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Research Article

Construction of a Palliative Care Services Framework for End-of-Life Adult Patients at Medical Institutions: A Delphi Study

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Background: Palliative care focuses on end-of-life patients and their family members (caregivers) to control pain and discomfort symptoms in end-of-life patients and provides comprehensive physical, psychological, and spiritual care to improve quality of life and help patients die comfortably, peacefully, and with dignity. This study aims to develop a scientific and comprehensive palliative care service framework based on expert consensus to provide a reference and basis for palliative care practices for end-of-life adult patients in medical institutions.
Methods: This study designed three rounds of expert inquiry via the Delphi method, involving a total of 21 experts from diverse fields, including geriatrics, geriatric nursing, palliative care, hospice care, traditional Chinese medicine, death education, anesthesia, ethics, and psychology.
Results: The final framework comprises five first-level categories, namely, service process and requirements, symptom management, comfort care, psychological and social support, and complementary therapy, which are supported by 16 second-level and 37 third-level items. The expert authority coefficients (0.900–0.910) and Kendall's W (0.330–0.489, $p < 0.001$) indicated high reliability and consensus.
Conclusions: This study, which is based on the Delphi method, has formulated a framework for palliative care services tailored to the needs of end-of-life adult patients in medical institutions. The content of the developed service framework is clear and relatively comprehensive. The results of this study are conducive to promoting the development and practice of Palliative Care and Hospice in China, thereby enhancing the quality of death for end-of-life adult patients.

Keywords: Delphi method; end-of-life adult patients; palliative care

1. Introduction

The provision of compassionate and effective care for end-of-life adult patients is a critical aspect of modern healthcare systems [1]. With the global population aging and the increasing prevalence of chronic, life-limiting illnesses, there is a growing demand for palliative care services that prioritize comfort, dignity, and quality of life for adult patients near the end of their lives [2].

Palliative care focuses on end-of-life adult patients and their family members (caregivers) to control pain and discomfort symptoms for end-of-life adult patients and provide comprehensive physical, psychological, and spiritual care to improve the quality of life and help adult patients die comfortably, peacefully, and with dignity [3–5]. However, integrating palliative care into medical institutions in mainland China faces multifaceted challenges. For example, in many regions of mainland China, death is traditionally considered a taboo subject. Talking about death is often avoided for fear of causing misfortune, which creates a cultural barrier to initiating early palliative care discussions with patients and their families. This sociocultural mindset

can lead to delayed referrals to palliative services or even complete avoidance of such care despite its potential benefits [6].

Moreover, policy support for palliative care remains limited. Although the Chinese government has issued pilot guidelines for hospice care, the implementation is still inconsistent across provinces, with only a few urban centers providing well-established services. For example, a review reported that less than 1% of hospitals in mainland China had independent palliative units and that there is a lack of reimbursement mechanisms under national health insurance schemes for comprehensive palliative services [7]. These issues hinder the widespread adoption and integration of palliative care into standard medical practice [8].

In China, recent national initiatives—such as palliative care pilot programs led by the National Health Commission—have drawn increasing attention to palliative care. However, service coverage remains limited, with no unified reimbursement or legal framework. The existing research is largely descriptive and lacks standardized, evidence-based models for clinical practice. These gaps highlight the need for a practical, expert-informed framework to guide institutional palliative care services for end-of-life adult patients, which this study seeks to address.

The Delphi method is a systematic and iterative approach that involves gathering insights and opinions from a panel of experts to achieve consensus on a specific topic [9, 10]. This methodology is well suited for the present study, as it facilitates a consensus-building process among experts to delineate the essential components and processes required for an effective palliative care framework.

While international frameworks provide a foundation for palliative care, their applicability in China is constrained by cultural, systemic, and policy differences. In the absence of a unified national framework, this study seeks to construct an expert-informed framework tailored to the realities of the Chinese healthcare system. To achieve this goal, the study employs the Delphi method, which involves structured engagement with diverse experts. This approach ensures that the resulting framework is both robust and responsive to the diverse contexts in which palliative care is provided.

2. Methods

2.1. Study Design. This study utilized the Delphi method, a systematic and iterative research technique, to construct a palliative care services framework for end-of-life adult patients in medical institutions.

2.1.1. Research Group. The research team is composed of 9 members, including 1 head of the geriatric hematology and oncology department, 1 associate chief physician, 1 head nurse of the geriatric department, 1 cochief superintendent nurse, 3 supervisor nurses, and 2 masters of science in nursing. The research group members were responsible for the selection of experts, design of questionnaires, inquiry with experts, and statistical analysis. This study received approval from the hospital's ethics committee (S-2024-197).

2.1.2. Drafting the Framework of Palliative Care Services. We conducted a systematic search using the keywords "end-of-life adult patients," "palliative care," "hospice care," and "development of framework OR model" across multiple databases, including the China National Knowledge Infrastructure (CNKI), Wanfang Data, China Biomedical Literature Database, PubMed, the Cochrane Library, CINAHL, Medline, and Embase. The search covered the period from January 1, 2014, to August 1, 2024. The inclusion criteria were as follows: (1) articles focused on adult palliative care service models or guidelines; (2) publications in English or Chinese; and (3) relevant to service design, delivery, or organization. The exclusion criteria included pediatric-focused studies, narrative opinion pieces, and duplicate publications. A total of 86 relevant documents were reviewed. Key domains and service elements were extracted, categorized, and synthesized by two independent researchers. These results, combined with pre-Delphi expert interviews, formed the basis for the initial draft framework used in Round 1 of the Delphi process. This framework encompasses provisions for symptom control, comfortable care, and psychological and social support.

2.1.3. Development of the Initial Questionnaire. The expert questionnaire comprises three main sections: (1) demographic information of the expert, including age, sex, professional title, educational attainment, and years of professional experience. (2) Expert familiarity with the content of the study and the basis for judgment. The experts' familiarity with palliative care was categorized into five levels, ranging from "not at all familiar" to "very familiar," with values ranging from 0.2 to 1.0. The basis for the expert's judgment is divided into four items: practical experience, theoretical analysis, reference to domestic and international literature, and intuitive selection; different weightings are assigned on the basis of their respective influence levels. (3) Expert evaluation form for the palliative care services framework content. This form contains columns for the "importance" and "feasibility" ratings for each item. The Likert 5-point rating method (ranging from "unimportant" or "unfeasible" to "very important" or "highly feasible," with corresponding values of 1–5) was used. Each item also features a column for revision suggestions, allowing experts to provide detailed recommendations.

2.2. Selection of Experts. The selection of the experts who participated in this study was determined by the research group through collaborative deliberation. The experts were carefully selected on the basis of their professional experience and knowledge in the fields of palliative care, hospice care, geriatrics, nursing, social work, ethics, psychology, traditional Chinese medicine, and rehabilitation medicine. The inclusion criteria were as follows: (1) intermediate or above title; (2) undergraduate degree or above; (3) eight or more years of medical or nursing experience; (4) extensive diagnosis and treatment or nursing experience in palliative care; hospice, nursing, psychology, Chinese medicine, and other specialties; (5) a high degree of motivation; and (6)

voluntary participation in this study. The experts were subsequently invited to participate in the study via email and were provided with comprehensive information regarding the content, purpose, and significance of the study.

2.2.1. The Process of Expert Inquiry. The experts were invited to participate in the study via email and were provided with comprehensive information regarding the content, purpose, and significance of the study. In this study, questionnaires were distributed and collected via an electronic platform.

2.2.1.1. Round One—Initial Inquiry. The first round aimed to gather basic information from the experts and elicit comments on the proposed framework components, along with any recommendations for additional elements where applicable. The initial round of expert input was subsequently integrated into a feedback report and shared with the research team members.

2.2.1.2. Round Two—Feedback and Refinement. The initial round of expert input was subsequently integrated into a feedback report and shared with the research team members. In the second round of inquiry, the experts were invited to review the aggregated results, consider feedback, and revise their initial input if necessary.

2.2.1.3. Round Three—Consensus Building. On the basis of the results of the second round of expert inquiry, the research team members summarized the experts' opinions and compiled the third round of expert questionnaires. After the completion of the third round of expert questionnaires, the opinions were collated, categorized, and subjected to rigorous analysis, and their opinions became more consistent.

A total of three rounds of Delphi consultation were conducted. After the third round, the coefficient of variation (CV) for all the items was less than 0.25, and Kendall's W values ranged from 0.443 to 0.472 ($p < 0.001$), indicating stable expert consensus. Furthermore, only two items were modified in the final round without any additions or deletions, suggesting that content saturation had been reached. Therefore, considering the stability of the results and to prevent expert fatigue, the Delphi process was concluded after three rounds.

2.3. Criteria for Items. In this study, the items that met the mean of importance and feasibility greater than 3.5 and whose CV was less than 0.25 were retained; otherwise, they were excluded. Items falling below one threshold were subject to structured discussion by the research group. This discussion considered factors such as content overlap, clarity, clinical relevance, and consistency with domain definitions. Final decisions were made by consensus, and all changes were documented. This mixed-method approach allows both statistical and expert judgments to inform item refinement.

2.4. Statistical Methods. The data were entered and analyzed via Excel and SPSS 27.0. Descriptive statistics were used to present qualitative data in terms of frequencies and percentages (%) whereas quantitative data were summarized as the means ± standard deviations ($x \pm s$) for normally distributed variables. The expert positive coefficient was assessed via the questionnaire recovery rate, expert authority was measured via the expert authority coefficient, and expert opinion consensus was evaluated via the CV and Kendall's coefficient of concordance. A significance level of $p < 0.05$ was used to indicate statistical significance.

3. Results

3.1. Sociodemographic Information of the Experts. The Delphi panel was composed of 21 experts from multiple provinces across China. Experts were selected to ensure disciplinary diversity and professional experience. This enabled the collection of expert opinions reflective of various clinical contexts. All the experts completed three rounds of mail inquiry. The average age of the experts was 44.26 ± 3.44 years, and the average working experience was 27.43 ± 6.89 years, with 12 experts having at least 20 years of experience, including 12 senior professors, 6 associate professors, and 3 midlevel professionals. In addition, 6 individuals held doctoral degrees, 10 held master's degrees, and 5 held bachelor's degrees. For details, please refer to Table 1.

3.2. Expert Positive Coefficient. The positive coefficient of the expert refers to the recovery rate of the questionnaire (recovery rate = total number of returns/total number of issued questionnaires), which signifies the level of engagement demonstrated by the experts in this consultation. In this study, 21 experts participated in three rounds of inquiry, and the recovery rate for all three rounds was 100%. This demonstrates the significant attention and fervor that experts have devoted to this research. For details, please refer to Table 2.

3.3. Expert Authority Coefficient. The expert authority coefficient Cr is determined by the expert's self-assessment score, which takes into account two factors: the judgment basis Ca for the expert's scoring and the expert's familiarity with the problem Cs. It is generally believed that the coefficient of authority is above 0.750, indicating that the expert has a higher level of authority [11, 12]. The formula for calculating the expert authority coefficient is as follows: $Cr = (Ca + Cs) \times 0.5$. The Cr values of the three rounds of expert inquiry in this study were 0.900, 0.905, and 0.910, all of which exceeded 0.75, indicating that the experts who participated in the survey had a high level of authority. For details, please refer to Table 3.

3.4. Degree of Coordination of Expert Opinions. In this study, Kendall's W coefficient of correlation (W) was used to evaluate the degree of coordination of expert opinions. In the first round of expert inquiry, the value of W ranged from 0.330 to 0.437; in the second round, it increased to a range of 0.432–0.489; and in the final round, it returned to a range of 0.443–0.472. The three rounds of correlation coefficient

Table 1: Basic information of the experts.

Group	Classification	Number	Percentage (%)
Gender	Male	10	47.62
	Female	11	52.38
Age	30 to 39	4	19.04
	40 to 50	12	57.14
	> 50	5	23.82
Education background	Bachelor	5	23.81
	Master	10	47.62
	Doctor	6	28.57
Professional qualifications	Intermediate	3	14.29
	Deputy senior	6	28.57
	Senior	12	57.14
Years of working	< 10	3	14.29
	10 to 20	6	28.57
	> 20	12	57.14

Table 2: Recovery rates of expert inquiry.

	Number of questionnaires issued	Number of questionnaires returned	Expert positive coefficient (%)
Round 1	21	21	100
Round 2	21	21	100
Round 3	21	21	100

Table 3: Three rounds of the expert authority coefficient.

Round	Number	Cs	Ca	Cr
Round 1	21	0.89	0.91	0.900
Round 2	21	0.90	0.91	0.905
Round 3	21	0.91	0.91	0.910

Note: Cs: the experts' familiarity with palliative care; Ca: judgment basis of the experts; Cr: the expert authority coefficient.

testing demonstrated significant consistency ($p < 0.001$), indicating strong concordance among expert opinions and ensuring the reliability of the results. The detailed data can be found in Table 4.

3.5. Results of Expert Inquiry. In this study, we retained indicators that satisfied the criteria of a mean greater than 3 and a CV less than 0.25; items failing to meet these standards were excluded [13]. The research group conducted an internal discussion and a comprehensive review of previous literature to create the first round of expert inquiry, which consisted of 3 first-level items, 10 second-level items, and 15 third-level items. After the first round of inquiry, the mean of each item was between 3.51 and 5.00, with a CV > 0.25 for 2 items. The questionnaires were then collected, and the experts' opinions were integrated. After a discussion among the research group, 34 new items were added, 11 were modified, and 2 were deleted (provide religious support to patients, assisting in bathing and bed bathing).

On the basis of the first round of expert inquiry, a second round of questionnaires was developed, consisting of 4 first-level items, 18 second-level items, and 38 third-level items. After the second round of inquiry, the mean of each item was between 3.62 and 5.00, with a CV > 0.25 for 2 items. On the basis of the experts' opinions and the research group's discussion, 2 items were deleted (professional massage for patients with lymphedema, death education for families), and 27 items were modified.

Following the outcomes of the second round of expert questionnaires, a subsequent round of questionnaires was formulated, comprising 5 first-level items, 16 second-level

Table 4: Degree of coordination of expert opinions.

Evaluation content	Number of items	W	X^2	df	p
Round 1					
First-level items	3	0.330	13.857	2	< 0.001
Second-level items	10	0.410	77.479	9	< 0.001
Third-level items	15	0.437	128.414	14	< 0.001
Round 2					
First-level items	4	0.489	31.286	3	< 0.001
Second-level items	18	0.432	154.126	17	< 0.001
Third-level items	38	0.443	344.343	37	< 0.001
Round 3					
First-level items	5	0.472	39.636	4	< 0.001
Second-level items	16	0.449	141.369	15	< 0.001
Third-level items	37	0.443	335.021	36	< 0.001

items, and 37 third-level items. After the questionnaires were collected, the mean for each item was greater than 3.5, and the value of the CV was less than 0.25 for all items. On the basis of expert opinions, 2 items underwent modification, with no additions or deletions. For the process of revising the content of the framework, please refer to Table 5. Finally, a framework for palliative care services for end-of-life adult patients in medical institutions was established, comprising 5 first-level items, 16 second-level items, and 37 third-level items. The detailed items can be found in Table 6. Table 7 summarizes the ten third-level items that received the highest levels of expert agreement during the Delphi process, as reflected in their high mean scores and low coefficients of variation.

4. Discussion

This Delphi study aimed to construct a comprehensive and scientifically sound framework for palliative care services tailored to the needs of end-of-life adult patients within medical institutions. The study involved three rounds of expert consultation, culminating in a framework that encompasses 5 first-level items, 16 second-level items, and 37 third-level items. Here, we discuss the implications, strengths, and limitations of this study.

4.1. Implications of the Study. Currently, palliative care services in mainland China remain in an exploratory phase, with studies characterized by a predominance of case reports and a scarcity of intervention research focused on the implementation of standardized palliative care for adult patients at end-of-life stages [14, 15]. Consequently, it is crucial to widely seek and incorporate the insights of experts within this domain. The lack of standardized clinical protocols has often led to inconsistent qualities of palliative care and challenges for healthcare professionals in providing palliative care [16]. Consequently, this study constructed a palliative care framework utilizing the Delphi method, with the objective of offering guidance and reference to healthcare professionals within medical institutions.

In addition, the framework's adoption has the potential to influence healthcare policy, advocating for the integration of palliative care services into the standard care pathways within medical institutions. For practice, the framework serves as a reference for healthcare providers to deliver patient-centered care, promoting dignity and comfort at the end of life. It also provides a foundation for further education and training of healthcare professionals in the specialized field of palliative care for end-of-life adult patients.

4.2. Strengths of the Study

4.2.1. Reliability and Scientific Analysis of the Palliative Care Services Framework. This study was based on a previous literature review and group discussion within the research group, which resulted in a draft of palliative care services for end-of-life adult patients in medical institutions. A total of 21 experts from institutions of higher learning and third-level teaching hospitals were selected through the Delphi method for three rounds of expert inquiry. The expert domains include death education, palliative care, hospice care, psychology, and traditional Chinese medicine (TCM). Among the expert panel, 16 individuals hold master's or doctoral degrees, 18 possess senior professional titles, and 18 have accumulated over a decade of work experience.

The effective recovery rates for the three rounds of expert inquiry reached 100%, reflecting strong enthusiasm among the experts in this study, and the authority coefficient of the experts exceeded 0.750. In addition, the CV in the third round ranged from 0.000 to 0.115 whereas the value of W ranged from 0.443 to 0.472 ($p < 0.001$), indicating substantial consistency in expert opinions and confirming that the framework constructed for palliative care services is both reliable and scientifically sound.

4.2.2. Development of a Practical, Comprehensive Palliative Care Framework. To establish a comprehensive and pragmatic palliative care framework, we conducted extensive consultations with experts and engaged in multiple rounds of revisions to ensure that the framework adequately addressed the diverse needs of end-of-life adult patients and their families. The framework of palliative care services encompasses a comprehensive array of components, including the service process and requirements, symptom management, comfortable care, psychological and social support, and complementary therapy.

1. Service process and requirements

   By establishing clear criteria for accessing palliative care and employing assessment tools such as the Karnofsky Performance Status (KPS) and Palliative Performance Scale (PPS), adult patients can receive appropriate and timely palliative care services [17, 18]. Furthermore, the results of this study emphasize the importance of dynamic assessment to promote dynamic and continuous care, adjusting the care plan as needed on the basis of assessment results to respond to the changing needs of adult patients. Second, well-defined referral and discharge criteria may ensure that adult patients receive care tailored to their needs, transitioning to other forms of care in a timely manner when palliative care is no longer in their best interest [18]. Finally, the palliative care service framework constructed by this study encompasses interinstitutional referral mechanisms to ensure the continuity of palliative care through collaborative efforts across institutions.

2. Symptom management

   End-of-life adult patients may present a range of physical symptoms, which can arise from the disease itself, the adverse effects of treatment, or complications associated with their condition. Common symptoms include pain, dyspnea, abdominal distension, sleep disorders, and malnutrition [19]. The proactive management of symptoms in adult patients

Table 5: Process of revising the content of the framework.

Round	Purpose	Total number of items	Number of deleted items	Number of modified items	Number of qualified items	Number of experts' suggestions	Number of added items
Round 1	Exploration	28	2	11	9	40	34
Round 2	Revision	60	2	27	31	30	0
Round 3	Finalization	58	0	2	56	3	0

Table 6: Framework of palliative care services.

First-level items	Second-level items	Third-level items	Mean	SD	CV
1. Service process and requirements			4.286	0.462	0.108
	1.1. Patient identification		5.000	0.000	0.000
		1.1.1. Conditions for palliative care access.	4.333	0.483	0.112
		1.1.2. Clinicians assessed patient survival through KPS and PPS.	5.000	0.000	0.000
	1.2. Admission and dynamic assessment		4.381	0.497	0.114
		1.2.1. After being identified as meeting the admission standards, sign the informed consent for palliative care service and consent to confirm willingness.	4.476	0.512	0.114
		1.2.2. Regularly assess the patient's expected survival, physiological, psychological, mental, and social needs at 1 week, 2 weeks, 1 month, and 2 months postadmission, with dynamic assessments during changes in condition.	5.000	0.000	0.000
	1.3. Referral and exit		4.428	0.507	0.115
		1.3.1. Depending on the progression of the disease and the needs of the patient or family, the medical institutions may provide intrainstitutional or interinstitutional referral services.	4.381	0.498	0.114
		1.3.2. If patients die or is no longer suitable for hospice care after periodic and dynamic assessment, the palliative care should be terminated or discharged (transferred).	5.000	0.000	0.000
2. Symptom management			5.000	0.000	0.000
	2.1. Pain management		5.000	0.000	0.000
		2.1.1. Dynamically assess pain levels, characteristics, location, timing, and past treatment history, using the Brief Pain Inventory (BPI) scale.	4.429	0.507	0.115
		2.1.2. Provide comprehensive pain management for patients, using both pharmacological and nonpharmacological pain relief methods appropriately.	5.000	0.000	0.000
		2.1.3. Medical staff should dynamically evaluate the effectiveness of pain treatments and promptly adjust intervention strategies and guide patients in self-monitoring pain and seeking help to achieve pain management goals.	4.286	0.463	0.108
	2.2. Dyspnea management		5.000	0.000	0.000
		2.2.1. Dynamically assess the symptoms, severity, and factors affecting dyspnea, using the Borg scale to evaluate the severity of dyspnea.	5.000	0.000	0.000
		2.2.2. Based on assessment, medication (such as opioids, benzodiazepines, and corticosteroids) or nonpharmacological treatments (such as oxygen therapy, noninvasive ventilation, pulmonary rehabilitation, and respiratory training) may be used.	5.000	0.000	0.000
		2.2.3. Utilize various educational methods to instruct patients and their families on proper breathing techniques and daily life considerations.	4.524	0.512	0.113
	2.3. Abdominal distension management		4.429	0.507	0.115

Table 6: Continued.

First-level items	Second-level items	Third-level items	Mean	SD	CV
		2.3.1. Dynamically assess the location, severity, duration, accompanying symptoms, causes, bowel movements, and flatulence of abdominal bloating, as well as past and personal history to identify factors inducing bloating.	4.381	0.498	0.114
		2.3.2. For severe abdominal bloating, treatments such as abdominal drainage, rectal tube decompression, and gastrointestinal decompression can be applied.	5.000	0.000	0.000
	2.4. Sleep disorder management		4.429	0.507	0.115
		2.4.1. Dynamically assess the patient's sleep-wake rhythm, medical history, and emotional state, using the Pittsburgh Sleep Quality Index for evaluation.	4.524	0.512	0.113
		2.4.2. Select symptomatic treatment methods based on the cause, including pharmacological treatments (such as benzodiazepines, antidepressants, and traditional Chinese medicine) and nonpharmacological treatments (such as aromatherapy and mindfulness stress reduction)	5.000	0.000	0.000
		2.4.3. Respect the patient's lifestyle habits, assist in identifying the causes of sleep disturbances, alleviate negative emotions such as anxiety, remove triggers, and provide personalized sleep hygiene guidance.	4.429	0.507	0.115
	2.5. Malnutritional management		5.000	0.000	0.000
		2.5.1. Utilize a nutritional risk screening tool to assess patients, taking into account their family, social, cultural, religious, and economic status to provide personalized nutritional support.	5.000	0.000	0.000
		2.5.2. For patients unable to eat orally due to illness, nasogastric feeding or gastrostomy can be used to meet nutritional needs, while preventing aspiration and securing the feeding tubes properly.	4.286	0.463	0.108
		2.5.3. Respect the dietary choices of dying patients and avoid excessive enteral or parenteral nutrition that may increase their suffering.	5.000	0.000	0.000
3. Comfort care			5.000	0.000	0.000
	3.1. Clean care		4.286	0.462	0.100
		3.1.1. Assist patients with daily personal clean care, encourage family involvement, and maintain communication with patients and families during the process, ensuring privacy and warmth.	4.429	0.507	0.114
	3.2. Oral care		5.000	0.000	0.000
		3.2.1. Regularly assess the patient's oral hygiene, water intake, and oral diseases and provide necessary oral care based on the assessment results.	5.000	0.000	0.000
		3.2.2. Inform patients and their families about the significance of daily oral care, guiding them to use correct oral cleaning methods to prevent complications.	4.238	0.436	0.103
	3.3. Skin care		5.000	0.000	0.000
		3.3.1. Regularly assess skin conditions, considering patient preferences and comfort.	5.000	0.000	0.000
		3.3.2. Utilize position adjustment tools and preventive dressings to prevent pressure injuries.	4.571	0.507	0.111
	3.4. Excretion care		4.333	0.483	0.112
		3.4.1. Dynamically assess the patient's urination and bowel movements.	5.000	0.000	0.000

Table 6: Continued.

First-level items	Second-level items	Third-level items	Mean	SD	CV
		3.4.2. For urinary retention, use catheterization or induce urination; for constipation, promote bowel movements through abdominal massage, laxatives.	5.000	0.000	0.000
		3.4.3. Select appropriate urinals and incontinence products for incontinent patients and keep the perineal area dry to prevent dermatitis.	4.429	0.507	0.115
4. Psychological and social support			4.429	0.507	0.115
	4.1. Psychological care		4.524	0.512	0.113
		4.1.1. Use appropriate assessment tools and methods, such as the Self-Rating Anxiety Scale (SAS), the Depression Self-Rating Scale (SDS).	5.000	0.000	0.000
		4.1.2. Evaluate the psychological conditions of patients and their families and offer necessary support and interventions to improve negative emotions and psychological stress.	4.428	0.507	0.115
		4.1.3. Encourage a comprehensive approach (e.g., meditation and music therapy) to help patients effectively cope with psychological and behavioral issues arising from illness and treatment.	5.000	0.000	0.000
	4.2. Social support		5.000	0.000	0.000
		4.1.1. Use the Social Support Rating Scale (SSRS) to evaluate the social support needs of end-of-life patients and their families.	4.429	0.507	0.115
		4.1.2. Assist end-of-life patients and their families in establishing or repairing a positive network of interpersonal relationships and social support to fulfill their social needs at the end of life.	5.000	0.000	0.000
		4.1.3. Facilitate access to social support resources for patients and their families, including help with financial aid applications, consultations on social security, and public services	4.333	0.483	0.112
5. Complementary therapy			4.381	0.498	0.114
	5.1. Rehabilitation and physical therapy		4.195	0.402	0.096
		5.1.1. Employ rehabilitation and physical therapies to enhance patients' limb function and alleviate symptoms, with the goal of reducing pain, slowing stiffness and spasms, and preventing complications.	5.000	0.000	0.000
	5.2. Traditional Chinese medicine appropriate technology		4.571	0.507	0.111
		5.2.1. Tailor treatments based on the patient's constitution, offering internal therapies such as traditional Chinese medicine to regulate qi and blood and to balance yin and yang.	4.381	0.498	0.114
		5.2.1. Offering external traditional Chinese medicine therapies such as acupressure and moxibustion to alleviate end-of-life symptoms and mitigate pain, customized to the patient's physiological condition.	4.333	0.483	0.112

Table 7: Top 10 highest-consensus third-level items.

Item summary	Mean score	CV	Notes
1.1.2. Clinicians assessed patient survival through KPS and PPS.	5.00	0.00	Universally endorsed
1.2.2. Regularly assess the patient's expected survival, physiological, psychological, mental, and social needs at 1 week, 2 weeks, 1 month, and 2 months postadmission, with dynamic assessments during changes in condition.	5.00	0.00	Universally endorsed
1.3.2. If patients die or is no longer suitable for hospice care after periodic and dynamic assessment, the palliative care should be terminated or discharged (transferred).	5.00	0.00	Universally endorsed
2.1.2. Provide comprehensive pain management for patients, using both pharmacological and nonpharmacological pain relief methods appropriately.	5.00	0.00	Universally endorsed
2.2.1. Dynamically assess the symptoms, severity, and factors affecting dyspnea, using the Borg scale to evaluate the severity of dyspnea.	5.00	0.00	Universally endorsed
2.2.2. Based on assessment, medication (such as opioids, benzodiazepines, and corticosteroids) or nonpharmacological treatments (such as oxygen therapy, noninvasive ventilation, pulmonary rehabilitation, and respiratory training) may be used.	5.00	0.00	Universally endorsed
2.3.2 For severe abdominal bloating, treatments such as abdominal drainage, rectal tube decompression, and gastrointestinal decompression can be applied.	5.00	0.00	Universally endorsed
2.4.2. Select symptomatic treatment methods based on the cause, including pharmacological treatments (such as benzodiazepines, antidepressants, and traditional Chinese medicine) and nonpharmacological treatments (such as aromatherapy and mindfulness stress reduction)	5.00	0.00	Universally endorsed
2.5.1. Utilize a nutritional risk screening tool to assess patients, taking into account their family, social, cultural, religious, and economic status to provide personalized nutritional support.	5.00	0.00	Universally endorsed
2.5.3. Respect the dietary choices of dying patients and avoid excessive enteral or parenteral nutrition that may increase their suffering.	5.00	0.00	Universally endorsed

at the end of life can increase the quality of life for both the individuals affected and their families [20]. The palliative service framework constructed in this study encompasses the management of common symptoms, including both assessment and intervention strategies. It delineates specific assessment tools for these common symptoms, outlines the timing of assessments and reasonable drug and/or nondrug intervention methods, and details the components of health education.

3. Comfort care

   The enhancement of quality of life for end-of-life adult patients is the foremost objective of comfort care within palliative care [21]. Comfort care not only enhances adult patients' physical comfort but also significantly contributes to the preservation of their self-esteem and self-image [22]. The comfort care components established by this study include clean care, oral cleaning, skin care, and excretion care. These elements include assessment, intervention methods, and preventive measures, thereby ensuring the comfort and quality of life of end-of-life adult patients.

4. Psychological and social supports

   Psychological and social supports constitute a vital component of palliative care, encompassing the provision of emotional, psychological, social, and spiritual assistance to adult patients at the end of life and their families, thereby facilitating their ability to navigate the complexities associated with this stage [23–25]. Most adult patients in the end stage of illness experience negative emotions, such as anxiety and depression, which can significantly impact their quality of life during this critical phase [26]. Furthermore, research has indicated that enhanced social support is instrumental in improving the quality of life of these adult patients [27]. Within the hospice care framework proposed by this study, dynamic assessments of both adult patients' negative emotional states and their levels of social support are recommended. Timely interventions—such as music therapy and assistance in accessing social support resources for adult patients and their families—are essential to empower adult patients to confront end-stage challenges actively and enhance their overall quality of life.

5. Complementary therapy

   As the disease progresses, the physical symptoms of end-of-life adult patients deteriorate, which can subsequently lead to a decline in the quality of life for both adult patients and their families. Rehabilitation and physical therapy interventions have been shown to ameliorate these physical symptoms and enhance self-care capabilities, thereby improving the overall quality of life for individuals facing terminal conditions [28, 29]. In addition, because of their unique therapeutic effects, TCM can play an important role in palliative care [30–32].

TCM is rooted in a holistic philosophy that emphasizes the balance of yin and yang, the flow of vital energy (qi), and

the dynamic interactions among the five elements (wood, fire, earth, metal, and water) [33]. In palliative care, TCM offers personalized approaches aimed at alleviating physical discomfort and emotional distress. Common modalities include internal therapies such as herbal medicine to harmonize internal imbalances and external therapies such as acupuncture and moxibustion to relieve symptoms such as pain, dyspnea, and fatigue [34, 35]. These interventions are tailored to the patient's constitution and are often used alongside Western medical treatments to increase comfort and quality of life.

The results of this study suggested that rehabilitation physical therapy and TCM therapy could be employed as complementary therapies in palliative care services, aiding adult patients in effectively managing the physical and emotional challenges posed by their illness while also increasing their autonomy and dignity, ultimately improving their quality of life.

4.3. Clinical Application and Implementation Considerations. While the proposed framework demonstrates theoretical comprehensiveness, its successful application in clinical settings may be influenced by several contextual factors. Potential barriers include limited institutional resources—particularly in primary or rural healthcare facilities—insufficient staffing levels and a lack of structured training programs in palliative care. Furthermore, the absence of unified national reimbursement policies and legal protection for palliative care may hinder large-scale adoption. On the other hand, facilitators include increasing national attention to hospice and palliative care initiatives, increasing public awareness, and gradually expanding multidisciplinary palliative care teams in tertiary hospitals. Tailored implementation strategies, such as pilot programs, staff capacity building, and integration into existing care pathways, will be essential for translating the framework into effective clinical practice.

4.4. Localization and Practical Contribution. While the framework shares core domains with global models, its strength lies in contextual adaptation to China's healthcare setting. This framework is not a simple translation of international guidelines but rather a structured response to local gaps in implementation. It incorporates TCM, dynamic assessment tools for low-resource environments, and culturally sensitive elements such as grief counseling and family-centered care. In addition, it offers operational guidance tailored to China's cultural context, institutional conditions, and clinical realities—elements often missing in global models. By consolidating expert consensus into a pragmatic and culturally sensitive tool, the framework helps bridge the divide between high-level principles and on-the-ground practice in Chinese palliative care.

4.5. Limitations and Future Research Direction. While the palliative care services framework developed in this study is comprehensive and grounded in expert consensus, it has certain limitations. These include potential constraints on its universality owing to variations across specific healthcare systems and disparities in available resources. Furthermore, the efficacy of the Delphi method is contingent upon the quality of expert contributions; if either the initial literature review or expert opinions lack comprehensiveness, essential elements of palliative care may be overlooked within the framework. In addition, this research predominantly emphasizes expert perspectives rather than incorporating direct input from adult patients and families, whose insights are vital for creating truly patient-centered care that aligns with their needs and preferences.

Future research should focus on piloting the proposed palliative care framework in diverse clinical settings to assess its feasibility, adaptability, and effectiveness. Outcome-based evaluations should be conducted to measure its impact on patient symptom management, quality of life, and caregiver satisfaction. Moreover, incorporating the perspectives of end-of-life patients and their family caregivers through interviews or participatory methods will be critical in refining the framework and enhancing its patient-centeredness. These steps are essential for bridging the gap between expert consensus and real-world applicability.

5. Conclusions

This study employed the Delphi method to construct a comprehensive and practical palliative care services framework for end-of-life adult patients in medical institutions, which demonstrated high reliability and served as a valuable reference for healthcare professionals in delivering such services. Furthermore, the results of this study are anticipated to enhance the quality of care for end-of-life adult patients and foster interdisciplinary collaboration among healthcare professionals while also laying a foundation for educational and training programs that equip healthcare practitioners with the essential skills and knowledge required to deliver high-quality palliative care. This Delphi-based framework provides not only theoretical guidance but also a culturally and institutionally adapted reference to support the structured development of palliative care services in China and potentially in other countries facing similar healthcare challenges. The next step for our research group is to apply the framework of palliative care services we have developed in this study to medical institutions to help end-of-life adult patients live a higher quality of life.

Data Availability Statement

The data supporting the findings of this study are not publicly accessible due to privacy and ethical constraints; however, the corresponding authors may provide access to the data and materials upon reasonable request.

Ethics Statement

This study received approval from the Ethics Committee of Guangzhou First People's Hospital (S-2024--197). All

methods were carried out in accordance with relevant guidelines and regulations. Written informed consent was obtained from all individual experts included in the study.

Consent

Please see the Ethics Statement.

Conflicts of Interest

The authors declare no conflicts of interest.

Author Contributions

Yang Dong: writing–original draft, expert inquiry, visualization, methodology, formal analysis, conceptualization, and funding acquisition.

Minjun Chen: writing–review and editing, methodology, resources, data curation, and formal analysis.

Ya Yu: writing–review and editing, expert inquiry, data curation, and formal analysis.

Leyi Huang, Li Chen, and Tingting Zhang: expert inquiry, data curation, and resources.

Weijie Zhong: writing–review and editing, methodology, resources, data curation, supervision, and project administration.

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References

[1] D. D. Quigley and S. G. McCleskey, "Improving Care Experiences for Patients and Caregivers at End of Life: A Systematic Review," *American Journal of Hospice and Palliative Medicine®* 38, no. 1 (January 2021): 84–93, https://doi.org/10.1177/1049909120931468.

[2] A. E. Bone, B. Gomes, S. N. Etkind, et al., "What Is the Impact of Population Aging on the Future Provision of End-of-Life Care? Population-Based Projections of Place of Death," *Palliative Medicine* 32, no. 2 (February 2018): 329–336, https://doi.org/10.1177/0269216317734435.

[3] Q. Q. Cheng, Y. L. Duan, H. L. Zheng, et al., "Knowledge, Attitudes and Preferences of Palliative and End-of-Life Care Among Patients With Cancer in Mainland China: A Cross-Sectional Study," *BMJ Open* 11, no. 9 (September 2021): e051735, https://doi.org/10.1136/bmjopen-2021-051735.

[4] L. Radbruch, L. De Lima, F. Knaul, et al., "Redefining Palliative Care-A New Consensus-Based Definition," *Journal of Pain and Symptom Management* 60, no. 4 (October 2020): 754–764, https://doi.org/10.1016/j.jpainsymman.2020.04.027.

[5] WHO, "Palliative Care," (September 2024), https://www.who.int/health-topics/palliative-care.

[6] S. Geng, L. Zhang, Q. Zhang, and Y. Wu, "Ethical Dilemmas for Palliative Care Nurses: Systematic Review," *BMJ Supportive & Palliative Care* (March 2024): https://doi.org/10.1136/spcare-2023-004742.

[7] N. Xiaohong, "Hospice and Palliative Care in Mainland China: History, Current Status and Challenges," *Chinese Medical Sciences Journal* 33, no. 4 (2018): 199–203, https://doi.org/10.24920/003524.

[8] M. Ling, X. Wang, Y. Ma, and Y. Long, "A Review of the Current State of Hospice Care in China," *Current Oncology Reports* 22, no. 10 (2020): 99, https://doi.org/10.1007/s11912-020-00959-y.

[9] S. Jünger, S. A. Payne, J. Brine, L. Radbruch, and S. G. Brearley, "Guidance on Conducting and Reporting Delphi Studies (CREDES) in Palliative Care: Recommendations Based on a Methodological Systematic Review," *Palliative Medicine* 31, no. 8 (September 2017): 684–706, https://doi.org/10.1177/0269216317690685.

[10] H. A. Linstone and M. Turoff, in *The Delphi Method* (Addison-Wesley, 1975).

[11] W. Varndell, M. Fry, and D. Elliott, "Applying Real-Time Delphi Methods: Development of a Pain Management Survey in Emergency Nursing," *BMC Nursing* 20, no. 1 (August 2021): 149, https://doi.org/10.1186/s12912-021-00661-9.

[12] C. Bautista, M. B. Vyas, L. Daniels, M. Guanci, and L. Rhudy, "Essential Components of a Neuroscience Nursing

Orientation: A Delphi Study," *Journal of Neuroscience Nursing* 56, no. 2 (April 2024): 49–53, https://doi.org/10.1097/JNN.0000000000000748.

[13] J. J. Xu, Q. Q. Hu, J. Ding, Y. F. Ren, and T. Chu, "Construction of an Exercise Intervention Program for Patients With Sarcopenic Obesity: A Delphi Method Study," *Clinical Interventions in Aging* 19 (2024): 727–736, https://doi.org/10.2147/CIA.S455849.

[14] Y. H. Lu, Y. H. Gu, and W. H. Yu, "Hospice and Palliative Care in China: Development and Challenges," *Asia-Pacific Journal of Oncology Nursing* 5, no. 1 (January 2018): 26–32, https://doi.org/10.4103/apjon.apjon_72_17.

[15] S. Jin, S. Liu, J. J. Li, X. H. Ning, and X. H. Liu, "Stumbling and Growing: A Bibliometric Study of Academic Publications of Palliative Care in Mainland China for 2010-2020," *Journal of Palliative Care* 37, no. 2 (April 2022): 226–232, https://doi.org/10.1177/08258597211039056.

[16] Y. H. Lu, W. H. Yu, J. Zhang, and R. Li, "Advancements in Hospice and Palliative Care in China: A Five-Year Review," *Asia-Pacific Journal of Oncology Nursing* 11, no. 3 (March 2024): 100385, https://doi.org/10.1016/j.apjon.2024.100385.

[17] A. Mehta, E. Chai, K. Berglund, E. Rizzo, J. Moreno, and L. P. Gelfman, "Using Admission Karnofsky Performance Status as a Guide for Palliative Care Discharge Needs," *Journal of Palliative Medicine* 24, no. 6 (June 2021): 910–913, https://doi.org/10.1089/jpm.2020.0543.

[18] P. Fedel, L. L. Joosse, and L. Jeske, "Use of the Palliative Performance Scale Version 2 in Obtaining Palliative Care Consults," *Journal of Clinical Nursing* 23, no. 13-14 (July 2014): 2012–2021, https://doi.org/10.1111/jocn.12457.

[19] S. J. Stapleton, J. Holden, J. Epstein, and D. J. Wilkie, "Symptom Clusters in Patients With Cancer in the Hospice/Palliative Care Setting," *Supportive Care in Cancer* 24, no. 9 (September 2016): 3863–3871, https://doi.org/10.1007/s00520-016-3210-6.

[20] S. M. Kittelson, M. C. Elie, and L. Pennypacker, "Palliative Care Symptom Management," *Critical Care Nursing Clinics of North America* 27, no. 3 (September 2015): 315–339, https://doi.org/10.1016/j.cnc.2015.05.010.

[21] K. Soileau and N. Elster, "The Hospice Patient's Right to Oral Care: Making Time for the Mouth," *Journal of Palliative Care* 33, no. 2 (April 2018): 65–69, https://doi.org/10.1177/0825859718763283.

[22] R. Pereira, T. Silveira, J. Vilelas, and P. Pontifice-Sousa, "Comfort to the Adult at the End of Life Hospitalized," *Revista Rol de Enfermeria* 43, no. 1 (January 2020): 451–457.

[23] C. Russell and A. Fountain, "Role of Clinical Psychology in UK Hospices," *BMJ Supportive & Palliative Care* 10, no. 2 (June 2020): 196–200, https://doi.org/10.1136/bmjspcare-2018-001594.

[24] P. Bhola, N. Pinto, and P. S. Chandra, "'End-of-Life Care Is More Than Wound Care': Health-Care Providers' Perceptions of Psychological and Interpersonal needs of Patients With Terminal Cancer," *Indian Journal of Palliative Care* 25, no. 3 (July 2019): 428–435, https://doi.org/10.4103/IJPC.IJPC_26_19.

[25] N. Bradley, C. Dowrick, and M. Lloyd-Williams, "Feasibility of Patient Reported Outcome Measures in Psychosocial Palliative Care: Observational Cohort Study of Hospice Day Care and Social Support Groups," *International Journal of Environmental Research and Public Health* 19, no. 20 (October 2022): 13258, https://doi.org/10.3390/ijerph192013258.

[26] P. von Blanckenburg and N. Leppin, "Psychological Interventions in Palliative Care," *Current Opinion in Psychiatry* 31, no. 5 (September 2018): 389–395, https://doi.org/10.1097/YCO.0000000000000441.

[27] N. Bradley, C. Dowrick, and M. Lloyd-Williams, "Explaining How and Why Social Support Groups in Hospice Day Services Benefit Palliative Care Patients, for Whom, and in What Circumstances," *Palliative Care and Social Practice* 17 (2023): 1726323524231214549, https://doi.org/10.1177/26323524231214549.

[28] L. Pennycooke, R. Cree, A. Fischer, and P. Good, "Evidence-Based Physiotherapy Interventions: Evaluation of Current Practice in a Palliative Care Service," *Progress in Palliative Care* 32, no. 4 (July 2024): 242–248, https://doi.org/10.1080/09699260.2024.2374067.

[29] A. Arora, P. Chang, and A. Asher, "The Role of Rehabilitation for the Dying Cancer Patient," *Current Physical Medicine and Rehabilitation Reports* 12, no. 1 (March 2024): 119–125, https://doi.org/10.1007/s40141-024-00433-x.

[30] S. A. D. Mattai and K. K. P. Hui, "Reframing Palliative Care: An East–West Integrative Palliative Care Model," *Chinese Journal of Integrative Medicine* 27, no. 10 (October 2021): 723–728, https://doi.org/10.1007/s11655-021-3500-9.

[31] W. W. Tao, H. Jiang, X. M. Tao, P. Jiang, L. Y. Sha, and X. C. Sun, "Effects of Acupuncture, Tuina, Tai Chi, Qigong, and Traditional Chinese Medicine Five-Element Music Therapy on Symptom Management and Quality of Life for Cancer Patients: A Meta-Analysis," *Journal of Pain and Symptom Management* 51, no. 4 (April 2016): 728–747, https://doi.org/10.1016/j.jpainsymman.2015.11.027.

[32] Y. J. Lin, H. T. Chang, M. H. Lin, et al., "Professionals' Experiences and Attitudes Toward Use of Traditional Chinese Medicine in Hospice Palliative Inpatient Care Units: A Multicenter Survey in Taiwan," *Integrative Medicine Research* 10, no. 2 (June 2021): 100642, https://doi.org/10.1016/j.imr.2020.100642.

[33] D. Ma, S. Wang, Y. Shi, S. Ni, M. Tang, and A. Xu, "The Development of Traditional Chinese Medicine," *Journal of Traditional Chinese Medical Sciences* 8 (2021): S1–S9, https://doi.org/10.1016/j.jtcms.2021.11.002.

[34] L. Chun Sing, K. Ho Kee, C. Cheong Wai, et al., "Use of Traditional, Complementary and Integrative Medicine in Chinese Pediatric Patients Receiving Palliative Care: A Multicenter Study," *BMJ Pediatrics Open* 6, no. 1 (2022): e001701, https://doi.org/10.1136/bmjpo-2022-001701.

[35] Q. Yang, H. Xu, H. Chen, et al., "Summary of Evidence on Traditional Chinese Medicine Nursing Interventions in Hospice Care for Patients With Advanced Cancer," *Geriatric Nursing* 61 (2025): 240–249, https://doi.org/10.1016/j.gerinurse.2024.11.007.