

Analysis of the current status of hospice care needs and factors influencing them among family caregivers of patients with advanced cancer

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Abstract: **OBJECTIVE** To understand the current status of the needs of patients receiving hospice services and their caregivers and the factors influencing them. **METHODS** A convenience sampling method was used to survey 120 family members caring for patients with advanced cancer in 1 hospital with hospice care in Ningxia from April to June 2022 as study subjects using the Barthel Index Rating Scale of Self-Care, the Caregiving Burden Scale, and the Caregiver's Need for Hospice Care Scale. **RESULTS** Caregivers' scores for each dimension of hospice service needs were, in descending order, social support needs > information needs > physiological needs > psychological needs > spiritual needs > health care behavioral needs; multiple linear regression analysis The results showed that education, patient relationship, willingness to receive hospice care, and burden of caregiving capacity entered the regression model ($P < 0.05$) with $R^2 = 26.2\%$. **CONCLUSION** The level of education of caregivers, relationship with patients, willingness to receive hospice care, and the burden of caregiving ability are the main influencing factors of caregivers' demand for hospice services. The diversified needs of caregivers should be met by strengthening publicity and social support, establishing a new model of hospice care, and taking advantage of interprofessional teamwork.

1. Introduction

The World Health Organization (WHO) defines hospice care as those that provide active and comprehensive care for incurably advanced patients and their families to enhance and improve the quality of life of patients and their families by focusing on controlling patients' pain and other symptoms and integrating their physical, psychological, social and spiritual needs [1]. Hospice care in China was triggered from the medical ethics community's concern about euthanasia, and it has been more than three decades since the discipline of hospice care was first introduced in 1988. During its gradual emergence, most studies have been conducted from the patient's perspective, neglecting the needs of family caregivers. In the process of providing care to a patient and in the face of the patient's death, physical health and emotions can be adverse reactions such as worry, exhaustion, depression, and role change and complex grief, so it is important to understand the hospice needs of caregivers and to provide them with a range of hospice support.

2. Objects and Methods

2.1. Research subjects

Using convenience sampling method, 120 caregivers were randomly selected as study subjects in April-June 2023 from the only hospice medical charity service organization in Ningxia, which mainly provides free home services for advanced cancer pain patients with poor families. Inclusion criteria: ① caregiver age ≥ 18 years old; ② total number of days caring for patients ≥ 5 days per month; ③ informed consent and willingness to participate in the study. Exclusion criteria: ① those who can not cooperate or refuse to participate in the study; ② those who do not recognize words and have cognitive communication disorder.

2.2. Survey instrument

2.2.1. General information survey

Self-designed, including the caregiver's gender, occupation, education, religion, physical health status, per capita monthly income, patient relationship, choice of

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location, willingness to receive hospice care, and number of days of care per month.

2.2.2. Barthel index scale of self-care ability

The Barthel Index Scale is the main basis for assessing the grade of patients' self-care ability, which was tested for reliability by our scholar Xue Dongxia [2] in 2022, and its Cronbach's α coefficient is 0.860. The scale assesses 10 items of eating, bathing, dressing, bowel control, urination control, toileting, bed and chair transfers, walking on level ground, and going up and down stairs. The total score of each item was added together to classify the ability to care for oneself as severely dependent (total score ≤ 40), moderately dependent (total score 41-60), mildly dependent (total score 61-99), and not dependent (total score 100), and the degree of need for care corresponded to the degree of need for all care, most of the time need for care, a little bit of care, and no need for care, respectively. care, mostly needing care from others, a little needing care from others, and not needing care from others. The Cronbach's α coefficient for this scale in this study was 0.956.

2.2.3. Caregiver Burden Scale

This scale was compiled by Zarit [3], and after Chineseisation by scholars such as Wang Lie [4], the total Cronbach's α coefficient of the Chinese version of the scale was 0.87. The scale was used to measure the level of caregiving burden on carers. The scale consists of 22 entries in 2 dimensions: personal burden (12 entries) and burden of responsibility (6 entries). All were scored on a 5-point Likert scale from none to always, assigned a score of 0 to 4, respectively. The scores for each entry were summed into a total score of 0 to 88, with higher scores indicating a heavier burden of care; a total score of < 20 was considered no burden; a total score of 20 to 39 was considered a mild burden; a total score of 40 to 59 was considered a moderate burden; and a total score of ≥ 60 was considered a severe burden [5]. The Cronbach's α coefficient for this scale in this study was 0.904.

2.2.4. Caregiver Hospice Needs Scale

The questionnaire for hospice care needs of elderly patients prepared by our scholar Zhao Wei [6] in 2018 and tested for reliability, and the overall Cronbach's α coefficient was 0.923. Based on this scale and related literature, the researcher developed the Caregiver Hospice Care Needs Questionnaire through the revision of the pre-survey and interviews, which included physiological needs (4 entries), psychological needs (4 entries), spiritual needs (4 entries), information needs (4 entries), healthcare behavioural needs (3 entries), and social support needs (5 entries), for a total of 24 entries in 6 dimensions. Options were scored on a 5-point Likert scale, assigning a score of 5 to 1 from always needs to no needs, respectively, for a total score of 24 to 120, with higher scores indicating higher respondents' needs for

hospice care. The Cronbach's α coefficient for this scale in this study was 0.905.

2.3. Data collection method

This study used a combination of paper and electronic forms of questionnaire distribution, the researcher himself in the hospital outpatient clinic for the paper version of the questionnaire distribution, introduction of the content of the questionnaire and fill in the requirements, before filling in the questionnaire to ask the carers whether they are willing to participate in the survey, after obtaining consent to distribute the questionnaire, complete the questionnaire was recovered on the spot, and check for any omissions and obvious errors in the item, to ensure that the questionnaire's recovery rate and validity. At the same time, according to the questionnaire caregiver basic information Q15 - in addition to their own, the number of co-operation in caring for the number of patients, for enquiry and determination, on-site distribution of electronic questionnaires QR code, so that they can be forwarded to the patient's other caregivers to accept the survey on the spot, to obtain the consent of the other party, who scanned the QR code of the questionnaire to fill in the questionnaire by themselves. After obtaining each other's consent, they scanned the QR code and filled in the questionnaire by themselves. In this study, a total of 103 paper questionnaire versions were retrieved, of which 100 were valid; 27 electronic versions were distributed, and 20 valid questionnaires were recovered. The effective recovery rate is 92.3%.

2.4. Statistical Methods

The use of EpiData3.1 two-person entry to establish a database, the paper version of the questionnaire is entered directly, the electronic version through the questionnaire star to export the original data and then enter. SPSS26.0 was used to analyse the data. The data were normally tested and were skewed, the statistical methods were described by median (quartiles), the Mann-Whitney U test was used for comparison between 2 groups, the Kruskal-Wallis H test was used for comparison between multiple groups, the Spearman test was used for correlation analysis, and the multivariate linear regression was used for influencing factors, and the difference was considered to be statistically significant at $P < 0.05$ [7].

3. Results

3.1. Basic information of the survey respondents

Of the 120 caregivers, 42 (35%) are male and 78 (65%) are female; Occupation: 13 (10.83%) are civil servants/institutions, 24 (20%) are business units, 18 (15%) are self-employed, 6 (5%) are farmers, 10 (9.17%) are unemployed, and 48 (40%) are retired; Educational attainment: 14 (11.67%) are in primary school or below,

28 (23.33%) are in junior high school 28 people (23.33%), high school or junior college, college, bachelor's degree and above are 26 people (21.67%); most of the caregivers have no religious beliefs, 101 people (84.17%); health condition: very good 22 people (18.33%), relatively good 45 people (37.50%), average 41 people (34.17%), relatively poor 9 people (7.50%), very poor 3 (2.50%); per capita monthly income: \$1,000 and below 19 (15.83%), ¥1,001-¥3,000 41 (34.17%), \$3,001-\$5,000 43 (35.83%), and \$5,001 and above 17 (14.17%); the caregiver-patient relationship was mostly children 61 (50.83%), spouses 45 (37.50%); choice of hospice location: wards in general hospitals 24 (20%), specialised institutions 29 (24.2%), community 20 (16.7%), home 47 (39.2%); caregivers mostly accept hospice of their own volition 99 (82.5%); caregivers' monthly days of care 27.5 (10, 30), of which 5-15 days 41 (34.2%) and 16-31 days 79 (65.8%).

3.2. Caregiver scores for each dimension of hospice need

The total score for carers' needs for hospice care was 95.00 (79.00 ~ 103.00) and the scores for each dimension are shown in Table 1. The top three and bottom three entries for carers' needs for hospice care are shown in Table 2.

Table 1 Caregivers' scores for each dimension of hospice needs [n=120, M (P25, P75), score]

Dimension	Number of entries	Score range	Total score
Physical	4	4~20	18.00(15.00~20.00)
Mental	4	4~20	14.00(11.00~16.00)
Spiritual	4	4~20	13.00(12.00~16.00)
Information	4	4~20	19.00(16.00~20.00)
Health care behavior	3	3~15	10.00(8.00~12.00)
Social support	5	5~25	20.00(15.00~23.00)
Total score	24	24~120	95.00(79.00~103.00)

Table 2 Top three and bottom three rankings of caregiver needs for hospice care (n=120)

Ranking	Dimension	Questionnaire Entry
Top three	Social support needs	F1 Need for increased state subsidies and support for patients to receive hospice care in order to reduce family financial pressure
	Spiritual needs	C3 Need for patients to be accompanied by family members at the end of life
	Spiritual needs	C1 The need to maintain patients' dignity
The last three	healthcare behavioral needs	E2 The need for maintenance resuscitation such as endotracheal intubation and chest compressions for patients in the last stages of life
	Spiritual needs	C4 need for hospice to provide certain recreational activities to relieve mental stress
	Spiritual needs	C2 need for religious people to provide spiritual support for patients

3.3. Comparison of Hospice Need Scores for Caregivers with Different Characteristics

Caregivers were grouped by gender, occupation, education, religion, health status, monthly per capita income, patient relationship, hospice location choice, willingness to accept on their own, and number of days of care per month, and their scores on the six dimensions of need for hospice care and the total score were compared. The results showed that the differences in the scores of spiritual needs, social support needs, and total needs scores were statistically significant among caregivers with different educational backgrounds ($P=0.039$; $P=0.026$; $P=0.050$, $P<0.05$); and the differences in the scores of psychological needs, spiritual needs, and total needs scores were statistically significant among caregivers with different religious beliefs ($P=0.017$; $P=0.006$; $P=0.013$, $P<0.05$); statistically significant differences between caregivers of different health statuses in scores for spiritual needs only ($P=0.044$; $P<0.05$); statistically significant differences between patient relationships in scores for physiological needs, spiritual needs ($P=0.021$; $P=0.032$, $P<0.05$); differences in scores for psychological needs, spiritual needs, and

total needs scores by hospice location choice were statistically significant ($P=0.006$; $P=0.038$; $P=0.034$, $P<0.05$); differences in willingness to receive hospice care were statistically significant ($P=0.006$; $P=0.029$, $P<0.05$) in scores on information needs, total needs, and different number of days of care per month were statistically significant ($P=0.021$; $P=0.032$, $P<0.05$); and differences in number of days of care per month were statistically significant ($P=0.006$; $P=0.029$, $P<0.05$) in scores on spiritual needs. The difference in scores was statistically significant ($P=0.02$, $P<0.05$), see Table 3.

Comparison of the above items by Bonferroni test showed that the need was higher for bachelor's degree or higher; the need was higher for caregivers with religious beliefs than those without; the need was higher for very good health; the need was higher for relationships with patients who were other (son-in-law, niece, nephews); the need was higher for the choice of location for receiving hospice care to be a specialized hospice facility; the need was higher for caregivers who were willing to accept hospice care themselves than those who were not willing to accept it; and the need was higher for caregiving days per month ranging from 1-15 days than those with days of care ranging from 16-31 days.

Table 3 Comparison of hospice need scores for caregivers with different characteristics [$n=120$, $M(P25, P75)$, points]

Item	Category	Physical	Psychological	Mental	Information	Behavior	Social Support	Total Needs Score
Sex	Male	14.00(12.00, 17.00)	13.00(10.00, 16.00)	13.00(11.00, 14.50)	18.50(15.00, 20.00)	10.00(7.75, 12.25)	20.00(15.00, 25.00)	93.00(77.00, 103.00)
	Female	16.00(14.00, 18.00)	14.00(12.00, 17.00)	13.00(12.00, 16.00)	19.00(16.00, 20.00)	10.50(8.00, 12.25)	20.00(15.00, 22.00)	96.00(82.50, 104.00)
	Z P	-1.446 0.148	-1.527 0.127	-1.449 0.147	-1.064 0.287	-0.249 0.803	-0.617 0.537	-0.944 0.345
Occupation	Civil servant/enterprise	17.00(15.50, 20.00)	14.00(11.50, 18.00)	14.00(13.00, 16.00)	20.00(19.00, 20.00)	12.00(10.50, 14.00)	20.00(17.50, 25.00)	98.00(91.50, 104.00)
	Enterprise	17.50(14.25, 20.00)	13.50(11.00, 17.50)	13.00(12.00, 16.00)	17.00(15.00, 20.00)	9.00(7.00, 13.00)	20.00(13.00, 23.00)	91.50(71.25, 107.25)
	Self-employed	17.50(12.75, 20.00)	14.00(12.00, 17.00)	13.00(12.00, 16.25)	18.50(14.00, 20.00)	10.50(6.75, 13.25)	21.00(16.50, 22.25)	98.00(77.75, 101.25)
	Farmer	17.00(15.75, 18.50)	14.00(9.50, 16.25)	12.50(10.75, 14.25)	17.50(16.00, 19.25)	9.50(7.00, 12.00)	16.00(9.00, 21.25)	88.00(72.25, 95.00)
	Unemployed	17.00(15.00, 18.50)	14.00(10.50, 16.25)	14.00(11.75, 17.00)	18.00(13.75, 20.00)	10.00(8.75, 11.25)	19.00(13.50, 25.00)	93.50(71.25, 110.00)
	Retire	19.00(17.00, 20.00)	14.00(11.00, 16.75)	13.00(12.00, 14.75)	20.00(16.00, 20.00)	10.00(9.00, 11.75)	20.00(15.00, 22.00)	94.50(87.00, 103.00)
Education	H P	7.668 0.263	0.657 0.995	6.391 0.381	9.7 0.138	7.218 0.301	4.714 0.581	3.457 0.75
	Primary and below	17.00(15.75, 19.25)	13.50(10.75, 16.00)	12.50(11.00, 15.50)	16.00(13.00, 20.00)	10.50(8.00, 12.00)	20.50(13.75, 23.50)	90.50(73.00, 104.50)
	Junior high school	18.00(15.00, 20.00)	13.00(9.00, 15.00)	12.00(11.25, 13.00)	18.00(15.00, 20.00)	9.00(8.00, 12.75)	16.50(12.25, 21.00)	89.00(73.50, 98.25)
	High school or junior college	18.50(16.75, 20.00)	14.50(11.00, 17.00)	13.00(12.00, 16.00)	18.50(16.00, 20.00)	10.00(7.75, 11.30)	19.00(15.00, 22.25)	98.00(77.00, 102.25)
	College	17.00(14.75, 20.00)	14.50(12.75, 17.00)	13.00(12.00, 14.00)	19.00(15.75, 20.00)	9.00(7.00, 12.00)	20.50(17.00, 22.25)	95.50(81.75, 103.00)
	Bachelor's degree and above	18.50(15.00, 20.00)	14.00(11.75, 19.25)	15.00(13.00, 16.00)	20.00(18.00, 20.00)	12.00(11.00, 14.00)	22.00(18.00, 25.00)	101.00(92.00, 108.00)
Religion	H P	2.867 0.580	4.460 0.347	10.151 0.038	5.510 0.239	8.900 0.064	11.053 0.026	9.498 0.050
	No	18.00(15.00, 20.00)	13.00(11.00, 16.00)	13.00(12.00, 14.50)	19.00(15.50, 20.00)	10.00(8.00, 12.00)	19.00(15.00, 22.00)	93.00(77.50, 101.00)
	Yes	17.00(16.00, 19.00)	16.00(14.00, 18.00)	16.00(12.00, 19.00)	20.00(17.00, 20.00)	12.00(8.00, 14.00)	21.00(20.00, 23.00)	103.00(91.00, 107.00)
Health condition	Z P	-0.428 0.669	-2.392 0.017	-2.75 0.006	-1.431 0.152	-0.976 0.329	-1.675 0.094	-2.485 0.013
	Very good	17.00(13.75, 20.00)	14.00(12.00, 19.25)	15.50(13.00, 17.00)	19.50(16.00, 20.00)	11.50(9.00, 15.00)	20.50(16.50, 23.00)	102.00(87.75, 105.50)
	Fair	18.00(15.50, 20.00)	12.00(10.00, 16.50)	13.00(12.00, 15.50)	19.00(15.50, 20.00)	10.00(7.50, 12.00)	20.00(15.00, 22.50)	94.00(77.00, 101.50)
	Average	18.00(15.00, 20.00)	14.00(12.00, 16.00)	13.00(12.00, 14.00)	19.00(16.00, 20.00)	10.00(8.00, 12.00)	19.00(15.00, 22.00)	93.00(79.00, 98.50)
	Poor	17.00(15.00, 20.00)	16.00(11.50, 16.50)	12.00(11.50, 14.00)	20.00(14.00, 20.00)	10.00(7.50, 13.00)	21.00(17.50, 25.00)	99.00(80.00, 106.50)
	Very poor	19.00(12.00)	16.00(7.00)	16.00(8.00)	16.00(10.00)	14.00(6.00)	21.00(9.00)	103.00(52.00, 93.7)
Monthly per capita income	H P	0.359 0.986	3.550 0.470	9.771 0.044	1.244 0.871	5.721 0.221	2.112 0.715	3.937 0.415
	1000 yuan and below	18.00(16.00, 20.00)	14.00(10.00, 16.00)	13.00(11.00, 16.00)	19.00(16.00, 20.00)	11.00(8.00, 14.00)	16.00(14.00, 25.00)	90.00(74.00, 105.00)
	1001-3000 Yuan	17.00(14.50, 19.00)	13.00(11.00, 16.00)	12.00(11.50, 14.00)	17.00(14.50, 20.00)	9.00(7.00, 12.00)	19.00(15.00, 22.00)	91.00(77.00, 100.00)
	3001-5000 Yuan	20.00(17.00, 20.00)	15.00(13.00, 18.00)	13.00(12.00, 16.00)	19.00(17.00, 20.00)	10.00(9.00, 13.00)	21.00(17.00, 23.00)	97.00(89.00, 104.00)
5001RMB and above	19.00(14.00, 20.00)	12.00(10.00, 18.50)	13.00(12.00, 16.00)	20.00(19.00, 20.00)	11.00(9.00, 13.50)	21.00(17.00, 25.00)	98.00(78.00, 107.50)	

	H	6.692	7.238	4.57	6.336	3.058	2.746	5.147
	P	0.082	0.065	0.206	0.096	0.383	0.433	0.161
Patient Relationship	Spouse	18.00(16.50, 20.00)	14.00(11.00, 16.00)	13.00(12.00, 14.50)	19.00(16.00, 20.00)	10.00(9.00, 11.00)	20.00(15.50, 22.00)	95.00(81.00, 103.00)
	Child	18.00(16.00, 20.00)	14.00(12.00, 16.00)	13.00(12.00, 16.00)	19.00(16.00, 20.00)	11.00(8.50, 13.00)	20.00(16.00, 23.00)	96.00(81.00, 104.50)
	Grandchildren	14.00(12.50, 18.00)	13.00(11.50, 14.50)	12.00(11.00, 13.00)	18.00(12.50, 19.00)	10.00(6.50, 13.50)	15.00(10.50, 22.00)	88.00(67.00, 102.00)
	Sibling	10(4)	8.00(7.00)	4.00(4.00)	11.00(9.00)	6.00(5.00)	15.00(14.00)	52.00(51.00)
	Other	16.5(15,17.75)	14.00(10.00, 14.00)	14.00(13.00, 16.25)	17.50(14.75, 20.00)	8.50(3.75, 11.25)	20.00(13.50, 25.00)	91.50(82.25, 98.50)
Hospice location selection	H	11.501	7.006	10.581	8.578	8.931	2.995	8.936
	P	0.021	0.136	0.032	0.073	0.063	0.559	0.063
	General hospital room	18.00(15.00, 20.00)	14.00(11.00, 19.00)	13.50(12.00, 16.00)	20.00(16.25, 20.00)	11.00(7.25, 14.75)	20.50(15.00, 24.50)	98.50(87.25, 104.00)
	Specialized facility	17.00(17.00, 20.00)	16.00(13.50, 19.00)	15.00(12.00, 17.00)	19.00(16.00, 20.00)	11.00(9.00, 13.00)	21.00(20.00, 25.00)	101.00(89.00, 107.50)
	Community	18.00(15.25, 20.00)	13.50(11.25, 15.75)	12.50(12.00, 14.00)	19.00(16.25, 20.00)	9.00(9.00, 11.75)	18.00(16.25, 21.00)	90.50(84.00, 96.00)
Willingness to receive hospice care	Home	18.00(15.00, 20.00)	13.00(10.00, 15.00)	13.00(12.00, 14.00)	18.00(15.00, 20.00)	10.00(8.00, 12.00)	19.00(13.00, 23.00)	92.00(72.00, 103.00)
	H	0.337	12.518	8.442	4.582	3.719	5.706	8.696
	P	0.953	0.006	0.038	0.205	0.293	0.127	0.034
	willing	18.00(16.00, 20.00)	14.00(11.00, 17.00)	13.00(12.00, 16.00)	19.00(16.00, 20.00)	11.00(9.00, 13.00)	20.00(16.00, 23.00)	96.00(83.00, 104.00)
	unwilling	17.00(13.50, 20.00)	13.00(11.00, 15.00)	13.00(11.00, 15.00)	16.00(14.00, 19.00)	9.00(5.50, 12.50)	17(13,22)	88.00(68.50, 98.00)
Number of days of care per month	Z	-1.539	-0.860	-0.754	-2.761	-1.907	-1.706	-2.201
	P	0.124	0.390	0.451	0.006	0.057	0.088	0.028
	5-15 days	17.00(15.00, 20.00)	14.00(12.00, 16.00)	14.00(12.00, 16.50)	19.00(16.00, 20.00)	11.00(9.00, 13.00)	21.00(17.00, 25.00)	97.00(84.50, 105.00)
	16-31 days	18.00(15.00, 20.00)	14.00(11.00, 17.00)	13.00(12.00, 15.00)	19.00(16.00, 20.00)	10.00(8.00, 12.00)	19.00(15.00, 22.00)	93.00(77.00, 103.00)
	Z	-0.801	-0.455	-2.329	-0.333	-1.453	-1.885	-1.403
	P	0.423	0.649	0.02	0.739	0.146	0.059	0.161

3.4. Correlation analysis of caregiver needs with Barthel index of patient's self-care ability and caregiving burden

The total score of Barthel index of patient's self-care ability was 70 (35, 95); the total score of caregiving burden was 37 (26.25, 47). The results of Spearman's correlation analysis showed that caregiver's needs were positively correlated with caregiving burden only ($r_s=0.208$, $P<0.05$). See Table 4.

Table 4 Correlation analysis of caregiver needs, patient self-care Barthel Index, and burden of care ($n=120$, r_s)

	BI Index	Burden of Care	Requirements Total Score
BI Index	1		
Burden of Care	-.267**	1	
Requirements Total Score	0.003	.208*	1

Note: * indicates $P<0.05$, ** indicates $P<0.01$.

3.5. Multiple Linear Regression Analysis of Factors Influencing Caregivers' Need for Hospice Care

To further understand the main factors of caregivers' need for hospice care, multiple linear regression analysis was conducted using the total caregiver hospice need score as the dependent variable and the 8 items that were statistically significant in the univariate and correlation analyses as the independent variables. After diagnosis of covariance, each model tolerance value was <1 and VIF <5 , implying that there was no multicollinearity among the eight independent variables. The independent variable care burden was a hierarchical variable banded; education (elementary school and below = 0, junior high school = 1, high school or junior college = 1, college = 2, bachelor's degree and above = 3), religion (none = 0, yes = 1), health status (very good = 0, better = 2, fair = 3, worse = 4, very poor = 4), patient relationship (spouse = 0, children = 1, grandchildren = 2, siblings = 3, other=4), hospice location choice (general hospital room=0, specialized facility=1, community=2, home=3), willingness to receive hospice care (willingness=0, unwillingness=1), and number of days of care per month (5-15 days=0, 16-31 days=1) were brought in as control

variables. The results showed that education, patient relationship, willingness to receive hospice care, and caregiving burden were the main influences on caregivers' need for hospice care ($P < 0.05$), and the regression model was established with $F = 10.228$, $P = 0.000$ ($P < 0.05$), and the coefficient of determination, $R^2 = 26.2\%$. The specific results are shown in Table 5.

Table 5 Multiple linear regression analysis of factors influencing caregivers' need for hospice care ($n = 120$)

Item	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>
Constan	82.18	3.596	-	22.854	0
Education (bachelor's degree and above)	7.985	3.117	0.206	2.562	0.012
Patient relationship (sibling)	-34.701	8.24	-0.339	-4.211	0
Willingness to receive hospice care (unwilling)	-9.345	3.375	-0.222	-2.769	0.007
Burden of care	0.266	0.087	0.246	3.064	0.003

4. Discussion

4.1. Current Analysis of Caregivers' Needs for Hospice Care

The results of this study show that the caregivers' scores for each dimension of hospice needs, from highest to lowest, are social support needs > information needs > physical needs > psychological needs > spiritual needs > health care behavioral needs. Among the dimensions, the social support dimension needs scored the highest, which may be related to the fact that the service recipients of the organization in which this research was conducted are mainly advanced cancer patients with poor families, who may be poor due to their illnesses or are poor themselves, and that there is a lack of hospice institutions in the province in which the research area is located, a low level of social attention, and a shortage of health care and social volunteer resources, so there is an urgent need for the government and related organizations to strengthen support for them [8]. Secondly, information needs, patients often experience a variety of symptoms such as pain, nausea and vomiting, constipation, etc. at the end of life, and caregivers, having witnessed the physical pain and discomfort of the patients and lacking the ability to provide professional care, are more eager to learn about care knowledge such as disease-related living and living, possible healthcare-related problems and ways to cope, so as to improve the comfort of patients [9]. Physiological needs and psychological needs are at a moderate level, advanced cancer patients are physically unwell due to a variety of symptoms, causing serious physical and mental effects, caregivers prefer to keep patients in a quiet and comfortable environment at the end of life [10]. At the same time psychological needs through the caregiver to respect the patient's own wishes, the company of family and friends, listening to the patient to alleviate their physical and mental pain, more able to improve the patient's mood comfort at the same time will ease the

caregiver's physical and mental stress [11]. Spiritual needs scored lower, which may be explained by the fact that the subjects of this study had more irreligious people and poor families, for whom spiritual needs are less relevant [12]. Health care behavioral needs scored the lowest among the dimensions, probably because most of the caregivers were reluctant to allow patients to undergo excessive resuscitation measures at the end of life. Most of the caregivers and patients avoided receiving death education due to traditional thinking.

The results of the study showed that the top three entries in terms of entry scores were enhanced financial support, need for companionship, and preservation of patient dignity, which is similar to the findings of scholars such as Wu Bin [13]. Caregivers are usually under great financial pressure due to treating the patient's illness, so financial support is very important for caregivers and patients [14]. Secondly there is a need to have family members with the patient at the end of life. Most caregivers can hope to be with the patient at the end of life to alleviate the patient's fear of death so that the caregiver has no regrets [15]. Caregivers in this study wanted to preserve the dignity of the patient; the series of physically and mentally uncomfortable symptoms caused by the patient's illness sometimes not only render the caregiver powerless, but also cause the patient to lose his or her dignity, so it is extremely important to enable the patient to spend the last stage of life with dignity [16]. The bottom three scores of the entries were mainly for maintenance resuscitation measures for patients, and needs related to the spiritual dimension, and the results of the study by Liang Yali et al. were similar [17]. The reason may be that with the progress of society and the promotion of hospice care in hospitals, caregivers are more willing to choose hospice care, which can effectively help patients to receive care and attention in body, mind and spirit, and comfortably spend the last stage of life, rather than die in the hospital without dignity [18]. The need for recreation to relieve patients' mental stress is more impractical for caregivers from poor families compared to urgent needs such as social support and physical and psychological needs [19].

4.2. Analysis of Factors Influencing Caregivers' Needs for Hospice Care

4.2.1. Education

The results of this study showed that caregivers with bachelor's degree and above in education were included in the regression equation, which was the main factor influencing the demand ($B = 7.985$, $P = 0.012$), and their demand for hospice care was higher compared with caregivers with elementary school and below, i.e., the higher the education, the higher the demand of caregivers for hospice care, which is similar to the results of the study conducted by Zhao Wei [6], and the reason may be that caregivers with higher education will be able to learn about hospice care through The reason may be that caregivers with higher education will learn about hospice care through various channels and resources, and they

can rationally view hospice care with higher acceptance, so they have higher needs for all dimensions of hospice care.

4.2.2. Patient relationships

The results of this study showed that siblings in patient relationships were included in the regression equation as the main factor influencing the demand ($B=-34.701$, $P=0.007$), and siblings had lower demand for hospice care compared to their spouses, which is in line with the results of the study conducted by Yang Zhi [20]. The reason may be that patients have their spouses and children, etc. around them, who bear the main responsibility of care, while siblings do not put all their energy and time into the patients due to their own families or work, etc., and their burden of care is lighter compared to their spouses and children, so they have a lower need for hospice care.

4.2.3. Willingness to receive hospice care

The results of this study showed that willingness to receive hospice care was the main factor influencing caregivers' need for hospice care ($B=-9.345$, $P<0.001$), and caregivers who were reluctant to receive hospice care had a lower need for hospice care compared to those who were willing to receive hospice care, which is in line with the results of the study conducted by Wu, Xiaofen, et al [21]. The higher demand of caregivers who are willing to accept hospice care may be due to the fact that with the progress of the society and the publicity and promotion of hospice care in hospitals, caregivers can learn about hospice care from the Internet, healthcare personnel and other channels, and are more willing to choose hospice care. The main reasons for not wanting to receive hospice care are not knowing about hospice care, lack of policy support and professionals, may be the existing hospice care content and personnel provided does not meet their needs, the related publicity is not widely popularized, even if the patients under their care participate in hospice care, but the caregivers themselves are not willing to accept hospice care.

4.2.4. Caregiving Burden

The results of this study showed that caregiving burden was the main influencing factor of caregivers' hospice care needs ($B=0.266$, $P<0.003$), and the heavier the caregiving burden, the higher the caregivers' hospice care needs, which is in line with the findings of Li Rui [5], which may be attributed to the fact that caregivers are facing a long period of time with a heavy burden of caregiving, which consumes a lot of time and energy, and balancing between household chores, work, and caring for the patient stress, and shortened socialization and rest time, which puts a serious burden on both the body and mind. In addition, the caregiver's lack of professional caregiving knowledge also affects the patient's quality of life to a certain extent. In the face of the shock of their family member's terminal cancer and various kinds of

stress, their mental state is easily highly tense and prone to adverse emotions and thoughts, so they need more support from hospice.

5. Conclusion

In summary, there are diversified needs of caregivers for hospice care, and the needs are mainly influenced by education, patient relationship, willingness to accept hospice care, and care burden factors. Therefore, in the process of formulating and improving hospice care policies and providing hospice care, the relevant departments and organizations should assess the needs of caregivers, consider the influencing factors of their needs, and better provide services for caregivers and patients, thus promoting the improvement of hospice care level and the quality of life of patients at the end of life. Specific countermeasures are as follows: (1) Increase publicity, pay attention to community publicity, active missionary, change the traditional concepts and strengthen the death education, eliminate the fear of patients and caregivers of death and set up the concept of life and death, so that more people know and participate in hospice care; (2) Strengthen the support of the community, the government should strengthen the policy and financial support, improve the hospice health insurance system, reduce the out-of-pocket expenses, reduce service costs, so that patients and their caregivers can have a better quality of life at the end of their lives. and reduce service costs, so that patients and caregivers' families can reduce their financial burden, and at the same time, establish additional hospice agencies to expand the service surface; (3) establish a new model of hospice care, relying on hospitals, based on the community, and oriented to the family, and shift the focus of service to the community, so that the service can benefit as much as possible more patients at the end of life and their caregivers; (4) establish and give full play to the advantages of inter-professional teamwork, and based on training of the relevant institutions; (5) Establish and give full play to the advantages of inter-professional teamwork, based on the training of relevant colleges and universities, the improvement of medical and nursing staff's cognitive and professional skills, the comprehensive and systematic training of social volunteers, and the participation of psychologists and dietitians in order to provide seamless services to meet the diversified needs of caregivers and patients.

The shortcomings of this study are that due to the reality that there is only one organization that carries out hospice care, convenience sampling was used, the sample size was small, and the study was conducted only from the perspective of demand; in the future, when hospice care continues to develop and the number of organizations and clients that are provided with the service increases, the sample will be further expanded, as well as expanding the perspective to study from the point of view of the difference between supply and demand.

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