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ORIGINAL RESEARCH

Development, Validity, and Reliability of Three Instruments to Assess Holistic Care from Different Perspectives

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Video Abstract

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Background: Holistic care emphasizes an integrated approach addressing physical, psychological, social, and spiritual needs, yet validated assessment tools from diverse perspectives remain limited.

Aim: To develop and validate three holistic care assessment tools: the Holistic Care Quality Assessment Scale – Patient (HCQAS-P), Family (HCQAS-F), and the Holistic Care Knowledge Assessment Scale (HCKAS) for professionals.

Methods: A mixed-methods design included qualitative interviews and a cross-sectional survey at two Taiwanese hospitals. Psychometric analyses were conducted on responses from 1,017 participants: 321 patients, 298 family members, and 398 professionals.

Results: Qualitative findings identified five core holistic care themes. A total of 1,017 participants completed the quantitative study, including patients (n = 321), family members (n = 298), and healthcare professionals (n = 398). HCQAS-P and HCQAS-F showed high internal consistency (Cronbach's $\alpha > 0.92$); HCKAS revealed a four-factor structure (institutional, competence, effectiveness, cost). Holistic care quality positively correlated with shared decision-making ($\gamma = 0.542$) and good death perceptions ($\gamma = 0.250$), and negatively with demoralization ($\gamma = -0.246$) and distress ($\gamma = -0.184$). Providers scored lowest in spiritual and social care.

Conclusion: The validated tools offer a comprehensive assessment framework for holistic care. Findings highlight the value of shared decision-making and the need to strengthen training in non-physical care aspects.

Keywords: holistic care, patient-centered care, shared decision-making, interdisciplinary collaboration, assessment scale

Introduction and Background

Holistic care, also known as whole person care, has become a consensus among medical professionals in the modern healthcare system. Whether in hospital and palliative care, chronic disease care, mental care, or acute and critical care, holistic care is demonstrated in the health care system.[1–5] The earliest and most important medical profession that emphasizes holistic care is the nursing profession, so there are also related scales to evaluate the Holistic Care ability of nursing staff, such as the Holistic Nursing Competence Scale (HNCS) and the Person-Centered Care Assessment Tool (P-CAT).[6–10] However, since it is patient-centered care, whether the holistic care meets the patient's needs and expectations and whether the care is satisfactory should be the focus of the holistic care.[11,12]

Taiwan offers a unique and meaningful context for exploring holistic care. As a society with a rapidly aging population and a healthcare system that has been actively evolving to emphasize patient-centeredness, Taiwan has recognized the importance of addressing patients' comprehensive needs, including physical, psychological, social, and spiritual dimensions. This environment provides fertile ground for examining how holistic care is understood and

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delivered, particularly from the perspectives of patients, their families, and healthcare providers. The relevance of Taiwan's healthcare system to this study becomes even more apparent when considering recent efforts to align clinical care with individual values and preferences, which are discussed in later sections.

For holistic care, some scholars have proposed models such as 3H model (head, heart, hands), BMSEST model (body, mind, spirit, environment, social, transcendent), and (w) holistic view in the past.[13,14] Despite the above-mentioned models, almost all medical professionals agree that the bio-psycho-social-spiritual model can be used to provide patient holistic care, and current medical education and nursing education also use this model to educate students or continue education.[15–18] In Taiwan, almost all hospitals understand and operate holistic care based on the bio-psycho-social-spiritual model. Since 1988, Taiwan has been entrusted by the government to handle Hospital Accreditation by the Joint Commission of Taiwan.[19] Since the 21st century, due to the vigorous promotion of hospital palliative care by Taiwan's health authorities, they have begun to include evaluation provisions for hospital palliative care in hospital accreditation. Therefore, the words "holistic care" are clearly written in the evaluation provisions.[20,21] With experience in promoting evidence-based medicine and patient safety, the Joint Commission of Taiwan has implemented a nationwide SDM program with support from the Ministry of Health and Welfare since 2016.[22] On the other hand, Taiwan passed the Patient Right to Autonomy Act in 2015, which clearly stipulates that patients need to know their condition and provides legal protection for advance care planning (ACP) and advance direction (AD).[23] Since the patient's rights and medical decision-making have been fully protected, should holistic care also give priority to understanding the patient's needs and ideas?

Although the biopsychosocial-spiritual model is widely acknowledged and incorporated into medical and nursing education, the practical implementation of its social and spiritual components remains limited. Koslander et al emphasized the ethical importance of addressing existential and spiritual needs in healthcare, yet these dimensions are frequently overlooked in clinical settings.[5] Even in Taiwan, where holistic care is officially endorsed, previous studies have noted that providers often lack adequate training and institutional support for delivering spiritual care.[6,24] Patients and families, as direct recipients of care, frequently express unmet needs related to emotional support, religious understanding, and social assistance.[11,12] Therefore, addressing these gaps is crucial to truly achieving holistic, person-centered care.

When medical institutions provide holistic care, they need to consider the three dimensions of context, user, and provider.[24] Medical policy, medical law, medical economics, health insurance, medical system, religious and cultural background, etc. are all issues that need to be considered in the context of holistic care. Providers of holistic care are including medical professionals. The most important part of holistic care is actually the people who need medical care, that is, the users of medical care, which generally includes patients and their families. In order to confirm whether the users of medical care, that is, patients and their families, can receive the expected holistic care and are satisfied, medical providers should obtain opinions directly from them. From the perspective of the medical provider, what kind of holistic care the medical unit can provide and whether it meets the needs of patients and their families also need to be considered. In the past, few studies have conducted related research on holistic care from the two opposite perspectives of medical users and medical providers.

Although medical units try their best to provide good medical quality, patients and their families may not always feel that they are well taken care of. This may be because medical staff need to be re-educated, but it may also be that the care provided by medical staff is not the care that patients and families want.[25,26] It is truly through the thoughts of patients and family members about holistic care and the integration of the service knowledge and capabilities of medical providers that medical institutions can truly provide high-quality holistic care. Patients and their families should be able to evaluate the degree of satisfaction with the holistic care provided by medical institutions, and medical staff should also be able to evaluate their own knowledge and abilities in holistic care. This study has two purposes: First, through qualitative research, we will understand the understanding and expectations of patients and family members about holistic care, as well as the thoughts and actions of medical providers on holistic care, and find the intersection from the user side and the provider side. Second, three holistic care scales were constructed based on the results of qualitative research. These three scales are used to evaluate patients' satisfaction with holistic care, family members' satisfaction with holistic care, and medical staff's own knowledge and ability of holistic care.

Methods

Study Design

The study received research grants from the National Science and Technology Commission of Taiwan (MOST 109–2511-H-195-001-MY3) and MacKay Memorial Hospital. The study was approved by the MacKay Memorial Hospital Committee of Human Testing and passed the inspection of the Institutional Review Board to allow clinical research (19MMHIS363e). The study site included the inpatient wards at the Taipei branch of MacKay Memorial Hospital (urban) and the Tamsui branch (rural). Written informed consent was obtained from all participants prior to their inclusion in the study, including patients, family members, and healthcare providers. All procedures were conducted in accordance with the ethical standards of the institutional and national research committee and with the 1964 helsinki Declaration and its later amendments. The study combined qualitative methods to establish three questionnaires and quantitative research methods to test the reliability and validity of three questionnaires. The two branches of MacKay Memorial Hospital have a total of approximately 2,000 beds, with a daily outpatient volume of around 10,000 patients and a total staff of approximately 4,000 employees. The research process began in August 2019 and was completed in July 2023.

Qualitative Research Method

To understand the patient perspective, the study included participants aged 20 years or older who were diagnosed with chronic illnesses. Chronic conditions were defined as those with symptoms persisting for more than three months or resulting in permanent disabilities due to diseases or congenital conditions. These conditions encompassed a wide range of health issues, including cancer, heart disease, pneumonia, cerebrovascular diseases, diabetes, chronic lower respiratory diseases, hypertensive diseases, nephritis and nephrotic syndrome, chronic liver diseases, and cirrhosis. Patients who held a catastrophic illness certificate were also eligible for participation. The study aimed to explore patients' experiences, perceptions, and challenges in managing their health conditions within the framework of holistic care. Data were collected through individual interviews or focus groups based on the physical and mental status of the patients. Each focus group, led by the principal investigator within the hospital, consisted of no more than 10 participants and lasted 90–120 minutes with a 15-minute break. The entire session was audio- and video-recorded. If patients were unable to participate in focus groups due to physical or psychological limitations (eg, low white blood cell counts) or personal preferences, individual interviews were conducted by the principal or co-principal investigator. Each interview lasted approximately 60 minutes. The total number of participants for patient-related qualitative research was capped at 50. During the COVID-19 pandemic (2020–2022), all data collection procedures strictly followed hospital infection control policies. These included limiting the number of participants in focus groups, requiring mask-wearing, and maintaining physical distancing during sessions. When group interviews were not feasible due to health risks or restrictions, individual interviews were conducted to ensure participant safety and study continuity.

To understand the family perspective, the study included participants who were family members of patients meeting the specified criteria for chronic illnesses. Eligible family members were those providing care to patients who were currently undergoing treatment, had recovered and were no longer receiving treatment, or had passed away within the past two years. Participants had to be aged 20 years or older. The study aimed to explore family members' experiences, perceptions, and challenges in supporting patients with chronic conditions, as well as their perspectives on the holistic care provided within the healthcare system. Data collection involved individual interviews or focus groups conducted within the hospital, led by the principal investigator. Each group included no more than 10 participants and lasted 90–120 minutes, with a 15-minute break to accommodate participants' needs. Sessions were audio- and video-recorded. For family members unable or unwilling to join focus groups, individual interviews were conducted under the same conditions as patient interviews. The total number of participants for family-related qualitative research was capped at 40.

To understand the healthcare provider perspective, the study included participants who were healthcare professionals currently employed in hospitals. Recruitment was conducted through poster advertisements and purposive sampling by the research team. Eligible participants comprised both current and former department supervisors, as well as non-supervisory staff. The study aimed to explore healthcare providers' experiences, perceptions, and challenges in delivering

holistic care to patients with chronic illnesses, focusing on their roles, interdisciplinary collaboration, and the integration of patient-centered care within clinical practice. Data were collected through focus groups or individual interviews. Each focus group, led by the principal investigator, included no more than 10 participants and lasted 90–120 minutes with a 15-minute break. Sessions were audio- and video-recorded. For healthcare professionals who preferred not to participate in group discussions, individual interviews were conducted following the same structure as other interviews. The total number of participants for healthcare provider-related qualitative research was capped at 40.

All interviews and focus group discussions followed a structured guide that facilitated discussions moving progressively from surface-level to in-depth topics. The sessions were audio- and video-recorded, and the recordings were transcribed verbatim to create textual data for analysis. The qualitative data were analyzed using content analysis methods, following a directed approach. This approach uses pre-existing theories or research findings as an initial coding framework, which, in this study, was based on the biopsychosocial-spiritual model of holistic care. Key steps in the content analysis process included: (1) Developing initial codes derived from theory and literature; (2) Identifying themes related to physical, psychological, social, and spiritual aspects of holistic care; (3) Ensuring the trustworthiness of the analysis through verification by at least three independent researchers. To facilitate the analysis, the study utilized ATLAS.ti 7.5 Software (Muhr T, ATLAS.ti Scientific Software Development, Berlin, Germany) for organizing and coding textual data. Following the methodology proposed by Hsieh & Shannon (2005),[27] this approach enabled the integration of theory-driven insights with data-driven findings. The research team adopted the strategies recommended by Elo et al (2014) to enhance trustworthiness,[28] including triangulation of coding results and validation of findings through expert consensus meetings.

Quantitative Research Method

To explore the patient perspective, the study included adults aged 20 years or older diagnosed with chronic illnesses lasting at least three months or resulting in permanent disabilities due to diseases or congenital factors. Chronic conditions were identified based on the World Health Organization's (WHO) top ten causes of death listed in the International Classification of Diseases (ICD-10), excluding accidental causes. Eligible conditions encompassed cancer, heart diseases, pneumonia, cerebrovascular diseases, diabetes, chronic lower respiratory diseases, hypertensive diseases, nephritis and nephrotic syndrome, chronic liver diseases, and cirrhosis. A total of 500 patients were targeted for recruitment, with an additional 10% invited to account for potential dropouts. Participants were recruited from both outpatient and inpatient departments at MacKay Memorial Hospital, with assessments conducted by trained research assistants to ensure eligibility and data accuracy.

To explore the family perspective, the study included adults aged 20 years or older who were caregivers or family members of patients diagnosed with chronic illnesses meeting the specified criteria. Eligible participants included family members of patients who were currently receiving treatment, those who had recovered and were no longer undergoing medical care, and those who had passed away within the past two years. The study aimed to understand their experiences, perceptions, and challenges in providing support and navigating the healthcare system. A total of 500 family members were targeted for recruitment to ensure a comprehensive understanding of their perspectives on holistic care.

To explore the healthcare provider perspective, the study included a diverse group of 500 healthcare professionals currently employed in hospital settings. Participants encompassed various roles, including physicians, nurses, pharmacists, laboratory technicians, social workers, psychologists, occupational therapists, physical therapists, and pastoral care staff. Recruitment was carried out through public poster advertisements and purposive sampling within the hospital to ensure representation from different specialties and levels of experience. The study aimed to gain insights into their experiences, perceptions, and challenges in delivering holistic care to patients with chronic illnesses.

The study utilized a combination of validated and newly developed tools to assess distress, depression, demoralization, good death concept, and experience of shared decision making (SDM). The qualitative data from interviews and focus group discussions were analyzed thematically, and the key themes identified served as the conceptual foundation for item generation. Each theme was reviewed and discussed by the research team to formulate specific, measurable items that reflected participants' experiences and expectations of holistic care. For example, the theme of "empathic listening" was transformed into items such as "The healthcare provider listens carefully to my concerns" and "I feel

understood by the care team." This process ensured that each item was directly rooted in the lived experiences and expressed needs of the stakeholders involved.

Based on the qualitative findings, three scales were designed to measure the quality of holistic care and healthcare providers' knowledge, including: Holistic Care Quality Assessment Scale – Patient Version (HCQAS-P, 15 items), Holistic Care Quality Assessment Scale – Family Version (HCQAS-F, 16 items) and Holistic Care Knowledge Assessment Scale (HCKAS, 20 items). Each scale was developed to evaluate specific aspects of holistic care and ensure alignment with the identified needs and gaps. Each question required a 4-point Likert scale, with 0 representing "never", 1 "occasionally", 2 "often", and 3 "always". The HCQAS-P and HCQAS-F are designed such that higher scores indicate greater satisfaction with holistic care, as perceived by patients and family members, respectively. In contrast, higher scores on the HCKAS reflect a higher level of knowledge and competence in holistic care among healthcare professionals.

Based on qualitative findings, three assessment scales were developed to evaluate the quality of holistic care and healthcare providers' knowledge. These included the Holistic Care Quality Assessment Scale – Patient Version (HCQAS-P, 15 items), the Holistic Care Quality Assessment Scale – Family Version (HCQAS-F, 16 items), and the Holistic Care Knowledge Assessment Scale (HCKAS, 20 items). Each scale was designed to assess specific dimensions of holistic care, ensuring alignment with the identified needs and gaps in patient, family, and healthcare provider experiences. Responses were measured using a 4-point Likert scale, with response options ranging from 0 (never), 1 (occasionally), 2 (often), to 3 (always), reflecting the frequency of holistic care practices and knowledge application.

The Distress Thermometer (DT) is a rapid and widely used screening tool developed by the National Comprehensive Cancer Network (NCCN) to assess psychological distress in cancer patients. First introduced in the NCCN's 1999 guidelines, the DT is a simple, self-reported measure that uses a 0 to 10 visual analog scale, resembling a thermometer, to quantify distress levels experienced by patients over the past week and a Patient Problem List (PPL) addressing physical, emotional, and spiritual issues. This tool has demonstrated reliability and applicability in Taiwan for cancer patients and non-cancer patients.[29,30]

The Patient Health Questionnaire-9 (PHQ-9) is a widely used self-administered tool designed to screen for depression and assess its severity. It is derived from the Primary Care Evaluation of Mental Disorders (PRIME-MD) and consists of nine items, each corresponding to the diagnostic criteria for major depressive disorder outlined in the DSM-IV. The PHQ-9 is a reliable and valid measure for identifying depression in various clinical settings. A study by Liu et al (2011) validated the Mandarin version of the PHQ-9 in Taiwan, demonstrating excellent psychometric properties with a Cronbach's alpha of 0.80 for internal consistency and a test-retest reliability of 0.87.[30,31]

The Demoralization Scale II (DS-II) is an updated version of the original Demoralization Scale (DS), developed by Kissane et al to assess demoralization in patients facing life-threatening illnesses, particularly cancer. Demoralization is characterized by a persistent sense of helplessness, hopelessness, and a loss of meaning and purpose in life, which can occur independently of clinical depression. The DS-II, published in 2016, consists of 16 items that evaluate two core dimensions: "Meaning and Purpose" and "Distress and Coping Ability". It has demonstrated strong psychometric properties, with an overall Cronbach's alpha of 0.89, indicating high internal consistency. Studies have shown that demoralization has a significant impact on suicidal ideation, often surpassing the influence of depression. The DS-II is widely used in clinical and research settings to identify patients who may require psychological interventions beyond traditional depression screening. The tool has been translated and validated in multiple languages, including Mandarin, ensuring its applicability across diverse cultural contexts.[32–34]

The LED Good Death Index (LED-GDI) is a psychometric tool developed to assess whether terminal cancer patients perceive themselves as approaching a "good death". This index was created based on in-depth interviews and qualitative research conducted with terminally ill patients, incorporating perspectives deeply rooted in Confucian cultural values. The LED-GDI consists of 15 items, categorized into three major themes: "Living in Dying (L)", "Experiencing the Existential Self (E)", and "Dying in Living (D)". Each theme represents different aspects of the end-of-life experience, such as recalling meaningful life events, maintaining autonomy, and preparing for death. A study involving 144 participants validated the reliability and internal consistency of the LED-GDI, reporting a Cronbach's alpha of 0.854, indicating strong reliability. The findings suggest that the LED-GDI can serve as an effective self-assessment tool,

allowing patients to reflect on their end-of-life journey and aiding healthcare providers in delivering more personalized palliative care.[35]

CollaboRATE is a quick and efficient patient-reported tool designed to measure shared decision-making (SDM) in clinical settings. Developed by Elwyn et al, it consists of three questions evaluating a healthcare provider's effort to explain health issues, listen to concerns, and involve patients in decisions, using a 5-point Likert scale. Research by Barr et al confirmed its high reliability, validity, and sensitivity to change, making it a practical tool for routine clinical use. CollaboRATE's simplicity allows easy integration into healthcare workflows without burdening patients or providers. It effectively assesses patient-centered care and encourages meaningful patient engagement in medical decisions. Widely validated across different settings, CollaboRATE supports better communication and helps ensure patients' preferences are prioritized.[36,37]

Data analysis was conducted using SPSS 18.0. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the data. Inferential statistical methods were applied to examine differences and relationships, such as T-tests for comparing means between groups, one-way ANOVA for analyzing variations among multiple groups, and Pearson correlation for assessing variable relationships. Reliability and validity were evaluated using internal consistency (Cronbach's α), exploratory factor analysis (EFA), and confirmatory factor analysis (CFA). Findings were validated through expert consensus meetings to ensure accuracy and relevance.

Results

Qualitative Research

A total of 119 participants completed the interviews, including patients, family members, and healthcare providers. The participant demographics were as follows:

Patients (n = 48): The average age was 57.83 years, with 28 females and 20 males. Among them, 13 were terminal cancer patients, 10 were non-terminal cancer patients, and 25 were patients with non-cancer chronic diseases.

Family members (n = 32): The average age was 53.13 years, with 22 females and 10 males. They were caregivers of 11 cancer patients and 21 non-cancer chronic disease patients.

Healthcare providers (n = 39): The average age was 41.95 years, with 28 females and 11 males. Among them, 17 held supervisory positions and 22 were non-supervisory staff. The professional roles included 12 physicians, 19 nurses, 6 social workers, 1 psychologist, and 1 case manager.

The qualitative analysis of the interview transcripts identified five major themes related to participants' perceptions and experiences of holistic care:

1. Understanding of Holistic Care: Holistic care encompasses physical, psychological, social, and spiritual well-being. Participants across all groups shared a similar understanding of holistic care, emphasizing the integration of these four aspects. Both healthcare providers and recipients recognized the importance of a shared understanding to ensure effective service delivery and communication.
2. Holistic Care Delivery Model: Participants identified three essential components for effective holistic care delivery: (1). Interdisciplinary team collaboration: Coordination among healthcare professionals across different specialties; (2). Case management follow-up: Ensuring continuity of care through dedicated case managers; (3) Spiritual care: Addressing patients' spiritual needs to enhance their overall well-being.
3. Variations in Holistic Care Approaches: Participants noted differences in holistic care practices across medical specialties, emphasizing the need for tailored approaches based on patients' physical and mental conditions. Healthcare providers highlighted the importance of interdisciplinary coordination to address the specific needs of patients effectively.
4. Effectiveness of Holistic Care Delivery: The professional knowledge and competencies of healthcare providers were considered crucial for the successful implementation of holistic care. However, time constraints and heavy workloads often hindered their ability to provide comprehensive patient education and services.

5. Addressing the Limitations of Holistic Care in Healthcare Services: Participants emphasized the need to enhance public health education to bridge the gap in knowledge and improve access to healthcare information. They suggested that educational efforts should focus on both physical and psychological aspects of health, ensuring that the public can easily obtain reliable healthcare information to complement hospital services.

Quantitative Research

Table 1 presents the demographic data of the patients who participated in the quantitative study. A total of 321 patients were included, with an average age of 57.42 years (SD = 9.92), comprising 147 females and 174 males. Table 2 displays

Table 1 Demographic Data of All Participants Completing the Holistic Care Quality Assessment Scale – Patient Version (HCQAS-P) and Comparison of HCQAS-P Scores for Different Disease Categories and Categories of Healthcare Services Received (n=321)

	N (%)	HCQAS-P Mean ± S.D.	95% Confidence Interval
	321	34.14±8.23	
Gender			
Female	147(45.8)	33.71±8.43	
Male	174(54.2)	34.51±8.06	
Religion			
Christianity	43(13.4)	34.58±7.67	32.22-36.94
Catholicism	2(0.6)	37.00±5.66	−13.82-87.82
Buddhism	98(30.5)	33.65±8.07	32.04-35.27
Taoism	83(25.9)	34.34±8.80	32.42-36.26
I-Kuan Tao	6(1.9)	36.50±7.26	28.88-44.12
Others	3(0.9)	34.33±9.29	11.25-57.41
Multi-religious	8(2.5)	36.75±5.63	32.05-41.45
No religious belief	78(24.3)	33.77±8.60	31.83-35.71
Employment status			
Public sector employees	10(3.1)	29.00±9.49	22.21-35.79
Operational staff	28(8.7)	36.82±7.75	33.82-39.83
Business people	25(7.8)	35.12±9.48	31.21-39.03
Service provider	45(14)	33.56±7.72	31.24-35.88
Freelancer	36(11.2)	33.11±9.19	30.00-36.22
Student	2(0.6)	35.50±9.19	−47.09-118.09
Retiring	102(31.8)	34.54±7.59	33.05-36.03
Housekeeping	23(7.2)	36.39±8.48	32.72-40.06
Others	33(10.3)	31.94±8.50	28.92-34.95
None	17(5.3)	33.71±7.36	29.92-37.49

(*Continued*)

Table 1 (Continued).

		N (%)	HCQAS-P Mean ± S.D.	95% Confidence Interval
Level of education				
Element school		21(6.5)	31.10±8.79	27.09-35.10
Junior high school		39(12.1)	33.31±9.29	30.30-36.32
Senior high school		105(32.7)	36.06±7.44	34.62-37.50
University		128(39.9)	33.74±8.01	32.34-35.14
Master degree and above		28(8.7)	32.21±9.01	28.72-35.71
Participant source				
Inpatients at Tamsui Br.		60(18.7)	34.57±8.24	32.44-36.70
Outpatients at Tamsui Br.		246(76.6)	34.21±8.11	33.19-35.23
Outpatients at Taipei Br.		15(4.7)	31.33±10.09	25.75-36.92
Chronic disease category				
Cancer [a]	No	250(77.9)	33.38±8.40	
	Yes	71(22.1)	36.82±7.01	
Heart disease [b]	No	242(75.4)	34.78±8.12	
	Yes	79(24.6)	32.18±8.30	
Cerebrovascular disease	No	297(92.5)	34.15±8.29	
	Yes	24(7.5)	34.04±7.57	
Diabetes	No	231(72.0)	34.39±8.35	
	Yes	90(28.0)	33.49±7.93	
Chronic respiratory disease	No	279(86.9)	33.95±8.08	
	Yes	42(13.1)	35.40±9.15	
Hypertension	No	211(65.7)	34.52±8.13	
	Yes	110(34.3)	33.41±8.41	
Nephropathy	No	263(81.9)	34.53±8.03	
	Yes	58(18.1)	32.38±8.94	
Chronic liver disease	No	278(86.6)	34.08±8.27	
	Yes	43(13.4)	34.56±8.04	
Previous hospitalization experience				
No		64(19.9)	33.16±7.60	
Yes		255(79.4)	34.47±8.13	
Have ever received case manager follow-up [c]				
No		215(67)	33.19±8.45	
Yes		102(31.8)	36.48±7.00	

(*Continued*)

Table 1 (Continued).

	N (%)	HCQAS-P Mean ± S.D.	95% Confidence Interval
Have received hospital volunteer services [d]			
No	206(64.2)	33.13±8.33	
Yes	112(34.9)	36.36±7.37	
Have received community healthcare services by Hospital [e]			
No	272(84.7)	33.71±8.26	
Yes	45(14)	37.58±6.69	

Notes: [a]An independent samples *t*-test was conducted, and the results indicated a significant difference in the scores of the HCQAS-P between patients with cancer and those without cancer ($p < 0.05$). [b]An independent samples *t*-test revealed a significant difference in the scores of the HCQAS-P between patients with and without heart disease ($p < 0.05$). [c]An independent samples *t*-test revealed a significant difference in the scores of the HCQAS-P between patients who had received case manager follow-up care and those who had not ($p < 0.05$). [d]An independent samples *t*-test revealed a significant difference in the scores of the HCQAS-P between patients who had received hospital volunteer services and those who had not ($p < 0.05$). [e]An independent samples *t*-test revealed a significant difference in the scores of the HCQAS-P between patients who had received community healthcare services and those who had not ($p < 0.05$).

Table 2 Demographic Data of All Participants Completing the Holistic Care Quality Assessment Scale – Family Version (HCQAS-F) and Comparison of HCQAS-F Scores for Different Disease Categories and Categories of Healthcare Services Received (n=298)

	N (%)	HCQAS-F Mean ± S.D.	95% Confidence Interval
	298	37.29±8.49	
Gender			
Female	180(60.4)	37.49±8.62	
Male	118(39.6)	36.98±8.31	
Religion			
Christianity	36(12.1)	36.00±9.97	32.63-39.37
Catholicism	3(1)	39.00±3.00	31.55-46.45
Buddhism	104(35)	37.75±7.87	36.22-39.28
Taoism	60(20)	38.43±7.21	36.57-40.30
I-Kuan Tao	2(0.7)	47.00±1.41	34.29-59.71
Others	3(1)	43.67±7.51	25.02-62.31
Multi-religious	12(4)	35.42±7.51	30.64-40.19
No religious belief	77(25.9)	36.13±9.66	33.94-38.32
Employment status			
Public sector employees	12(4)	38.83±9.02	33.10-44.57
Operational staff	24(8.1)	35.63±10.41	31.23-40.02
Business people	46(15.5)	35.13±8.96	32.47-37.79
Service provider	49(16.5)	36.71±8.61	34.24-39.19
Freelancer	31(10.4)	39.42±6.95	36.87-41.97

(*Continued*)

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Table 2 (Continued).

		N (%)	HCQAS-F Mean ± S.D.	95% Confidence Interval
Student		2(0.7)	34.50±10.61	−60.80-129.80
Retiring		66(22.2)	38.38±7.90	36.44-40.32
Housekeeping		31(10.4)	39.00±7.78	36.15-41.85
Others		27(9.1)	37.22±8.22	33.97-40.47
None		9(3)	34.22±10.34	26.27-42.17
Level of education				
Element school		6(2)	39.67±9.65	29.54-49.79
Junior high school		35(11.7)	37.54±8.42	34.65-40.44
Senior high school		87(29.2)	38.47±7.54	36.86-40.08
University		141(47.3)	36.42±9.06	34.91-37.93
Master degree and above		29(9.7)	37.17±8.20	34.05-40.29
Participant source				
Inpatients at Tamsui Br.		39(13.1)	38.28±8.60	35.50-41.07
Outpatients at Tamsui Br.		246(82.6)	37.09±8.49	36.02-38.15
Inpatients at Taipei Br.		2(0.7)	45.00±1.41	32.29-57.71
Outpatients at Taipei Br.		11(3.7)	36.91±8.60	31.13-42.68
Have personal experience self with chronic illnesses [a]				
No		194(65.3)	38.09±7.80	
Yes		103(34.7)	35.74±9.53	
Type of illness the family member caring for in the patient				
Cancer [b]	No	220	36.40±8.40	
	Yes	78	39.79±8.29	
Heart disease	No	196	37.29±8.86	
	Yes	102	37.29±7.76	
Cerebrovascular disease	No	222	37.71±8.53	
	Yes	76	36.05±8.29	
Diabetes	No	185	37.73±8.41	
	Yes	113	36.57±8.60	
Chronic respiratory disease	No	268	37.37±8.57	
	Yes	30	36.60±7.83	
Hypertension	No	166	38.36±7.92	
	Yes	132	35.95±9.00	

(*Continued*)

Table 2 (Continued).

		N (%)	HCQAS-F Mean ± S.D.	95% Confidence Interval
Nephropathy	No	245	37.79±8.43	
	Yes	53	34.98±8.43	
Chronic liver disease	No	275	37.27±8.33	
	Yes	23	37.52±10.38	
Previous hospitalization experience self				
No		166(55.7)	37.79±7.93	
Yes		132(44.3)	36.66±9.13	
Patients have ever received case manager follow-up [e]				
No		130(43.6)	36.10±8.63	
Yes		168(56.4)	38.82±8.08	
Received health education propaganda self [f]				
No		176(59.1)	36.37±8.82	
Yes		122(40.9)	38.61±7.83	
Have received community healthcare services by Hospital self [g]				
No		259(86.9)	36.65±8.64	
Yes		39(13.1)	41.54±5.92	

the demographic data of the participating family members. A total of 298 family members were enrolled, with an average age of 52.99 years (SD = 10.22), including 180 females and 118 males. Table 3 outlines the demographic characteristics of the healthcare providers involved in the study. A total of 398 healthcare professionals participated, with an average age of 36.47 years (SD = 10.00), consisting of 358 females and 40 males.

Table 3 Demographic Data of All Participants Completing the Holistic Care Knowledge Assessment Scale (HCKAS) and Comparing HCKAS Scores by Experience or Unit (n=398)

	N (%)	HCQAS-F Mean ± S.D.	95% Confidence Interval
	398	38.78±9.15	
Gender			
Female	358(89.9)	39.05±9.02	
Male	40(10.1)	36.38±10.10	
Profession			
Doctor	24(6.0)	37.58±9.61	33.52-41.64
Nurse	246(61.8)	39.11±9.24	37.95-40.27
Medical Technologist	2(0.5)	41.00±4.24	2.88-79.12
Social Worker	20(5.0)	39.30±7.39	35.84-42.76

(*Continued*)

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Table 3 (Continued).

	N (%)	HCQAS-F Mean ± S.D.	95% Confidence Interval
Psychologist	5(1.3)	43.60±6.58	35.43-51.77
Pharmacist	11(2.8)	30.73±8.46	25.04-36.41
Occupational Therapist	6(1.5)	33.33±7.45	25.52-41.15
Physical Therapist	8(2.0)	34.50±3.42	31.64-37.36
Speech Therapist	1(0.3)	21.00	
Spiritual Care Provider	12(3.0)	40.17±8.21	34.95-45.38
Case Manager	10(2.5)	38.30±7.89	32.66-43.94
Nurse Practitioner	19(4.8)	39.68±9.04	35.33-44.04
Nutritionist	10(2.5)	42.50±6.17	38.09-46.91
Radiologic Technologist	24(6.0)	39.46±11.56	34.58-44.34
Religion			
Christianity	73(18.3)	38.99±8.83	36.93-41.05
Catholicism	3(0.8)	37.67±11.93	8.03-67.30
Buddhism	37(9.3)	37.70±8.74	34.79-40.62
Taoism	69(17.3)	38.23±9.94	35.84-40.62
I-Kuan Tao	3(0.8)	34.67±3.79	25.26-44.07
Others	12(3.0)	41.42±9.95	35.10-47.74
Multi-religious	9(2.3)	39.67±9.81	32.13-47.21
No religious belief	187(47.0)	38.83±9.00	37.54-40.13
Level of education[a]			
University	334(83.9)	38.28±9.34	
Master degree and above	63(15.8)	41.29±7.64	
Whether the healthcare provider has a chronic illness.			
No	336(84.4)	39.12±9.32	
Yes	62(15.6)	36.97±8.01	
Have personal experience with hospitalization.			
No	178(44.7)	38.91±9.67	
Yes	220(55.3)	38.68±8.73	
Whether the team has conducted holistic care case discussions. [b]			
No	56(14.1)	33.09±9.60	
Yes	267(67.1)	40.65±8.67	

(*Continued*)

Table 3 (Continued).

	N (%)	HCQAS-F Mean ± S.D.	95% Confidence Interval
Unit and department			
Palliative care Ward	36(9.0)	44.03±7.07[c,d]	41.63-46.42
Radiation Oncology Ward	18(4.5)	45.28±8.83[e,f]	40.89-49.67
Hematology-Oncology Ward	36(9.0)	37.69±8.94	34.67-40.72
Outpatient Clinic	11(2.8)	39.82±12.95	31.12-48.52
Psychiatric Ward	26(6.5)	37.04±7.89	33.85-40.23
Hemodialysis Unit	25(6.3)	37.84±8.38	34.38-41.30
Medical Laboratory Department	15(3.8)	33.47±11.50[c,e]	27.10-39.83
Respiratory Care Center	16(4.0)	36.25±12.11	29.80–42.70
Neurology Ward	24(6.0)	42.50±7.58[g]	39.30-45.70
Surgical Ward	21(5.3)	34.00±6.57[d,f,g]	31.01–36.99
Medical Ward	14(3.5)	37.79±5.24	34.76-40.87

Notes: [a] An independent samples *t*-test revealed a significant difference in the scores of the HCKAS based on the educational level of participants ($p < 0.05$). [b]An independent samples *t*-test revealed a significant difference in the scores of the HCKAS between teams that conducted holistic care case discussions and those that did not ($p < 0.05$). [c]A one-way ANOVA revealed a significant difference in the scores of the HCKAS among professional staff across different units ($F = 4.308$, $p < 0.05$). Post hoc analysis using the Tukey method indicated a significant difference between the Palliative Care Ward and the Medical Laboratory Department ($p < 0.05$). [d]A one-way ANOVA revealed a significant difference in the scores of the HCKAS among professional staff across different units ($F = 4.308$, $p < 0.05$). Post hoc analysis using the Tukey method indicated a significant difference between the Palliative Care Ward and the Surgical Ward ($p < 0.05$). [e]A one-way ANOVA revealed a significant difference in the scores of the HCKAS among professional staff across different units ($F = 4.308$, $p < 0.05$). Post hoc analysis using the Tukey method indicated a significant difference between the Radiation Oncology Ward and the Medical Laboratory Department ($p < 0.05$). [f]A one-way ANOVA revealed a significant difference in the scores of the HCKAS among professional staff across different units ($F = 4.308$, $p < 0.05$). Post hoc analysis using the Tukey method indicated a significant difference between the Radiation Oncology Ward and the Surgical Ward ($p < 0.05$). [g]A one-way ANOVA revealed a significant difference in the scores of the HCKAS among professional staff across different units ($F = 4.308$, $p < 0.05$). Post hoc analysis using the Tukey method indicated a significant difference between the Neurology Ward and the Surgical Ward ($p < 0.05$).

The 15-item HCQAS-P was administered to the patient group. The mean total score was 34.14 (SD = 8.23), with scores ranging from 2 to 45. The internal consistency of the scale was assessed using Cronbach's alpha, yielding a value of 0.929, indicating excellent reliability. The item-wise analysis showed that Cronbach's alpha values (if an item was deleted) ranged between 0.92 and 0.94, further confirming the scale's robustness. The 16-item HCQAS-F was used to evaluate the family members' perceptions of holistic care. The mean total score was 37.29 (SD = 8.49), with a minimum score of 10 and a maximum score of 48. Cronbach's alpha for the overall scale was 0.930, reflecting high internal consistency. The Cronbach's alpha values for individual items, if deleted, ranged from 0.92 to 0.94. The 20-item HCKAS was administered to the healthcare providers. The mean total score was 38.78 (SD = 9.15), with scores ranging from 6 to 60. The internal consistency of the scale, as measured by Cronbach's alpha, was 0.937, demonstrating excellent reliability. The item-wise analysis revealed that Cronbach's alpha values (if an item was deleted) ranged between 0.93 and 0.94, indicating strong reliability across all items.

Factor analysis was conducted for the three scales, but only the Holistic Care Knowledge Assessment Scale (HCKAS) yielded analyzable results. The Bartlett's Test of Sphericity was significant ($p < 0.0001$), and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.940, indicating that the data were suitable for factor analysis. Principal component analysis extracted four components: (1) institutional dimension: consisting of nine items, reflecting organizational and systemic aspects of holistic care.; (2) competence dimension: comprising five items, focusing on the professional knowledge and skills of healthcare providers, addressing the outcomes and impact of holistic care practices;

(3) effectiveness dimension: comprising five items; (4) cost dimension: containing one item, related to cost considerations in holistic care delivery. These results suggest that the HCKAS effectively captures multiple facets of knowledge and competence related to holistic care. (Table 4)

The Holistic Care Quality Assessment Scale – Patient Version (HCQAS-P) was analyzed to identify high and low scoring items. The highest scoring item was HCQAS-P 8, "I feel that healthcare providers have a friendly attitude toward me", with a mean score of 2.64 ± 0.523. The second highest scoring item was HCQAS-P 15, "I feel that I have a good doctor-patient relationship", with a mean score of 2.59 ± 0.616. The third highest scoring item was HCQAS-P 14, "I feel that my physician understands my medical journey", with a mean score of 2.54 ± 0.666. In contrast, the lowest scoring item was HCQAS-P 3, "I feel that the hospital's services provide spiritual (religious) care", with a mean score of 1.09 ± 1.103. The second lowest scoring item was HCQAS-P 4, "I feel that the hospital offers interdisciplinary care services", with a mean score of 1.83 ± 1.093. The third lowest scoring item was HCQAS-P 2, "I feel that the hospital's services provide psychological support", with a mean score of 2.21 ± 0.825. (Table 5) A *t*-test was conducted to examine the differences between high and low scoring groups across all items, and the results showed significant differences for all items. Additionally, a correlation analysis was performed between individual item scores and the overall scale score, revealing significant correlations for all items. (Table 6)

Table 4 Factor Analysis of the Holistic Care Knowledge Assessment Scale (HCKAS) for Healthcare Providers

Item Content		Component			
		1	2	3	4
17	Our team has reached a consensus on delivering holistic care.	**0.765**	0.210	0.229	0.219
16	My unit has sufficient resources to dedicate to holistic care services.	**0.746**	0.190	0.163	0.346
18	I am able to provide holistic care services under the current healthcare system.	**0.742**	0.253	0.121	0.321
15	My unit can regularly audit the quality of medical care.	**0.738**	0.052	0.211	0.134
14	I am able to apply the concept of holistic care in the clinical care of patients.	**0.697**	0.451	0.154	0.032
12	I can perceive effective integration of interdisciplinary teams in patient care.	**0.683**	0.283	0.226	−0.011
11	I can recognize the needs of patients and their families and provide services through interdisciplinary collaboration.	**0.614**	0.457	0.323	−0.117
13	I am able to regularly participate in continuing education programs on holistic care.	**0.604**	0.271	0.143	0.021
20	The hospital's environment and facilities enable me to provide patients with comfortable and safe care.	**0.563**	0.017	0.287	0.494
8	I am able to address the spiritual (religious) needs of patients and their families.	0.185	**0.802**	0.005	0.259
7	I am able to address the familial and social needs of patients.	0.209	**0.776**	0.209	0.169
6	I am able to address the psychological needs of patients and their families.	0.182	**0.772**	0.276	0.134
9	I am able to provide patient-centered holistic care services.	0.497	**0.609**	0.230	0.010
4	I am able to promptly recognize when a patient requires holistic care.	0.325	**0.570**	0.419	0.078
2	I am able to effectively address patients' issues.	0.209	0.163	**0.792**	0.138
3	I am able to proactively provide information related to the patient's condition.	0.197	0.215	**0.714**	−0.015
1	I have sufficient time to care for my patients.	0.174	0.101	**0.684**	0.384
5	I am able to communicate effectively with patients and their families.	0.277	0.503	**0.506**	−0.105
10	I am able to make patients and their families feel my dedication and care.	0.349	0.412	**0.494**	−0.174
19	The effort I dedicate to holistic care is proportional to my income.	0.242	0.290	0.060	**0.781**

Notes: Factors: 1, institutional; 2, competence; 3, effectiveness; 4, cost; Data in bold type: factor loading ≧.

Table 5 The Items of the Holistic Care Quality Assessment Scale – Patient Version (HCQAS-P) Were Ranked in Descending Order of Their Mean Scores

Item		Mean	S.D.
8	I feel that healthcare providers have a friendly attitude toward me	2.64	0.523
15	I feel that I have a good doctor-patient relationship.	2.59	0.616
14	I feel that my physician understands my medical journey.	2.54	0.666
12	I feel that the professionalism of healthcare providers meets my expectations.	2.50	0.613
1	I feel that the hospital's services effectively address my physical discomfort.	2.44	0.646
5	I feel that the hospital provides a comfortable and convenient environment.	2.42	0.685
6	I feel that the hospital offers adequate consultation services related to my condition.	2.38	0.790
11	I feel that healthcare providers offer me encouragement and support.	2.37	0.700
13	I feel that healthcare providers have sufficient time to interact and communicate with me.	2.34	0.742
10	I feel that healthcare providers proactively provide relevant information.	2.29	0.767
7	I feel that the hospital helps me adjust my mindset in facing my illness.	2.29	0.814
9	I feel that healthcare providers offer care and support to my family.	2.27	0.852
2	I feel that the hospital's services provide me with psychological support.	2.21	0.825
4	I feel that the hospital offers integrated, interdisciplinary care services.	1.83	1.093
3	I feel that the hospital's services provide spiritual (religious) care.	1.09	1.103

Table 6 Item Analysis of the Holistic Care Quality Assessment Scale – Patient Version (HCQAS-P) (n=321)

Questionnaire Items	Mean	SD	Skewness		Kurtosis		T	95% Confidence Interval		Correlation with Total Score	Cronbach's α
			Statistic	Std. Error	Statistic	Std. Error		Lower	Upper		
Total score of the scale (HCQAS-P)	34.14	8.229									0.929
HCQAS-P 1	2.44	0.646	−0.809	0.136	−0.070	0.272	16.863***	0.968	1.225	0.718**	
HCQAS-P 2	2.21	0.825	−0.815	0.136	0.001	0.271	15.392***	1.200	1.553	0.748**	
HCQAS-P 3	1.09	1.103	0.529	0.136	−1.105	0.271	9.708***	1.045	1.579	0.446**	
HCQAS-P 4	1.83	1.093	−0.492	0.136	−1.070	0.271	18.224***	1.629	2.026	0.716**	
HCQAS-P 5	2.42	0.685	−1.051	0.136	1.004	0.271	15.981***	1.027	1.317	0.726**	
HCQAS-P 6	2.38	0.790	−1.131	0.136	0.602	0.271	17.181***	1.199	1.511	0.749**	
HCQAS-P 7	2.29	0.814	−0.923	0.136	0.114	0.272	19.473***	1.348	1.653	0.799**	
HCQAS-P 8	2.64	0.523	−1.196	0.136	1.204	0.271	14.586***	0.715	0.941	0.674**	
HCQAS-P 9	2.27	0.852	−1.107	0.137	0.641	0.274	17.891***	1.360	1.700	0.797**	
HCQAS-P 10	2.29	0.767	−0.839	0.136	0.119	0.271	17.336***	1.200	1.510	0.762**	
HCQAS-P 11	2.37	0.700	−0.814	0.136	0.076	0.271	21.088***	1.198	1.447	0.822**	

(*Continued*)

Table 6 (Continued).

Questionnaire Items	Mean	SD	Skewness		Kurtosis		T	95% Confidence Interval		Correlation with Total Score	Cronbach's α
			Statistic	Std. Error	Statistic	Std. Error		Lower	Upper		
HCQAS-P 12	2.50	0.613	−0.883	0.136	0.193	0.271	20.029***	0.988	1.205	0.755**	
HCQAS-P 13	2.34	0.742	−0.916	0.136	0.345	0.271	17.460***	1.163	1.461	0.773**	
HCQAS-P 14	2.54	0.666	−1.379	0.136	1.648	0.271	16.100***	0.999	1.280	0.760**	
HCQAS-P 15	2.59	0.616	−1.402	0.136	1.613	0.271	14.644***	0.883	1.160	0.704**	

Notes: **Correlation is significant at the 0.01 level (two-tailed).

The Holistic Care Quality Assessment Scale – Family Version (HCQAS-F) was analyzed to identify high and low scoring items. The highest scoring item was HCQAS-F 15, "I feel that physicians provide detailed explanations of the patient's condition", with a mean score of 2.57 ± 0.611. The second highest scoring item was HCQAS-F 16, "I feel that nurses assist in addressing the patient's problems", with a mean score of 2.52 ± 0.631. The third highest scoring item was HCQAS-F 14, "I feel that physicians understand the patient's medical journey", with a mean score of 2.50 ± 0.663. In contrast, the lowest scoring item was HCQAS-F 3, "I feel that the hospital's services provide spiritual (religious) care to patients or their families", with a mean score of 1.45 ± 1.117. The second lowest scoring item was HCQAS-F 8, "I feel that the hospital considers the patient's familial and social needs", with a mean score of 2.05 ± 0.89. The third lowest scoring item was HCQAS-F 5, "I feel that the hospital offers interdisciplinary care services", with a mean score of 2.10 ± 0.939. (Table 7) A *t*-test was conducted to examine the differences between high and low scoring groups across all items.

Table 7 The Items of the Holistic Care Quality Assessment Scale – Family Version (HCQAS-F) Were Ranked in Descending Order of Their Mean Scores

Item		Mean	S.D.
15	I feel that physicians provide detailed explanations of the patient's condition.	2.57	0.611
16	I feel that nurses assist in addressing the patient's problems.	2.52	0.631
14	I feel that physicians understand the patient's medical journey.	2.50	0.663
6	I feel that the hospital provides a comfortable and convenient environment.	2.48	0.637
9	I feel that the hospital has clear signage for navigating medical services.	2.48	0.663
10	I feel that healthcare providers offer patients encouragement and comfort.	2.46	0.677
1	I feel that the hospital's services effectively address the patient's physical discomfort.	2.45	0.635
13	I feel that healthcare providers' professionalism meets my expectations.	2.43	0.638
11	I feel that healthcare providers show care and support to me.	2.42	0.708
7	I feel that the hospital provides consultation services related to the patient's or family's condition.	2.41	0.729
2	I feel that the hospital's services provide psychological support to patients or their families.	2.40	0.714
4	I feel that the hospital provides long-term, continuous services.	2.35	0.816
12	I feel that healthcare providers proactively offer relevant information.	2.29	0.784
5	I feel that the hospital offers interdisciplinary care services.	2.10	0.939
8	I feel that the hospital considers the patient's familial and social needs.	2.05	0.890
3	I feel that the hospital's services provide spiritual (religious) care to patients or their families.	1.45	1.117

The results showed significant differences for all items. Additionally, a correlation analysis was performed between individual item scores and the overall scale score, with all items showing significant correlations. (Table 8)

The Holistic Care Knowledge Assessment Scale (HCKAS) for healthcare providers was analyzed to identify high and low scoring items. The highest scoring item was HCKAS 10, "I am able to make patients and their families feel my dedication and care", with a mean score of 2.20 ± 0.620. The second highest scoring item was HCKAS 3, "I am able to proactively provide information related to the patient's condition", with a mean score of 2.12 ± 0.620. The third highest scoring item was HCKAS 5, "I am able to communicate effectively with patients and their families", with a mean score of 2.11 ± 0.563. In contrast, the lowest scoring item was HCKAS 19, "The effort I dedicate to holistic care is proportional to my income", with a mean score of 1.34 ± 0.831. The second lowest scoring item was HCKAS 8, "I am able to address the spiritual (religious) needs of patients and their families", with a mean score of 1.43 ± 0.751. The third lowest scoring item was HCKAS 7, "I am able to address the familial and social needs of patients", with a mean score of 1.69 ± 0.716. (Table 9) A *t*-test was conducted to examine the differences between high and low scoring groups across all items. The results indicated significant differences for all items. Additionally, a correlation analysis was performed between individual item scores and the overall scale score, and all items were found to have significant correlations. (Table 10)

The Holistic Care Quality Assessment Scale – Patient Version (HCQAS-P) was analyzed for its correlation with the LED Good Death Index (LED-GDI), the Demoralization Scale II (DS-II), the Share Decision Making—CollaboRATE Scale, the Patient Health Questionnaire-9 (PHQ-9), and the Distress Thermometer (DT). The reliability and descriptive statistics of the scales used in this study demonstrate their robustness and variability in assessing various aspects of

Table 8 Item Analysis of the Holistic Care Quality Assessment Scale – Family Version (HCQAS-F) (n=298)

Questionnaire Items	Mean	SD	Skewness		Kurtosis		T	95% Confidence Interval		Correlation with Total Score	Cronbach's α
			Statistic	Std. Error	Statistic	Std. Error		Lower	Upper		
Total score of the scale (HCQAS-F)	37.29	8.487									0.930
HCQAS-F 1	2.45	0.635	−0.871	0.141	0.472	0.281	14.385***	0.879	1.159	0.686**	
HCQAS-F 2	2.40	0.714	−1.037	0.141	0.727	0.281	16.999***	1.136	1.436	0.757**	
HCQAS-F 3	1.45	1.117	0.029	0.141	−1.360	0.282	11.057***	1.277	1.832	0.553**	
HCQAS-F 4	2.35	0.816	−1.204	0.141	0.924	0.282	14.343***	1.171	1.546	0.728**	
HCQAS-F 5	2.10	0.939	−0.745	0.141	−0.435	0.282	16.926***	1.376	1.741	0.728**	
HCQAS-F 6	2.48	0.637	−0.818	0.141	−0.365	0.281	15.564***	0.920	1.189	0.688**	
HCQAS-F 7	2.41	0.729	−0.956	0.141	0.085	0.281	17.275***	1.158	1.458	0.747**	
HCQAS-F 8	2.05	0.890	−0.621	0.141	−0.425	0.282	20.951***	1.481	1.790	0.764**	
HCQAS-F 9	2.48	0.663	−1.175	0.142	1.337	0.282	11.594***	0.747	1.055	0.587**	
HCQAS-F 10	2.46	0.677	−1.128	0.141	1.082	0.282	16.789***	1.066	1.352	0.760**	
HCQAS-F 11	2.42	0.708	−1.044	0.141	0.608	0.281	16.900***	1.114	1.410	0.770**	
HCQAS-F 12	2.29	0.784	−0.803	0.141	−0.143	0.281	17.555***	1.251	1.569	0.763**	
HCQAS-F 13	2.43	0.638	−0.750	0.141	−0.076	0.281	20.786***	1.080	1.307	0.809**	
HCQAS-F 14	2.50	0.663	−1.130	0.141	0.670	0.281	14.743***	0.954	1.250	0.724**	
HCQAS-F 15	2.57	0.611	−1.206	0.141	0.836	0.281	15.188***	0.878	1.142	0.708**	
HCQAS-F 16	2.52	0.631	−1.127	0.141	0.929	0.281	19.172***	1.030	1.268	0.763**	

Notes: **Correlation is significant at the 0.01 level (two-tailed).

Table 9 The Items of the Holistic Care Knowledge Assessment Scale (HCKAS) Were Ranked in Descending Order of Their Mean Scores

Item		Mean	S.D.
10	I am able to make patients and their families feel my dedication and care.	2.20	0.620
3	I am able to proactively provide information related to the patient's condition.	2.12	0.620
5	I am able to communicate effectively with patients and their families.	2.11	0.563
15	My unit is able to regularly audit the quality of medical care.	2.10	0.715
2	I am able to effectively address patients' issues.	2.10	0.524
11	I am able to recognize the needs of patients and their families and provide services through interdisciplinary collaboration.	2.08	0.678
17	Our team has reached a consensus on delivering holistic care.	2.08	0.696
12	I can perceive effective integration of interdisciplinary teams in patient care.	2.08	0.689
13	I am able to regularly participate in continuing education programs on holistic care.	2.01	0.756
16	My unit has sufficient resources to dedicate to holistic care services.	1.99	0.699
14	I am able to apply the concept of holistic care in the clinical care of patients.	1.97	0.663
20	The hospital's environment and facilities enable me to provide patients with comfortable and safe care.	1.96	0.653
4	I am able to promptly recognize when a patient requires holistic care.	1.96	0.668
9	I am able to provide patient-centered holistic care services.	1.95	0.675
18	I am able to provide holistic care services under the current healthcare system.	1.94	0.703
1	I have sufficient time to care for my patients.	1.90	0.628
6	I am able to address the psychological needs of patients and their families.	1.81	0.659
7	I am able to address the familial and social needs of patients.	1.69	0.716
8	I am able to address the spiritual (religious) needs of patients and their families.	1.43	0.751
19	The effort I dedicate to holistic care is proportional to my income.	1.34	0.831

Table 10 Item Analysis of the Holistic Care Knowledge Assessment Scale (HCKAS) (n=398)

Questionnaire Items	Mean	SD	Skewness		Kurtosis		T	95% Confidence Interval		Correlation with Total Score	Cronbach's α
			Statistic	Std. Error	Statistic	Std. Error		Lower	Upper		
Total score of the scale(S)	38.78	9.153									0.937
HCKAS 1	1.90	0.628	−0.110	0.123	−0.004	0.245	9.832***	0.622	0.934	0.514**	
HCKAS 2	2.10	0.524	0.115	0.122	0.498	0.244	10.939***	0.585	0.841	0.570**	
HCKAS 3	2.12	0.620	−0.208	0.122	0.067	0.244	8.676***	0.552	0.876	0.523**	
HCKAS 4	1.96	0.668	−0.005	0.122	−0.612	0.244	16.328***	0.995	1.268	0.707**	
HCKAS 5	2.11	0.563	−0.061	0.122	0.415	0.244	13.272***	0.744	1.004	0.648**	
HCKAS 6	1.81	0.659	0.018	0.122	−0.345	0.244	15.126***	0.926	1.204	0.678**	
HCKAS 7	1.69	0.716	−0.165	0.122	−0.157	0.244	15.095***	1.002	1.303	0.683**	

(*Continued*)

Table 10 (Continued).

Questionnaire Items	Mean	SD	Skewness		Kurtosis		T	95% Confidence Interval		Correlation with Total Score	Cronbach's α
			Statistic	Std. Error	Statistic	Std. Error		Lower	Upper		
HCKAS 8	1.43	0.751	0.013	0.122	−0.332	0.244	12.428***	0.880	1.212	0.601**	
HCKAS 9	1.95	0.675	−0.185	0.123	−0.132	0.245	16.222***	1.062	1.355	0.739**	
HCKAS 10	2.20	0.620	−0.228	0.122	−0.252	0.244	12.689***	0.771	1.054	0.601**	
HCKAS 11	2.08	0.678	−0.194	0.122	−0.487	0.244	17.989***	1.110	1.384	0.765**	
HCKAS 12	2.08	0.689	−0.334	0.122	−0.104	0.244	16.671***	1.039	1.318	0.694**	
HCKAS 13	2.01	0.756	−0.161	0.122	−0.861	0.244	13.576***	0.956	1.281	0.616**	
HCKAS 14	1.97	0.663	−0.173	0.122	−0.123	0.244	18.591***	1.126	1.392	0.771**	
HCKAS 15	2.10	0.715	−0.403	0.122	−0.180	0.244	14.857***	0.965	1.260	0.642**	
HCKAS 16	1.99	0.699	−0.298	0.122	−0.063	0.244	17.519***	1.117	1.400	0.735**	
HCKAS 17	2.08	0.696	−0.196	0.122	−0.631	0.244	21.143***	1.223	1.474	0.773**	
HCKAS 18	1.94	0.703	−0.270	0.122	−0.077	0.244	17.404***	1.114	1.398	0.748**	
HCKAS 19	1.34	0.831	0.053	0.122	−0.592	0.244	10.043***	0.819	1.219	0.518**	
HCKAS 20	1.96	0.653	−0.128	0.122	−0.179	0.244	11.680***	0.770	1.082	0.592**	

Notes: **Correlation is significant at the 0.01 level (two-tailed).

patient care and psychological well-being. The Patient Health Questionnaire-9 (PHQ-9), designed to measure levels of depression, exhibited good reliability with a Cronbach's α of 0.717, and a mean score of 4.92 ± 4.59, indicating moderate depressive symptoms on average among the patients. The Demoralization Scale II (DS-II), which evaluates feelings of hopelessness and loss of purpose, demonstrated excellent reliability with a Cronbach's α of 0.930, and an average score of 4.67 ± 5.82, reflecting varying levels of demoralization in the sample. The LED Good Death Index (LED-GDI), which measures perceptions of a good death, also showed high reliability with a Cronbach's α of 0.914, and a mean score of 49.61 ± 7.01, suggesting generally positive end-of-life perceptions among the patients. Similarly, the Share Decision Making—CollaboRATE Scale, which evaluates the quality of shared decision-making during clinical encounters, exhibited excellent reliability with a Cronbach's α of 0.929. The average score for this scale was 10 ± 2.15, reflecting a relatively high level of patient engagement in shared decision-making processes.

The Spearman rank correlation analysis (Table 11) revealed several significant associations between the Holistic Care Quality Assessment Scale – Patient Version (HCQAS-P) and other psychological and quality-of-care measures. The HCQAS-P was positively correlated with the LED Good Death Index (LED-GDI) ($\gamma = 0.250$, $p < 0.001$), indicating that higher holistic care quality was associated with more favorable perceptions of a good death. In contrast, a significant negative correlation was found between the HCQAS-P and the Demoralization Scale II (DS-II) ($\gamma = -0.246$, $p < 0.001$), suggesting that better holistic care quality was linked to reduced levels of demoralization. Additionally, the HCQAS-P exhibited a strong positive correlation with the Share Decision Making—CollaboRATE Scale ($\gamma = 0.542$, $p < 0.001$), highlighting that higher holistic care quality was associated with improved shared decision-making experiences. Negative correlations were also observed between the HCQAS-P and the Patient Health Questionnaire-9 (PHQ-9) ($\gamma = -0.254$, $p < 0.001$) as well as the Distress Thermometer (DT) ($\gamma = -0.184$, $p < 0.001$), indicating that higher holistic care quality corresponded with lower levels of depression and psychological distress, respectively. These findings underscore the significant relationships between holistic care quality and various dimensions of patients' psychological well-being, shared decision-making experiences, and end-of-life care perceptions, emphasizing the multidimensional impact of holistic care.

Table 11 The Relationship Between the Holistic Care Quality Assessment Scale – Patient Version (HCQAS-P) and the LED Good Death Index (LED-GDI), Demoralization Scale II (DS-II), Shared Decision-Making Scale-CollaboRATE (SDM), Patient Health Questionnaire-9 (PHQ-9), and Distress Thermometer (DT)

Factor		LED	DS-II	SDM	PHQ-9	DT
HCQAS-P	Spearman r	0.250**	−0.246**	0.542**	−0.254**	−0.184**
	p	0.000	0.000	0.000	0.000	0.001

Notes: **Correlation is significant at the 0.01 (two-tailed).

Discussion

Holistic care is essential not only in end-of-life care but also throughout the continuum of chronic illness management. Patients with chronic conditions often experience long-term physical, psychological, social, and spiritual challenges, necessitating a comprehensive approach that addresses their multidimensional needs. Traditional healthcare models often prioritize disease-centered treatments, leaving critical aspects of patient well-being unaddressed. However, growing evidence suggests that integrating holistic care into routine chronic disease management can enhance patient outcomes, improve quality of life, and reduce psychological distress.[17,38] Our study highlights the importance of holistic care for individuals living with chronic illnesses by examining their specific needs and experiences. Unlike many studies that focus on holistic care in palliative or end-of-life settings, our research emphasizes its significance in earlier stages of disease management.[3,17,35] By incorporating perspectives from patients, family members, and healthcare providers, we offer a comprehensive understanding of holistic care implementation and its impact. The inclusion of multiple stakeholders provides valuable insights into care expectations, potential gaps, and opportunities for improving holistic interventions in clinical practice. Recognizing and addressing the holistic needs of chronic illness patients can lead to better patient-provider relationships, enhanced shared decision-making, and improved overall well-being. This study underscores the urgency of shifting from a reactive, end-of-life approach to a proactive, patient-centered model that integrates holistic care throughout the disease trajectory.[37]

The study by Sulmasy et al (2002) developed the Quality of End-of-Life Care and Satisfaction with Treatment (QUEST) scale, which assesses patients' perceptions of care quality and satisfaction at the end of life.[39] The study validated the instrument's reliability, construct validity, and sensitivity to differences in care, particularly in patients with and without Do-Not-Resuscitate (DNR) orders. Similarly, our research focuses on holistic care quality, integrating patient perspectives on psychological distress, shared decision-making, and end-of-life experiences. Our findings align with QUEST in highlighting the importance of interpersonal care, yet extend the discussion to holistic medical care across chronic illnesses. By referencing QUEST, we contextualize our study's contribution to understanding patient satisfaction beyond terminal care, supporting the need for a comprehensive approach to holistic healthcare evaluation.

The integration of spirituality in healthcare has historically played a crucial role in East Asian societies, deeply rooted in Confucian, Buddhist, and Taoist traditions, which emphasize harmony between the body, mind, and spirit.[40] However, over the past century, the increasing dominance of Western biomedical models has shifted healthcare practices in regions such as Taiwan, China, South Korea, Japan, Malaysia, the Philippines, and Vietnam toward a disease-centered approach, often at the expense of spiritual care.[41] The decline in spiritual care within holistic healthcare in East Asia may be rooted in the historical transition from traditional healing systems to Western biomedical models. The absence of such care could impact patient satisfaction and overall well-being, as addressing spiritual needs has been shown to enhance psychological resilience and improve the quality of end-of-life care.[42] Anagnostou (2015) highlights that the globalization of European medical knowledge, facilitated by missionary activities in the 17th and 18th centuries, reshaped indigenous healthcare practices in Southeast Asia, often at the expense of spiritual and holistic healing traditions.[41] Given these historical influences, modern healthcare systems should reconsider the integration of spiritual and psychosocial elements into contemporary medical practice.

Our study revealed that doctor-patient relationships and healthcare provider attitudes received higher ratings, while interdisciplinary collaboration and psychological support were rated lower. This discrepancy reflects structural limitations within Taiwan's healthcare system, particularly regarding cross-disciplinary cooperation and holistic care. Tsuei analyzed Taiwan's National Health Insurance (NHI) system and highlighted overburdened healthcare professionals and resource constraints as major challenges, which may explain the limited implementation of interdisciplinary care and psychological support. Taiwan's NHI prioritizes efficiency and cost control, often leading to high patient volumes and time constraints, which hinder meaningful cross-team collaboration and comprehensive psychosocial care.[43] As a result, while healthcare providers maintain strong doctor-patient interactions, their ability to coordinate across specialties and provide holistic psychological support remains limited. Pfannstiel supports this observation by introducing the Bayreuth Productivity Analysis, which assesses hospital service efficiency while emphasizing the need for interdisciplinary collaboration to optimize holistic care delivery. The study argues that acute care hospitals often focus on clinical efficiency but fail to integrate cross-disciplinary teamwork effectively, ultimately reducing the overall quality of holistic care.[4] Together, these findings indicate that Taiwan's healthcare system, while excelling in direct medical interactions, faces systemic barriers to collaborative and psychosocial care. Future healthcare reforms should explore integrated team-based models and workforce restructuring to enhance holistic service productivity, aligning with international best practices for patient-centered care.

Our study found that the Holistic Care Quality Assessment Scale – Patient Version (HCQAS-P) was positively correlated with the LED Good Death Index (LED-GDI) and negatively correlated with the Demoralization Scale II (DS-II), Patient Health Questionnaire-9 (PHQ-9), and Distress Thermometer (DT). These findings suggest that higher holistic care quality is associated with lower levels of demoralization, psychological distress, and depression, while also enhancing patients' perceptions of a good death. Robinson, Kissane et al validated the DS-II and demonstrated its strong association with existential distress, emphasizing the need for psychological and spiritual care in serious illnesses.[34] Similarly, Pi, Fang et al highlighted that better holistic care significantly improves patients' end-of-life experiences, reinforcing the importance of integrating psychosocial and palliative care into standard medical practice.[35] These results underscore the necessity of a patient-centered, holistic approach to mitigate psychological suffering and enhance overall well-being.[34,35]

Our study found a strong positive correlation between the Holistic Care Quality Assessment Scale – Patient Version (HCQAS-P) and CollaboRATE, indicating that shared decision-making (SDM) is a crucial component of holistic care. This aligns with Elwyn et al, who developed and validated the CollaboRATE scale, emphasizing that effective SDM improves patient engagement and satisfaction in medical decision-making.[36,37] However, Taiwan's healthcare system, shaped by National Health Insurance (NHI) policies, has historically prioritized efficiency and cost control over patient-centered care.[42] The high patient load in hospitals often limits the time available for in-depth SDM, making its implementation challenging. Additionally, Fang highlighted the need for integrating holistic care models, including grief and bereavement support, into Taiwan's institutional healthcare settings, further underscoring the importance of SDM in enhancing end-of-life and psychosocial care.[24] To strengthen SDM in Taiwan, future policies should promote interdisciplinary collaboration, provider training in SDM, and adjustments to the healthcare reimbursement system to support patient-centered discussions. Enhancing SDM can improve holistic care quality, patient autonomy, and overall healthcare experiences.[24,36,37,42]

Our study developed the Holistic Care Quality Assessment Scale – Family Version (HCQAS-F) to assess holistic care from the perspective of patients' family members. This is particularly relevant in East Asian and Southeast Asian societies, where Confucian values emphasize familial responsibility, collective decision-making, and the well-being of the entire family unit rather than just the individual patient. Studies have shown that family members play a central role in medical decision-making and end-of-life care in these cultural contexts.[43] In Taiwan, family members often mediate information between doctors and patients, influencing truth-telling practices in cancer care.[44] Moreover, efforts to improve shared decision-making models in Taiwan-such as the implementation of the Japanese SHARE model-have demonstrated the importance of incorporating family perspectives in clinical practice.[45] Given these cultural factors, HCQAS-F serves as a crucial tool for evaluating how well holistic care addresses not only patient needs but also the

emotional, social, and decision-making roles of family members, ultimately promoting a culturally responsive and patient-centered approach.[43–45]

Our study found that healthcare professionals scored the lowest on spiritual care provision and social needs support in the Holistic Care Knowledge Assessment Scale (HCKAS). This may reflect gaps in Taiwan's medical education and training, where biomedical competencies are prioritized over holistic and psychosocial care. Takase & Teraoka highlighted that nursing education often focuses on technical and clinical skills, with less emphasis on interdisciplinary collaboration and holistic care.[6] Similarly, Liu et al emphasized the importance of whole-person health awareness among hospital employees, suggesting that healthcare workers' well-being directly affects their ability to provide holistic care.[46] These findings indicate that Taiwan's healthcare system may benefit from integrating more training in psychosocial and spiritual care into medical curricula, ensuring that providers can effectively address patients' comprehensive needs.[6,46] The theoretical contribution of this study lies in the development of three validated instruments that reflect the perspectives of key stakeholders-patients, family members, and healthcare providers. This multi-perspective approach complements existing holistic care models by offering concrete tools for assessment. Furthermore, the integration of a user-provider-context framework provides a conceptual foundation for understanding the dynamic interplay between individual needs, institutional capabilities, and systemic factors in delivering holistic care.

This study has several limitations. First, although it included participants from different hospital branches and roles (patients, family members, and healthcare providers), it was conducted in a single institution, which may limit the generalizability of the findings. Second, as a cross-sectional study, it captures only a snapshot of holistic care quality, preventing the assessment of long-term effects. Future longitudinal studies could provide deeper insights into changes over time. Third, the evaluation of spiritual care received the lowest ratings, which may be influenced by cultural and religious diversity in East Asia. Variations in spiritual beliefs could affect participants' interpretations of the survey items, impacting comparability.[47] Additionaly, the study relied on self-reported measures, which may be subject to social desirability bias. Future research could incorporate objective indicators, such as clinical records or qualitative interviews, to validate the findings and enhance reliability. Lastly, while the study identified low ratings for spiritual and social care across all participant groups, we acknowledge that our analysis did not differentiate between individuals with and without religious beliefs. As such, our interpretation linking these deficiencies to gaps in medical education should be considered preliminary. Future qualitative research is needed to further explore whether such shortcomings arise from educational insufficiencies, institutional barriers, cultural factors, or individual preferences, including the free will to engage with or reject religious or spiritual practices. These inquiries would help clarify the underlying causes of spiritual care challenges and enhance the theoretical understanding of holistic care delivery.[48]

This study makes several important contributions to the field of holistic healthcare assessment. First, it successfully developed and validated three holistic care assessment scales: the HCQAS-P, HCQAS-F, and HCKAS. These tools address a gap in the evaluation of holistic healthcare quality, providing a reliable and comprehensive framework for assessing patient-centered care from multiple perspectives. Second, the study highlights the importance of shared decision-making (SDM) in holistic care, as evidenced by the strong correlation between HCQAS-P and CollaboRATE. This finding reinforces SDM as a key component of holistic healthcare and suggests the need for greater integration of SDM practices within Taiwan's medical system. Additionally, the study identifies deficiencies in spiritual care and social support among healthcare professionals, as reflected in HCKAS scores. This underscores the need for improved medical education and training in non-physical aspects of patient care. Finally, the study aligns with Tsuei in highlighting the challenges of Taiwan's National Health Insurance (NHI) system, which prioritizes efficiency and cost control.[42] This emphasis has limited interdisciplinary collaboration and psychosocial support, further underscoring the need for policy reforms that promote holistic, patient-centered care.

Although the instruments were developed and validated within the context of Taiwan's healthcare system, the core constructs of holistic care, encompassing physical, psychological, social, and spiritual dimensions, are widely applicable across different cultural and institutional settings. Future studies could adapt and validate these instruments in other countries to examine their cross-cultural reliability and contextual relevance. Such efforts would help advance a more universal understanding of holistic care delivery while also allowing for culturally sensitive adaptations.

Future research should expand the study scope by incorporating different hospital types (eg, public, regional, and private hospitals) across various healthcare systems to enhance the generalizability of findings. Additionally, training programs focused on spiritual care and social support should be integrated into medical and nursing education, addressing gaps identified in healthcare providers' knowledge. Given the lower ratings for interdisciplinary collaboration, future studies should explore effective models for integrating medical, psychological, and social work professionals to improve holistic care. Furthermore, digital tools for shared decision-making (SDM) should be developed to facilitate better patient-provider-family communication, empowering patients and enhancing holistic healthcare quality both in Taiwan and globally.

Conclusion

This study underscores the importance of holistic healthcare assessment by developing three validated instruments that capture perspectives from patients, family members, and healthcare providers. While these tools have clear practical applications for improving care quality, they also represent an important theoretical advancement. By operationalizing the biopsychosocial-spiritual model into measurable constructs, the study bridges a longstanding gap in holistic care research, which has often lacked standardized tools to evaluate care from multiple viewpoints. Moreover, the integration of a user-provider-context framework introduces a conceptual model that highlights the dynamic interactions among individual needs, professional competencies, and systemic healthcare structures. This framework may serve as a foundation for future theory-building and empirical research in holistic care, particularly in culturally diverse and institutionally complex settings. As global healthcare systems shift toward patient-centered and value-based care, addressing spiritual, psychosocial, and contextual dimensions will be increasingly essential. Our findings and instruments provide both a foundation and a pathway for enhancing theoretical understanding and real-world practice in holistic healthcare.

In addition to their theoretical contributions, these instruments have strong potential for practical implementation. They may be used in clinical settings to assess holistic care performance from multiple stakeholder perspectives, integrated into professional training programs, or inform institutional and policy-level decisions related to patient-centered care. Future studies are planned to further validate and adapt these tools across broader populations and healthcare systems.

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References

1. SadatHoseini A, Shareinia H, Pashaeypoor S, Mohammadi M. A cross-cultural concept analysis of healing in nursing: a hybrid model. *BMC Nurs*. 2023;22(1):252. doi:10.1186/s12912-023-01404-8
2. Thomas H, Mitchell G, Rich J, Best M. Definition of whole person care in general practice in the English language literature: a systematic review. *BMJ Open*. 2018;8(12):e023758. doi:10.1136/bmjopen-2018-023758
3. Jasemi M, Valizadeh L, Zamanzadeh V, Keogh B. A concept analysis of holistic care by hybrid model. *Indian J Palliat Care*. 2017;23(1):71–80. doi:10.4103/0973-1075.197960
4. Pfannstiel MA. Bayreuth productivity analysis-a method for ascertaining and improving the holistic service productivity of acute care hospitals. *Int J Health Plann Manage*. 2016;31(1):65–86. doi:10.1002/hpm.2250
5. Koslander T, da Silva AB, Roxberg A. Existential and spiritual needs in mental health care: an ethical and holistic perspective. *J Holist Nurs*. 2009;27(1):34–42. doi:10.1177/0898010108323302
6. Takase M, Teraoka S. Development of the holistic nursing competence scale. *Nurs Health Sci*. 2011;13(4):396–403. doi:10.1111/j.1442-2018.2011.00631.x
7. Eng CJ, Pai HC. Determinants of nursing competence of nursing students in Taiwan: the role of self-reflection and insight. *Nurse Educ Today*. 2015;35(3):450–455. doi:10.1016/j.nedt.2014.11.021
8. Edvardsson D, Fetherstonhaugh D, Nay R, Gibson S. Development and initial testing of the Person-centered Care Assessment Tool (P-CAT). *Int Psychogeriatr*. 2010;22(1):101–108. doi:10.1017/S1041610209990688
9. Cheong CY, Tay FHE, Yap PLK. Adaptation and validation of the person-centred assessment tool for the acute care setting. *Dement Geriatr Cognit Disord*. 2022;51(1):73–79. doi:10.1159/000522325
10. Yumoto Y, Hiroyama N, Sasaki M, et al. Reliability and validity of the Japanese version of the person-centered care assessment tool. *Geriatr Gerontol Int*. 2022;22(4):344–349. doi:10.1111/ggi.14349
11. Evans Webb M, Murray E, Younger ZW, Goodfellow H, Ross J. The supportive care needs of cancer patients: a systematic review. *J Cancer Educ*. 2021;36(5):899–908. doi:10.1007/s13187-020-01941-9
12. Faulkner SD, Sayuri Ii S, Pakarinen C, et al. Understanding multi-stakeholder needs, preferences and expectations to define effective practices and processes of patient engagement in medicine development: a mixed-methods study. *Health Expect*. 2021;24(2):601–616. doi:10.1111/hex.13207
13. Anandarajah G. The 3 h and BMSEST models for spirituality in multicultural whole-person medicine. *Ann Fam Med*. 2008;6(5):448–458. doi:10.1370/afm.864
14. Strandberg EL, Ovhed I, Borgquist L, Wilhelmsson S. The perceived meaning of a (w) holistic view among general practitioners and district nurses in Swedish primary care: a qualitative study. *BMC Fam Pract*. 2007;(8):8. doi:10.1186/1471-2296-8-8
15. Vermette D, Doolittle B. What educators can learn from the biopsychosocial-spiritual model of patient care: time for holistic medical education. *J Gen Intern Med*. 2022;37(8):2062–2066. doi:10.1007/s11606-022-07491-8
16. Hermanns M, Deal B, Haas B. Biopsychosocial and spiritual aspects of Parkinson disease: an integrative review. *J Neurosci Nurs*. 2012;44(4):194–205. doi:10.1097/JNN.0b013e3182527593
17. Sulmasy DP. A biopsychosocial-spiritual model for the care of patients at the end of life. *Gerontologist*. 2002;42(3):24–33. doi:10.1093/geront/42.suppl_3.24
18. Dossey BM, Guzzetta CE. Implications for bio-psycho-social-spiritual concerns in cardiovascular nursing. *J Cardiovasc Nurs*. 1994;8(4):72–88. doi:10.1097/00005082-199407000-00007
19. Liao HJ. The origin of hospital accreditation in Taiwan. *J Healthcare Management*. 2007;1(1):15–18.
20. Chen LS, Lai CS, Kuo YH, Chen CL, Lee SS. Application of healthcare matrix to hospital accreditation in Taiwan: a clinical management perspective (Article in Mandarin). *J Healthcare Management*. 2012;13(4):295–311.
21. Chen RC. Hospice palliative care policy in Taiwan: past developments and future perspectives (Article in Mandarin). *Hu Li Za Zhi*. 2015;62(2):13–17. doi:10.6224/JN.62.2.13
22. Liao HH, Liang HW, Chen HC, Chang CI, Wang PC, Shih CL. Shared decision making in Taiwan. *Z Evid Fortbild Qual Gesundhwes*. 2017;123-124:95–98. doi:10.1016/j.zefq.2017.05.009
23. Wang Y. Advance care planning in Taiwan. *Z Evid Fortbild Qual Gesundhwes*. 2023;180:107–110. doi:10.1016/j.zefq.2023.06.002
24. Fang CK. Grief and bereavement care in medical institutions under the concept of holistic care: the healing CUP model (Article in Mandarin). *Taiwan Med J*. 2022;65(2):31–38.
25. Launonen M, Vehviläinen-Julkunen K, Mikkonen S, Kvist T. Care quality and satisfaction at the cancer hospital - a questionnaire study of older patients with cancer and their family members. *BMC Health Serv Res*. 2024;24(1):190. doi:10.1186/s12913-024-10646-4
26. Fayyaz R, Ahmed FA, Abid A, et al. The quality of patient care in oncology departments in Karachi, Pakistan: patients' perceptions. *Int J Health Care Qual Assur*. 2020;34(1):52–69. doi:10.1108/IJHCQA-12-2019-0201
27. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. *Qualitative Health Research*. 2005;15(9):1277–1288. doi:10.1177/1049732305276687
28. Elo S, Kaarianinen M, Kanste O, Polkki R, Utriainen K, Kyngas H. Qualitative content analysis: a focus on trustworthiness. *Sage Open*. 2014;4(1):1–10. doi:10.1177/2158244014522633
29. National Comprehensive Cancer Network. NCCN practice guidelines for the management of psychosocial distress. *Oncology*. 1999;13(5A):113–147.
30. Fang CK, Chang MC, Chen PJ, et al. A correlational study of suicidal ideation with psychological distress, depression, and demoralization in patients with cancer. *Support Care Cancer*. 2014;22(12):3165–3174. doi:10.1007/s00520-014-2290-4
31. Liu SI, Yen ZT, Huang HC, et al. Yeh AW validation of patient health questionnaire for depression screening among primary care patients in Taiwan. *Compr Psychiatry*. 2011;52(1):96–101. doi:10.1016/j.comppsych.2010.04.013
32. Kissane DW, Wein S, Love A, Lee XQ, Kee PL, Clarke DM. The demoralization scale: a report of its development and preliminary validation. *J Palliat Care*. 2004;20(4):269–276. doi:10.1177/082585970402000402
33. Lee CY, Fang CK, Yang YC, et al. Demoralization syndrome among cancer outpatients in Taiwan. *Support Care Cancer*. 2012;20(10):2259–2267. doi:10.1007/s00520-011-1332-4

34. Robinson S, Kissane DW, Brooker J, et al. Refinement and revalidation of the demoralization scale: the DS-II-internal validity. *Cancer*. 2016;122 (14):2251–2259. doi:10.1002/cncr.30015
35. Pi SH, Li IF, Li PY, Lai YL, Fang CK. Psychometric evaluation of the good death index from patients with terminal cancer's perspectives: a mixed-methods study. *J Multidiscip Healthc*. 2024;17:6031–6041. doi:10.2147/JMDH.S464198
36. Elwyn G, Barr PJ, Grande SW, Thompson R, Walsh T, Ozanne EM. Developing collaborate: a fast and frugal patient-reported measure of shared decision making in clinical encounters. *Patient Educ Couns*. 2013;93(1):102–107. doi:10.1016/j.pec.2013.05.009
37. Barr PJ, Thompson R, Walsh T, Grande SW, Ozanne EM, Elwyn G. The psychometric properties of collaborate: a fast and frugal patient-reported measure of the shared decision-making process. *J Med Internet Res*. 2014;16(1):e2. doi:10.2196/jmir.3085
38. Edvardsson D, watt E, Pearce F. Patient experiences of caring and person-centredness are associated with perceived nursing care quality. *J Adv Nurs*. 2017;73(1):217–227. doi:10.1111/jan.13105
39. Sulmasy DP, McIlvane JM, Pasley PM, Rahn M. A scale for measuring patient perceptions of the quality of end-of-life care and satisfaction with treatment: the reliability and validity of QUEST. *J Pain Symptom Manage*. 2002;23(6):458–470. doi:10.1016/s0885-3924(02)00409-8
40. Koenig HG. Religion, spirituality, and health: the research and clinical implications. *ISRN Psychiatry*. 2012;2012:278730. doi:10.5402/2012/278730
41. Puchalski CM, Vitillo R, Hull SK, Reller N. Improving the spiritual dimension of whole person care: reaching national and international consensus. *J Palliat Med*. 2014;17(6):642–656. doi:10.1089/jpm.2014.9427
42. Tsuei SH. Reflection on 30 years of Taiwanese national health insurance: analysis of Taiwanese health system progress, challenges, and opportunities. *J Formos Med Assoc*. 2024;123 Suppl 3:S180-S187. doi:10.1016/j.jfma.2024.07.030
43. Fan Z, Chen L, Meng L, et al. Preference of cancer patients and family members regarding delivery of bad news and differences in clinical practice among medical staff. *Support Care Cancer*. 2019;27(2):583–589. doi:10.1007/s00520-018-4348-1
44. Tang WR, Hong JH, Rau KM, et al. Truth telling in Taiwanese cancer care: patients' and families' preferences and their experiences of doctors' practices. *Psychooncology*. 2017;26(7):999–1005. doi:10.1002/pon.4257
45. Tang WR, Chen KY, Hsu SH, et al. Effectiveness of Japanese SHARE model in improving Taiwanese healthcare personnel's preference for cancer truth telling. *Psychooncology*. 2014;23(3):259–265. doi:10.1002/pon.3413
46. Liu CJ, Pi SH, Fang CK, Wu TY. Development and evaluation of psychometric properties regarding the whole person health scale for employees of hospital to emphasize the importance of health awareness of the workers in the hospital. *Healthcare*. 2021;9(5):610. doi:10.3390/healthcare9050610
47. Fang CK, Cheng SY, Pi SH, Wu YL, Lin KC, Pan RY. Development and validity and reliability of an instrument to assess patient's spiritual well-being. *J Multidiscip Healthc*. 2024;17:3307–3322. doi:10.2147/JMDH.S466465
48. Anagnostou S. Forming, transfer and globalization of medical-pharmaceutical knowledge in South East Asian missions (17th to 18th c.) - historical dimensions and modern perspectives. *J Ethnopharmacol*. 2015;167:78–85. doi:10.1016/j.jep.2014.10.036