-way ANOVA, and Pearson correlation analysis. Specific methods are detailed below:

1) Descriptive statistical analysis was sequentially performed on general characteristics, spiritual needs, perceived burden, and social support levels among liver cancer patients. Count data were described using rates and frequencies.

2) Kolmogorov-Smirnov and Shapiro-Wilk tests assessed data normality. Continuous variables meeting normality criteria were described as mean ± standard deviation.

3) Independent samples t-tests, Mann-Whitney U tests, and one-way ANOVA were used to compare differences in spiritual needs among general demographic characteristics in liver cancer patients.

4) Pearson correlation analysis was employed to investigate the relationship be-

tween spiritual needs, perceived burden, and social support among live cancer patients. If the data conform to a normal distribution, Pearson correlation analysis is employed; if the data do not conform to a normal distribution, Spearman correlation analysis is employed.

5) Multivariate stepwise regression analysis was conducted using statistically significant variables from univariate analysis and correlation analysis as independent variables and spiritual care needs as the dependent variable. A $P$-value < 0.05 was considered statistically significant.

## 3. Results

This study included 200 patients, predominantly female at 121 cases (60.50%) and male at 79 cases (39.50%); the average age was (58.10 ± 11.63) years; marital status was predominantly married at 175 cases (87.50%); Educational attainment was predominantly junior high school level (n = 85, 42.50%); most patients had no religious affiliation (n = 171, 85.50%); hospitalization frequency was most commonly five or more times (n = 130, 65.0%); loss of appetite was most prevalent (n = 99, 49.5%); pain-free patients constituted the majority (n = 97, 48.50%); Difficulty falling asleep (unable to sleep within 30 minutes) was reported by 102 patients (51.00%); light exercise intensity was reported by 121 patients (60.50%). See Table 1 for details.

**Table 1.** Sociodemographic characteristics of liver cancer patients (n = 200).

| Projects | Variables | n | % |
|---|---|---|---|
| Gender | Male | 79 | 39.50 |
| | Female | 121 | 60.50 |
| Age | ≤40 | 14 | 7.00 |
| | 41 - 50 | 44 | 22.00 |
| | 51 - 60 | 45 | 22.50 |
| | ≥61 | 97 | 48.50 |
| Marital Status | Unmarried | 6 | 3.00 |
| | Married | 175 | 87.50 |
| | Divorced and subsequently widowed | 19 | 9.50 |
| Educational Background | Elementary school and below | 45 | 22.50 |
| | Junior high school or technical secondary school | 85 | 42.50 |
| | High school or junior college | 51 | 25.50 |
| | Bachelor's degree or above | 19 | 9.50 |
| Employment Status | Currently employed | 21 | 10.50 |
| | Retired | 81 | 40.50 |
| | Unemployed | 98 | 49.00 |

**Continued**

| | | | |
|---|---|---|---|
| Religious Beliefs | Yes | 29 | 14.50 |
| | No | 171 | 85.50 |
| Number of Hospitalizations | <3 | 35 | 17.50 |
| | 3 - 5 | 35 | 17.50 |
| | >5 | 130 | 65.00 |
| Method of Medical Expense Payment | Out-of-pocket | 16 | 8.00 |
| | Resident Medical Insurance | 92 | 46.00 |
| | Municipal Medical Insurance | 92 | 46.00 |
| Patient Satisfaction with Medical Care | Satisfied | 148 | 74.00 |
| | Fairly satisfied | 52 | 26.00 |
| Gastrointestinal Symptoms | Loss of appetite | 99 | 49.50 |
| | Nausea | 70 | 35.00 |
| | Oral mucositis | 10 | 5.00 |
| | Constipation | 21 | 10.50 |
| Pain Level | Pain-free | 97 | 48.50 |
| | Mild pain | 74 | 37.00 |
| | Moderate pain | 23 | 11.50 |
| | Severe pain | 6 | 3.00 |
| Sleep Quality | Difficulty falling asleep | 102 | 51.00 |
| | Early awakening | 30 | 15.00 |
| | Easily awakened | 25 | 12.50 |
| | Requires medication | 28 | 14.00 |
| | Insomnia | 15 | 7.50 |
| Exercise Intensity | Moderate intensity | 79 | 39.50 |
| | Mild intensity | 121 | 60.50 |

The results of this study indicate that the average score on the Spiritual Care Needs Questionnaire for liver cancer patients was (38.99 ± 6.34). Higher scores on this questionnaire indicate greater spiritual care needs among patients. The highest-scoring dimension was "Creating a Supportive Atmosphere" (2.97 ± 0.82), while the lowest-scoring dimension was "Assisting with Religious Practices" (2.06 ± 0.73). The highest-scoring item was "Listening to me discuss my spiritual concerns" (3.47 ± 0.77), while the lowest-scoring item was "Initiating conversations about meditation or assisting me with meditation" (2.30 ± 0.64). See Table 2 and Table 3 for details.

**Table 2.** Total scores and dimension scores for spiritual care needs (n = 200).

| Total Score/Dimension | Minimum | Maximum | Score ( $\bar{x} \pm s$ ) | Item Mean ( $\bar{x} \pm s$ ) |
|---|---|---|---|---|
| Total Spiritual Care Needs Score | 12 | 48 | 38.99 ± 6.34 | 3.83 ± 0.63 |
| Share personal insights | 5 | 20 | 16.22 ± 3.30 | 2.74 ± 1.66 |
| Facilitate reflection | 3 | 12 | 7.85 ± 3.01 | 2.62 ± 0.44 |
| Cultivate a positive environment | 2 | 8 | 6.34 ± 1.44 | 2.97 ± 0.82 |
| Explore spiritual beliefs | 1 | 4 | 3.81 ± 1.95 | 2.71 ± 0.75 |
| Support religious practice | 1 | 4 | 3.42 ± 1.91 | 2.06 ± 0.73 |

**Table 3.** Scores for spiritual care needs among liver cancer patients (n = 200).

| Questionnaire | Minimum | Maximum | Score ( $\bar{x} \pm s$ ) |
|---|---|---|---|
| 1. Listen to me share my spiritual strengths/inner resources | 1 | 4 | 3.23 ± 0.75 |
| 2. Listen to me share my spiritual concerns | 1 | 4 | 3.47 ± 0.77 |
| 3. Help me reflect on my dreams | 1 | 4 | 2.84 ± 0.93 |
| 4. Teach me ways to draw or write about my spiritual world | 1 | 4 | 2.38 ± 0.69 |
| 5. Listen to my life story | 1 | 4 | 2.93 ± 0.83 |
| 6. Ask about my religious practices | 1 | 4 | 2.82 ± 0.89 |
| 7. Initiate conversations about meditation or assist me in meditating | 1 | 4 | 2.30 ± 0.64 |
| 8. Inquire about what gives my life meaning | 1 | 4 | 2.64 ± 0.91 |
| 9. Bring me some humor, e.g., share a joke | 1 | 4 | 3.31 ± 0.80 |
| 10. Provide a quiet environment and space for solitude | 1 | 4 | 3.38 ± 0.73 |
| 11. Ask me about my spiritual beliefs | 1 | 4 | 2.81 ± 0.95 |

The results of this study satisfied the assumption of homogeneity of variance. Independent samples t-tests and one-way ANOVA were employed. Findings revealed statistically significant differences ($P < 0.01$) in the level of spiritual care needs among liver cancer patients with varying general characteristics, including gender, educational attainment, occupational status, household income, religious beliefs, and medical payment methods. Detailed results are presented in Table 4.

The total social support scores for the 200 liver cancer patients in this study ranged from 12 to 84 points, with a mean score of (56.69 ± 9.67) points and an average item score of (4.76 ± 0.88) points. The total scores for perceived burden ranged from 10 to 50 points, with a mean score of (38.56 ± 9.76) points and a mean item score of (3.46 ± 0.89) points. Correlation analysis revealed a positive relationship between the total spiritual care needs score and the total social support score (r = 0.735, $P < 0.01$). All dimensional scores also showed positive correlations (r = 0.525 - 0.708, all $P < 0.01$). See Table 5 for details.

**Table 4.** Comparison of spiritual care needs scores among liver cancer patients with different sociodemographic characteristics (n = 200).

| Project | Variables | NSTS Score ( $\bar{x} \pm s$ ) | t/F | *P* |
|---|---|---|---|---|
| Gender | | | −3.035[a] | 0.007 |
| | Male | 34.74 ± 8.75 | | |
| | Female | 38.38 ± 7.90 | | |
| Age | | | 1.495[b] | 0.326 |
| | 18 - 39 | 36.72 ± 8.72 | | |
| | 40 - 59 | 35.10 ± 8.69 | | |
| | 60 - 79 | 33.91 ± 8.11 | | |
| Educational attainment | | | 27.970[b] | <0.001 |
| | Elementary school and below | 32.15 ± 6.61 | | |
| | Middle School | 34.38 ± 9.19 | | |
| | Bachelor's degree or above | 39.10 ± 6.29 | | |
| Employment Status | | | 9.055[b] | <0.001 |
| | peasant | 35.33 ± 7.62 | | |
| | Currently employed | 36.59 ± 7.85 | | |
| Household income | | | 7.008[b] | <0.001 |
| | ≤1000 | 34.82 ± 7.76 | | |
| | 1001 - 3000 | 33.07 ± 9.86 | | |
| | 3001 - 5000 | 33.51 ± 8.19 | | |
| | 5001 – 10,000 | 39.74 ± 6.92 | | |
| | >10,000 | 49.00 ± 0.00 | | |
| Method of Medical Expense Payment | | | 10.079[b] | <0.001 |
| | Employee Medical Insurance | 38.75 ± 7.25 | | |
| | Resident Medical Insurance | 35.48 ± 8.19 | | |
| | Out-of-Pocket | 36.88 ± 10.45 | | |
| | Other | 34.78 ± 5.82 | | |
| Marital Status | | | 4.431[b] | 0.013 |
| | Married | 34.77 ± 8.56 | | |
| | Unmarried | 41.93 ± 5.23 | | |
| | Divorced | 31.00 ± 7.72 | | |
| | widowed | 36.14 ± 6.93 | | |
| Religious Beliefs | | | 5.241[a] | <0.001 |
| | Yes | 41.13 ± 6.83 | | |
| | No | 34.31 ± 8.47 | | |

Note: [a]denotes the t-value; [b]denotes the F-value.

Table 5. Correlation analysis between spiritual care needs and social support among liver cancer patients (r, n = 200).

| Dimension | Total Social Support Score | Family Support | Friends Support | Other Support |
|---|---|---|---|---|
| Total Spiritual Care Needs Score | 0.735** | 0.715** | 0.710** | 0.701** |
| Share personal insights | 0.713** | 0.708** | 0.697** | 0.696** |
| Facilitate reflection | 0.702** | 0.691** | 0.688** | 0.665** |
| Cultivate a positive environment | 0.647** | 0.632** | 0.615** | 0.623** |
| Explore spiritual beliefs | 0.628** | 0.619** | 0.600** | 0.599** |
| Support religious practice | 0.550** | 0.525** | 0.531** | 0.534** |

Note: **$P < 0.01$.

The correlation analysis results indicate that the total score for spiritual care needs among liver cancer patients is negatively correlated with the total score for perceived burden (r = −0.556, $P < 0.01$). Additionally, negative correlations were observed between the scores of all dimensions (r = −0.367 to −0.563, all $P < 0.01$). See Table 6 for details.

Table 6. Correlation analysis between spiritual care needs and self-perceived burden (r, n = 200).

| Dimension | Total Self-Perceived Burden Score | Physical Burden | Emotional Burden | Financial Burden |
|---|---|---|---|---|
| Total Spiritual Care Needs Score | −0.556** | −0.540** | −0.542** | −0.501** |
| Share personal insights | −0.576** | −0.563** | −0.561** | −0.518** |
| Facilitate reflection | −0.463** | −0.448** | −0.458** | −0.412** |
| Cultivate a positive environment | −0.507** | −0.501** | −0.484** | −0.469** |
| Explore spiritual beliefs | −0.388** | −0.367** | −0.391** | −0.367** |
| Support religious practice | −0.415** | −0.404** | −0.407** | −0.371** |

Note: **$P < 0.01$.

Table 7. Assignment methods for independent variables.

| Variable | Assignment Method |
|---|---|
| Educational attainment | Elementary school and below = 1; Middle School = 2; Bachelor's degree or above = 3 |
| Gender | male = 0; female = 1 |
| Method of Medical Expense Payment | Employee Medical Insurance = 1; Resident Medical Insurance = 2; Out-of-Pocket = 3; Other = 4 |
| Employment Status | peasant = 0; Currently employed = 1 |
| Household income | <1000 = 1; 1001 - 3000 = 2; 3001 - 5000 = 3; 5001 - 10000 = 4; >10,000 = 5 |
| Religious Beliefs | Yes = 0; No = 1 |

Table 8. Multivariate analysis results of spiritual needs in liver cancer patients.

| Variable | Partial regression coefficient | Standard error | Standard regression coefficient | $t$ | $P$ |
|---|---|---|---|---|---|
| First Level 1) | | | | | |
| Gender | −4.996 | 1.178 | −0.196 | −4.239 | $P < 0.001$ |
| Employment Status | −2.351 | 0.343 | −0.246 | −6.854 | $P < 0.001$ |
| Household income | 4.054 | 0.985 | 0.163 | 4.114 | $P < 0.001$ |
| Religious Beliefs | 6.210 | 1.039 | 0.229 | 5.976 | $P < 0.001$ |
| Second Level 2) | | | | | |
| Emotional burden | 0.248 | 0.034 | 0.295 | 7.306 | $P < 0.001$ |
| Family Support | 0.243 | 0.076 | 0.121 | 3.200 | 0.001 |

1): $R^2 = 0.176$, $F = 21.445$, $P < 0.001$; 2): $R^2 = 0.165$, $F = 33.806$, $P < 0.001$.

To further analyze the factors influencing spiritual needs in liver cancer patients, the spiritual care needs score was used as the dependent variable. Statistically significant demographic variables from the univariate analysis were included as control variables in the first layer. Scores for the six dimensions of perceived burden and social support were placed in the second layer. The variable assignments are shown in Table 7. The results indicate that gender, educational attainment, household income, and religious beliefs are factors influencing the spiritual needs of liver cancer patients. After controlling for general variables, scores on emotional burden and family support dimensions, along with factors influencing spiritual needs in liver cancer patients, collectively explained 16.5% of the variance, as shown in Table 8.

## 4. Discussion

In this study, the average NSTS score for liver cancer patients was (38.99 ± 6.34) points, indicating that their spiritual care needs were at a moderate level. Analysis of the reasons:

1) Liver cancer patients experience disease-related discomfort, physical pain, mental distress, and financial pressure during treatment. They seek hope through healthcare providers, resulting in varying degrees of spiritual care needs. 2) Spiritual care in China is currently in its infancy. Educational institutions lack standardized training models for spiritual care, and healthcare providers often lack a precise understanding of spiritual concepts. Consequently, they cannot effectively utilize spiritual care to mobilize positive emotions in patients and their families during clinical practice. 3) Patients and families exhibit misconceptions about spirituality, often confusing it with end-of-life care and prioritizing treatment. Consequently, demand for spiritual care remains moderate. In this study's dimensional ranking, the highest-scoring dimension was "Creating a Supportive Atmosphere" (2.97 ± 0.82), indicating liver cancer patients' high need for social support systems. In item ranking, the top items were "Listening to me discuss my spiritual

concerns" (3.47 ± 0.77), this indicates that most liver cancer patients yearn for exposure to positive experiences and acceptance of positive thoughts, while also seeking understanding and support from others to bolster their confidence in overcoming the disease (Wu & Jiang, 2010).

The results of this study indicate that female liver cancer patients exhibit higher spiritual care needs than male liver cancer patients ($P < 0.05$). Analysis of the reasons suggests that due to physiological differences between male and female patients, women experience more intense emotional fluctuations when confronting stressful events such as a cancer diagnosis. They demonstrate a stronger need to seek assistance and comfort from others. Following treatments such as surgery, radiotherapy, and chemotherapy, female patients experience greater psychological trauma and emotional vulnerability compared to male patients. Spiritual care needs vary among liver cancer patients with different educational levels. Patients with higher education exhibit statistically significant higher spiritual care needs. This indicates that more educated patients adopt appropriate coping strategies when facing stressful events like cancer diagnosis, actively seek healthcare professionals' assistance, and thus have greater spiritual care requirements (Büssing et al., 2010). Found that higher educational attainment correlates with greater spiritual care needs, particularly in seeking inner peace. Similarly, Liu Xidan et al. (2011) reported that knowledge workers experience higher psychological and mental stress compared to manual laborers, leading to a stronger need for peace. This study reveals that patients with religious beliefs scored significantly higher on spiritual care needs than those without religious beliefs, consistent with Höcker et al. (2014) findings. Spiritual care needs primarily manifest as life reflections, self-cultivation, seeking relational integration, exploring life's meaning, and attaining peace and tranquility (He, 2017). In this study, liver cancer patients with religious beliefs exhibited higher spiritual care needs scores. Analysis of reasons: During patient interactions, it was observed that religious patients were better prepared for disease prognosis. They could establish spiritual anchors through personal cultivation, peer support, and conversations with healthcare providers, resulting in higher spiritual care needs. Religious patients were generally more open about their spiritual beliefs, more willing to discuss life insights with others, and expressed willingness to participate in religious practices such as meditation. Non-religious patients tended to avoid religious topics to some extent and showed resistance toward religious beliefs. This suggests that healthcare providers should offer personalized spiritual care interventions tailored to each patient's individual characteristics. Analysis of differences in spiritual care needs among liver cancer patients based on household per capita income and medical payment methods indicates that liver cancer patients with higher household income or comprehensive medical insurance experience fewer economic burdens and reduced psychological stress related to finances during treatment. Research by Deniseg & Martin (2002) indicates that patients' economic status can predict quality of life to a certain extent and is also a significant factor influencing their spiritual well-being.

Prolonged financial burdens, the toll of illness, and family responsibilities can cause patients to lose sight of life's meaning, easily lose confidence in living, and exhibit higher physiological and safety needs while lower spiritual needs. In contrast, high-income patients can channel their energy into combating the disease and better enjoy life. They exhibit higher demands for quality of life and greater spiritual needs.

Social support serves as one of the latent resources for patients coping with disease-related stress and pressure. It not only provides personal buffering and protection but also helps maintain positive emotional experiences. Adequate social support assists patients in accurately understanding their illness, actively pursuing diagnosis, and accepting treatment (Fu, 2022). The results of this study indicate that the total social support score for liver cancer patients was (56.69 ± 9.67) points, indicating a moderate level of support overall. This score was positively correlated with their spiritual care needs, meaning that higher levels of social support were associated with greater spiritual care requirements. This finding is consistent with the results of domestic studies (Tao & Zhang, 2021; Wang et al., 2022a). Possible reasons include the following: (1) Advanced liver cancer patients, due to aging and reduced social engagement, often develop social barriers and experience a lack of care and warmth. Greater social support encourages them to open up and communicate with others, allowing them to express negative emotions to family, friends, and healthcare providers. Through this process, they receive external emotional support and strength, enabling them to actively adapt to the negative impacts of their illness and enhance their confidence in treatment. thereby increasing their need for spiritual care (Qi et al., 2023). (2) If patients' spiritual care needs remain unmet, the anxiety, hopelessness, helplessness, and other negative emotions caused by the disease can negatively impact their psychological state, trapping them in a vicious cycle. They may withdraw into a narrow self-centered world, reluctant to engage with others. Consequently, family, friends, and healthcare providers face significant challenges in offering social support, leading to a gradual decline in the patient's utilization of such support. This, in turn, hinders the realization of harmonious integration across physical, psychological, social, and spiritual dimensions. Researchers have noted that robust social support serves as a vital internal source of strength for patients, helping them perceive life's beauty and love, recognize the meaning and value of existence, and enhance subjective well-being (Phenwan et al., 2019; Wang et al., 2022b). Therefore, healthcare providers should recognize the impact of social support on the spiritual care needs in liver cancer patients. They should offer multi-level, diverse, and targeted social support activities (such as peer-to-peer support groups) to help patients feel the care, affection, and support from family, friends, and society. This approach reduces the psychological, economic, and social burdens arising from disease treatment, thereby fulfilling their spiritual care requirements (Wang et al., 2023).

Self-perceived burden arises from transference anxiety—the individual's concern that their illness and care needs impact others—leading to anxiety, depres-

sion, guilt, burden perception, and diminished self-esteem (Yan, 2021). The results of this study indicate that liver cancer patients were (38.56 ± 9.76) points, indicating a moderate burden level overall. Furthermore, it showed a negative correlation with their spiritual care needs, meaning that the heavier the patients' self-perceived burden, the lower their spiritual care needs. This finding is consistent with the results of studies by Wang et al. (2022c) and Qi Yu et al. (2023) in China. This may stem from the fact that patients with heavier self-perceived burdens experience more severe guilt and stress, facing varying degrees of disruption in physical, psychological, and role-transition aspects. Additionally, liver cancer patients endure significant psychological distress due to age- and disease-related factors such as polypharmacy, financial burdens, and limited physical activity. These factors readily induce feelings of guilt, anxiety, fear, and hopelessness. This prevents them from confronting their illness, family, and society positively, gradually diminishing their confidence in overcoming the disease. This disrupts spiritual harmony, ultimately leading to a significant reduction in spiritual care needs. Scholars have noted that psychosocial factors (such as perceived burden) can influence physical symptoms by affecting mental health, thereby impacting disease onset, progression, prognosis, and outcomes. These factors may also directly or indirectly affect patients' quality of life (Du, 2021). Therefore, when healthcare providers strive to meet the spiritual care needs of liver cancer patients, they should consider the psychological experience of self-perceived burden. Through communication, active listening, and companionship, they can identify patients' spiritual distress, suffering, and needs during this process. Various effective emotional intelligence interventions (such as reminiscence therapy, music therapy, and life review therapy) can be employed to reduce patients' self-perceived burden (Wang et al., 2021), enhancing patients' self-esteem and confidence in disease treatment to fulfill their spiritual care needs.

The liver cancer patients in this study demonstrated a pronounced need for spiritual care, though the specific nature and intensity of these needs varied among individuals, At the same time, spiritual care serves as a vital component of palliative care for cancer patients, playing a crucial role in enhancing their quality of life (Deng, 2026; Liu et al., 2022). Most healthcare providers in China remain unfamiliar with the concept of spirituality, and there is significant resistance to conducting spiritual needs assessments and providing spiritual care in clinical practice. Therefore, future efforts should incorporate spiritual care training into routine healthcare provider education and introduce theories related to spiritual needs into clinical settings. This will enable healthcare providers to fully recognize the importance of addressing spiritual needs in patient treatment and care. Furthermore, nursing education serves as both the foundation of clinical practice and an effective pathway to enhance nurses' capacity for addressing patients' spiritual needs. Integrating spiritual education into nursing curricula and increasing clinical practice opportunities for spiritual care will foster the integration of educational theory with clinical practice, representing a key focus for future research.

The research subjects selected for this study can to some extent reflect the current status and influencing factors of spiritual care needs among liver cancer patients, yet certain limitations remain.

1) Literature analysis indicates that spiritual care needs among liver cancer patients also correlate with other research indicators. Therefore, studies on spiritual care needs should not be confined solely to the few indicators examined in this research. Future studies need to further expand the scope of investigation to lay the foundation for intervention research in spiritual care. Additionally, this study was confined to a single city with a small sample size, making it difficult to accurately describe the variables across all liver cancer patients. Future research should expand the sample size and conduct multi-center stratified studies.

2) Domestic research on spirituality is evolving, with spiritual care studies still in their infancy. Currently, no standardized intervention protocols exist. Future research should develop evidence-based spiritual care interventions. Clinically, tailored spiritual care interventions at different disease stages could enhance the quality of life for liver cancer patients and establish culturally appropriate intervention models for China.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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