

Development and Validity and Reliability of an Instrument to Assess Patient's Spiritual Well-Being

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Background: Spiritual care is not limited to palliative care or end-of-life care. The spiritual well-being of patients also needs to be taken into account in the multidisciplinary healthcare system of whole person care. For medical institutions providing spiritual care, it is necessary to develop a tool for clinical spiritual care providers to assess patient's spiritual well-being of.

Aim: The purpose of this study was to construct a questionnaire that would allow spiritual care providers or pastors to assess the spiritual well-being of patients.

Methods: The study combined qualitative and quantitative research methods. Qualitative research used in-depth interviews or focus groups with patients and family members to obtain textual data. The text was analyzed by Colaizzi analysis. The researchers constructed the Patient's Spiritual Well-Being Scale (PtSpWBS) from the themes obtained through qualitative analysis. Through the participation of 661 patients, quantitative research was conducted to analyze the reliability, validity and component analysis of the PtSpWBS.

Results: Through qualitative research, it was found the spiritual needs of patients had two domains, namely spiritual awareness and spiritual dynamics. Based on this result, a 15-question PtSpWBS was designed. Cronbach's alpha was used to check the reliability of the PtSpWBS, and the internal consistency was calculated with a Cronbach's alpha value of 0.899. The Bartlett's Test of Sphericity of the PtSpWBS reached a significant difference ($p < 0.0001$), and the KMO value of sampling appropriateness was 0.900. The three components were spiritual health, religion connection, and spiritual awareness. A PtSpWBS score ≤ 41 indicated the patient had poor spiritual well-being.

Conclusion: The study constructed the PtSpWBS for clinical spiritual care providers to evaluate spiritual well-being of patients; this questionnaire has good reliability and validity. The PtSpWBS can be truly used by departments that specialize in providing spiritual care in medical institutions to conduct spiritual well-being assessment.

Keywords: spiritual well-being, spiritual care, patient, clinical spiritual care provider, pastor

Introduction and Background

For medical care around the world, spiritual care has become an indispensable part of whole person care in multidisciplinary healthcare systems.^{1,2} Modern medical care has attached great importance to spiritual care since Dame Cicely Saunders started hospice and palliative care, providing a bio-psycho-social-spiritual model of care for end-of-life patients. It has been determined that the spiritual needs of end-stage patients can be met and spiritual well-being can be felt.³ However, it is not only patients at the end of life who need spiritual care. According to clinical observations and research, all kinds of patients need spiritual care, such as: chronic obstructive pulmonary disease (COPD), chronic kidney disease (CKD), chronic heart disease failure (CHF) or cancer.⁴⁻⁹ This study focuses on the assessment of spiritual status in all kinds of patients.

Spirituality is a dynamic and intrinsic aspect of humanity through which persons seek ultimate meaning, purpose, and transcendence, and experience relationship to self, family, others, community, society, nature, and the significant or sacred. Spirituality is expressed through beliefs, values, traditions, and practices.¹ Spiritual care means that medical staff are concerned about the impact that patients may have on their spirituality when they encounter disease threats, and then provide care or assistance. In different medical institutions, there are different departments that provide spiritual care. Depending on the attributes of the hospitals, the content and intensity of spiritual care provided are also different. For example, hospitals with religious backgrounds pay more attention to spiritual care, and even set up pastoral care or religious care departments to provide spiritual care.^{10,11} In Northeast Asia or Southeast Asia, such as Japan, South Korea, Taiwan, Hong Kong, Malaysia, and Singapore, due to historical reasons, many hospitals founded by Christian or Catholic missionaries more than a hundred years ago are still in operation and maintain religious characteristics of caring.¹² MacKay Memorial Hospital was the first Western-style hospital established in northern Taiwan in 1880 by Canadian missionary George Leslie Mackay.¹³ In 1950, MacKay Memorial Hospital began to organize a unit to provide special religious care, and in 1976, the Department of Pastoral Care was officially established. Today, MacKay Memorial Hospital has developed into a hospital with approximately 2000 beds, and the Department of Pastoral Care already has 9 full-time pastors and 18 full-time clinical spiritual care providers who all are seminary graduates. Although the Department of Pastoral Care at Mackay Memorial Hospital had developed a complete clinical pathway for spiritual and religious care, including referrals and services, it had not developed an evidence-based spiritual status assessment tool. This is the reason and background for developing this study.

Regarding scales for screening spiritual needs, many mature tools have been developed around the world based on hospice palliative care, such as the Functional Assessment of Chronic Illness Therapy-Spiritual (FACIT-Sp), the HOPE questions, the Moral Authority, Vocational, Aesthetic, Social, and Transcendent (Mor-VAST) Model, the spiritual needs questionnaire (SpNQ), the chaplain-developed FACT stands, the spiritual care competency scale (SCCS), and the Faith, Importance and Influence, Community, Address (FICA) Spiritual History Tool.^{14–21} Why do we need to develop a new spiritual assessment tool when there are already many existing tools for screening spiritual status or spiritual needs? We have two most important reasons: first, this study is to develop an assessment tool for spiritual care providers or chaplains who specialize in providing spiritual care; second, the tool developed in this study hopes to be able to assess the spiritual status of most patients with chronic diseases. On the other hand, we have two expectations for the construction of a new spiritual assessment tool: first, we hope that the development of this tool will be understood and developed from the perspective of patients and family members on spiritual care, rather than from the perspective of experts; second, we hope to develop a clinical education and training model for spiritual care providers or chaplains through the spiritual perspectives of patients and family members. The main purpose of this study was to construct a questionnaire that would allow spiritual care providers or pastors to assess the spiritual well-being of patients. In addition, this study also understood the factors that affect the spiritual well-being of patients.

Methods

Design

The study Design was jointly planned and designed by the three departments of MacKay Memorial Hospital: Hospice and Palliative Care Center, Department of Pastoral Care, and Department of Medical Research. 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 (20MMHIS296e). The project investigator (PI) of this study is a chief physician with expertise in psychiatry and hospital palliative care. In addition, there were 17 clinical spiritual care providers and 9 pastors in the Department of Pastoral Care, and two research assistants in the Department of Medical Research participated in the research process. All researchers were full-time employees of MacKay Memorial Hospital and trained and certified in research ethics. The study combined qualitative Methods to establish the questionnaire and quantitative research methods to test the reliability and validity of the questionnaire. The entire research process began in February 2020 and was completed in July 2023. This study fully complies with the Helsinki Declaration throughout its execution.

Qualitative Research Method

The first part of this study was a qualitative study with the hermeneutic approach to understand the spiritual state of patients through the patients' own findings and the observations of their family members. For patients, individual in-depth interviews and focus groups were used to obtain data, and for family members, focus groups were used to obtain data. There was no absolute relationship between the patients and their family members included in this study. The interviewer who conducted the individual patient in-depth interviews were the PI, co-PI, or research assistants of this study; the person who conducted the family focus groups was the PI.

Patients participating in the study had to be over 20 years old, had been to MacKay Memorial Hospital in the past three months, and have no cognitive dysfunction. There was no limit to disease type, outpatient or inpatient. The patient invited and was to be referred by their medical staff, and the referred patients would be explained by the PI, co-PI or research assistants, and invited through purposive sampling. Family members participating in the study had to be over 20 years old, have family members of patients who had been to MacKay Memorial Hospital in the past three months, and had no cognitive impairment. The method of inviting family members was to be referred by medical staff. The referred family members would be explained by the PI, co-PI or research assistants, and invited through purposive sampling. Patients and family members who were too weak, had obvious cognitive impairment, and were resistant to talking about spiritual issues were not invited to participate in this study.

Among the 19 patients interviewed, 6 patients were cancer patients and the other 13 were non-cancer patients. The age range was 37 to 68 years old. 11 patients participated in a semi-structured in-depth interview and 8 patients participated a focus group. Each patient was asked two basic questions, namely "What do you think is spirituality?" and "How has your spirituality changed after suffering from chronic diseases?" The rest allow the patient to express his or her thoughts freely. Among the 16 family members participated, 6 participants were family members of cancer patients and the other 10 were family members of non-cancer patients. The 16 family members were assigned to three focus groups. The group leader asked two questions in each group, namely, "What do you think is spirituality?" and "What changes have you observed in the spirituality of patients after they become ill?" Otherwise, allow family members to spoke freely in the group.

The 11 in-depth interviews and 4 focused groups were fully recorded and transcribed into verbatim texts. A total of 15 copies of effective texts were collected and the total time was 509 minutes. Because this study was conducted during the COVID-19 pandemic, the interview time was affected by the hospital's pandemic prevention policy and could not be unrestricted. Nonetheless, interviews were conducted to the best of their ability to achieve data saturation. Texts were automatically produced with ATLAS.ti 7.5 Software (Muhr T, ATLAS.ti Scientific Software Development, Berlin, Germany). The first digit of each code represented the text ID, which could be any number from 1 to 15. All codes were sequential. To protect the privacy of the interviewers, all identifying information was removed before analysis.

Analysis reference method Adopted by Colaizzi and subsequently by Thornton, White and Fang.²²⁻²⁴ Colaizzi's method is Heideggerian research, carried out in Colaizzi's seven steps. Step 1: Texts are read multiple times to achieve comprehension. Step 2: Significant statements are extracted after identification of phrases. They are directly related to the phenomenon, and identification is repeated as much as possible. Step 3: Meanings are systematically clarified from important statements, using illuminating insights from what participants meant by what they said. Step 4: Meanings are identified and grouped into clusters of themes, taking into account the prevalence of themes in all texts. Relevant topics were placed back into the original text to confirm that there were no identified omissions, or that no differences were found beyond the text's topics. There is some overlap, some interweaving, but no contradiction. Materials that do not fit the topic are classified in the miscellaneous section. Step 5: Comprehensive descriptions of the research findings are extracted from the results. Step 6: Exhaustive statements of the research findings are systematically stated. Step 7: Complete the final confirmation steps by returning to the participant from the text. Participant validation was used to identify any inconsistencies, confidentiality was updated, and subjects were able to have sensitive information removed. Analysis of texts of step 1 to 6 was performed separately by PI and a co-PI experienced in qualitative research. Two analyzers discussed once every week. Step 7 was completed in two expert meetings between the two analysts and all researchers who conducted the interviews, including pastors and spiritual care providers.

Based on the results obtained from qualitative data and referring to relevant literature, we designed a new tool to evaluate the spiritual status of patients. It is a 15-item questionnaire which we called the Patient's Spiritual Well-Being Scale (PtSpWBS) (Table 1). All 15 questions were rated on a 4-point scale (always, often, occasionally, not at all). The higher the score of PtSpWBS, the better the patient's spiritual well-being status. Six experts (one physician specialized in psychiatry and palliative care, one senior research assistant specialized in developing questionnaires and four pastors specialized in clinical pastoral education) commented on the necessity and clarity in terms of the content of the scale and then invited 33 patients to complete the PtSpWBS to make sure that all the sentences were easily understood.

Quantitative Research Method

The purposes of this phase were to determine the reliability and validity of the PtSpWBS and to examine the correlates of depression, demoralization, and emotional distress with spirituality. In addition to the PtSpWBS, the tools studied included the Distress Thermometer (DT), the Patient Health Questionnaire-9 items (PHQ-9), and the Demoralization Scale-Mandarin Version (DS-MV).^{25–28} All tools were licensed except for our research team's own copyrighted scales.

The DT is a self-report measure developed by the National Comprehensive Cancer Network (NCCN) to detect psychological distress in cancer patients. It involves answering a single question using a Likert scale to indicate psychological distress experienced in the past week in the form of a thermometer (0 means no distress; 10 means extreme distress).²⁵ The Patient Health Questionnaire (PHQ-9) was developed as a self-reported measure.²⁷ Its nine questions assess the presence of the DSM-IV criteria for major depressive episodes across a 2-week period using responses on a four-point Likert scale. In Taiwanese, the mean of Cronbach's α of PHQ-9 was 0.8 (95% confidence interval [CI], 0.79–0.82), and the optimal cutoff score of PHQ-9 \geq 10 had 86% sensitivity and 93.9% specificity.²⁹ The Demoralization Scale-Mandarin Version (DS-MV) was translated from Demoralization Scale.²⁸ The Demoralization Scale had been widely used to assess demoralization, and the DS-MV was also used in research in Taiwan.^{26,30}

Table 1 Contents and Rating of the Patient's Spiritual Well-Being Scale (PtSpWBS) in English

	Answer instructions: Please complete in the form based on your current status and your feelings.	Always	Often	Occasionally	Not at all
1	I am clearly aware of my inner feelings.	4	3	2	1
2	I feel calm within myself.	4	3	2	1
3	I feel I have enough security.	4	3	2	1
4	I can accept my illness.	4	3	2	1
5	I can accept the limitations of life.	4	3	2	1
6	I could rely on my religious beliefs to help me during my illness.	4	3	2	1
7	During my illness, I believed God could help me.	4	3	2	1
8	I will help myself through religious rituals or actions when appropriate.	4	3	2	1
9	During the medical treatment, the hospital had professional caring staff to care for me.	4	3	2	1
10	During my illness, I was able to find the meaning of my life.	4	3	2	1
11	During my illness, I was accompanied at the right time.	4	3	2	1
12	During my illness, I never felt powerless.	4	3	2	1
13	I feel like I have the spiritual strength to face my illness.	4	3	2	1
14	I will change my negative thoughts when appropriate.	4	3	2	1
15	I feel my soul is at peace.	4	3	2	1

Before the start of the quantitative research, all research assistants in this study participated in two training meetings held for this study to ensure consistent quality of the cases received. The inclusion and exclusion criteria for patients in quantitative studies were consistent with those in qualitative studies.

This research data was archived and analyzed using SPSS 18.0 software. Narrative statistics were used to process the basic data and each scale; reliability and validity testing was performed using factor analysis, including Bartlett's test of sphericity and Kaiser-Meyer-Olkin measure of sampling adequacy (KMO), and internal consistency was tested using Cronbach's alpha value. Statistical methods include: frequency distribution and percentage, mean and standard deviation, independent sample *t* test, single-factor variance analysis, two-factor variance analysis, odds ratio (OR), and the relationship between scales and scales using Spearman rank correlation detection.

Results

Qualitative Research

This study provides a textual interpretation of the patient's spiritual well-being through Colaizzi's seven steps. After analysis, a total of 283 meaningful sentences were found, of which 209 were obtained from patients and 74 were obtained from family members. There were totally 33 themes before unification. After discussion and analysis, 15 topics were finally identified, and 2 domains clustered which were spiritual awareness and spiritual dynamics (Table 2). These 15 topics are the 15 questions of the PtSpWBS.

Table 2 Understanding Patients' Spiritual Needs from Qualitative Hermeneutic Analysis

Patient's spiritual needs			
Topics of spiritual awareness	Themes from analysis	Topics of spiritual dynamics	Themes from analysis
1. I am clearly aware of my inner feelings.	(15) anxiety caused by illness	6. I could rely on my religious beliefs to help me during my illness.	(10) help from religion (19) accept all religions (26) related to religion
2. I feel calm within myself.	(4) calm	7. During my illness, I believed God could help me.	(9) rely on god (27) with god
3. I feel I have enough security.	(8) security (13) facing the fear of treatment (14) fear	8. I will help myself through religious rituals or actions when appropriate.	(11) religious ceremony (24) poetry (30) prayer
4. I can accept my illness.	(18) accept the truth	9. During the medical treatment, the hospital had professional caring staff to care for me.	(16) department of pastoral care (17) spiritual counselor (20) actively cared for (32) care
5. I can accept the limitations of life.	(12) face death	10. During my illness, I was able to find the meaning of my life.	(7) sense of presence (23) meaning
15. I feel my soul is at peace.	(1) faith brings peace of mind (3) peace	11. During my illness, I was accompanied at the right time.	(21) accompany
Themes that cannot be consolidated and deleted: (6) empathy (25) uneasiness caused by the condition of the patient in the next bed (28) comfort (31) relationship (33) spirituality is something that is hard to talk about		12. During my illness, I never felt powerless.	(23) helplessness
		13. I feel like I have the spiritual strength to face my illness.	(2) psychological power (5) positive energy
		14. I will change my negative thoughts when appropriate.	(29) change your mind

Quantitative Research

Table 3 lists the demographics of the 661 patients in this study. The mean and SD of the patients' age was 52.17±15.56 years. The mean total PtSpWBS score was 45.99 (SD=8.93; range, 15–60; maximum possible score=60). The reliability of the PtSpWBS was tested using Cronbach's alpha. The internal consistency of the entire scale was calculated, and its

Table 3 Demographic Data of All Participants Completing the Patient's Spiritual Well-Being Scale (PtSpWBS) (n=661)

	N(100%)	PtSpWBS mean ± S.D.	95% confidence interval
	661(100)	45.99±8.93	
Gender			
Female	462(69.9)	46.16±8.84	
Male	199(30.1)	45.60±9.17	
Level of education^a			
Junior high school and below	102(15.4)	47.51±8.48	45.84–49.18
High school or junior college	252(38.1)	46.95±8.71	45.86–48.04
University	234(35.4)	43.79±9.21	42.60–44.98
Master degree and above	71(10.7)	47.66±8.26	45.71–49.62
Marital status^b			
Single/divorced/widowed	276(41.8)	44.31±9.24	
Married	384(58.1)	47.20±8.53	
Religion^c			
Christianity	190(28.7)	50.36±8.49	49.14–51.58
Catholicism	12(1.8)	42.82±11.66	34.98–50.65
Buddhism	145(21.9)	46.33±7.95	45.03–47.64
Taoism	75(11.3)	43.91±8.21	42.00–45.81
Folk belief	75(11.3)	43.97±8.89	41.93–46.02
I-Kuan Tao	10(1.5)	47.30±8.88	40.95–53.65
Islam	14(2.1)	44.57±9.61	39.02–50.12
Multi-religious	9(1.4)	48.00±11.95	38.82–57.18
No religious belief	131(19.8)	41.83±7.79	40.49–46.68
Employment status^d			
No job	162(24.5)	45.24±9.41	
Unemployed before illness	9(1.4)	47.11±7.85	41.08–53.14
Staying without pay due to illness	29(4.4)	42.86±9.02	39.43–46.29
Quitting work due to illness	43(6.5)	43.14±9.53	40.17–46.11
Have a job	498(75.3)	46.24±8.78	

(Continued)

Table 3 (Continued).

	N(100%)	PtSpWBS mean \pm S.D.	95% confidence interval
Student	20(3.0)	43.50 \pm 7.96	39.78–47.22
Housekeeping	64(9.7)	47.56 \pm 8.67	45.40–49.73
Working full time	219(33.1)	45.03 \pm 8.88	43.84–46.21
Working part time	30(4.7)	44.17 \pm 8.56	40.97–47.36
Retiring with pension	135(20.4)	48.37 \pm 8.32	46.94–49.79
Monthly income (NTD)^e			
\$30,000 or below	337(51.0)	46.73 \pm 8.63	45.80–47.66
\$30,001–\$50,000	199(30.1)	44.82 \pm 9.46	43.50–46.15
\$50,001–\$100,000	89(13.5)	44.09 \pm 8.37	42.33–45.85
\$10,001 or more	18(2.7)	52.44 \pm 6.96	48.99–55.90
Hospital experience^f			
No	126(19.1)	44.51 \pm 8.44	
Yes	519(78.5)	46.45 \pm 9.05	

Notes: ^aOne-way ANOVA was performed, and the results showed that education level had a significant difference in the PSNQ ($F=7.711$, $p<0.001$). The Turkey method was further used for post hoc comparison test, and the results showed that education The degree of difference in the PtSpWBS is as follows: university < junior high school and below, university < high school/junior college, university < master's degree or above, with significant differences ($p<0.05$). ^bAn independent sample t test was conducted, and the results showed that there was a significant difference in marital status ($p<0.05$) in the PtSpWBS. ^cOne-way ANOVA was performed, and the results showed that religious belief had a significant difference in the PSNQ ($F=11.903$, $p<0.001$). Further post hoc comparison tests were conducted using the Turkey method, and the results showed that the differences between religious beliefs in the patients' spiritual needs scale were as follows: Buddhism < Christianity, Taoism < Christianity, no religious belief < Christianity, folk belief < Christianity, no religious belief < Buddhism, reaching a significant difference ($p<0.05$). ^dOne-way ANOVA was performed, and the results showed that employment status had a significant difference in the PtSpWBS ($F=3.684$, $p<0.01$). A post hoc comparison test was further performed using the Turkey method, showing that the differences between occupations in the PtSpWBS are as follows: staying without pay due to illness < retiring, quitting work due to illness < retiring, working full time < retiring, with significant differences ($p<0.05$). ^eOne-way ANOVA was performed, and the results showed that there was a significant difference in economic status in the PtSpWBS ($F=6.511$, $p<0.001$). A post hoc comparison test was further performed using the Turkey method, showing that the differences between occupations in the PtSpWBS are as follows: monthly income less than \$30,000 < monthly income greater than \$100,001, monthly income \$30,000–\$50,000 < monthly income greater than \$100,001, monthly income \$60,000–\$100,000 < monthly income greater than \$100,001, with significant differences ($p<0.05$). ^fAn independent sample t test was conducted, and the results showed that there was a significant difference in the PtSpWBS between those with and without hospitalization experience ($p<0.05$).

Cronbach's alpha value was 0.899. The Cronbach's alpha of each question (if the items have been deleted) is between 0.887 and 0.899, indicating that this scale has very high reliability. The Bartlett's Test of Sphericity of PtSpWBS reaches a significant difference ($p<0.0001$). The KMO value of the sampling appropriateness quantity is 0.900. The displayed data can be used for factor analysis. Principal component analysis extracted three aspects (Table 4). The first component contains eight questions related to spiritual well-being, which is called the spiritual health aspect. The second component has four questions related to religious beliefs, which is called religious connection aspect. The third component has three questions related to awareness and acceptance, which is called spiritual awareness.

Table 5 is a ranking table of PtSpWBS scores. The higher the score, the higher the spiritual well-being of this question. The lowest-scoring question is question 12, "During my illness, I never felt powerless"(2.31 \pm 0.99), and the highest-scoring question, "I can accept the limitations of life"(1.61 \pm 0.744). The T test was used to test the differences

Table 4 Principal Component Analysis of the Patient's Spiritual Well-Being Scale (PtSpWBS) with 15 Items Generating a 3-Factor Solution

Item content		component		
		1	2	3
15	I feel my soul is at peace.	0.797	0.208	0.214
13	I feel like I have the spiritual strength to face my illness.	0.778	0.158	0.250
14	I will change my negative thoughts when appropriate.	0.764	0.175	0.204
3	I feel I have enough security.	0.647	0.123	0.454
12	During my illness, I never felt powerless.	0.635	0.087	−0.071
2	I feel calm within myself.	0.624	0.166	0.458
11	During my illness, I was accompanied at the right time.	0.590	0.248	0.262
10	During my illness, I was able to find the meaning of my life.	0.533	0.472	0.264
7	During my illness, I believed God could help me.	0.162	0.924	0.071
8	I will help myself through religious rituals or actions when appropriate.	0.118	0.912	0.081
6	I could rely on my religious beliefs to help me during my illness.	0.195	0.902	0.104
9	During the medical treatment, the hospital had professional caring staff to care for me.	0.332	0.405	0.184
5	I can accept the limitations of life.	0.221	0.056	0.736
1	I am clearly aware of my inner feelings.	0.055	0.182	0.732
4	I can accept my illness.	0.453	0.050	0.617

Notes: Factors: 1, spiritual health; 2, religious connection; 3, spiritual awareness; Data in bold type: factor loading \geq .

Table 5 The Questions in the Patient's Spiritual Well-Being Scale (PtSpWBS) are Ranked in Increasing Order of Their Means

Item content		mean	S.D.
12	During my illness, I never felt powerless.	2.69	0.997
8	I will help myself through religious rituals or actions when appropriate.	2.74	1.135
7	During my illness, I believed God could help me.	2.82	1.091
6	I could rely on my religious beliefs to help me during my illness.	2.88	1.086
10	During my illness, I was able to find the meaning of my life.	3.00	0.972
2	I feel calm within myself.	3.03	0.853
3	I feel I have enough security.	3.05	0.883
4	I can accept my illness.	3.10	0.898
13	I feel like I have the spiritual strength to face my illness.	3.15	0.868
9	During the medical treatment, the hospital had professional caring staff to care for me.	3.15	0.951
14	I will change my negative thoughts when appropriate.	3.21	0.811
11	During my illness, I was accompanied at the right time.	3.22	0.887

(Continued)

Table 5 (Continued).

Item content		mean	S.D.
15	I feel my soul is at peace.	3.27	0.821
1	I am clearly aware of my inner feelings.	3.29	0.785
5	I can accept the limitations of life.	3.39	0.744

between high and low groups in each question, and there were significant differences. Table 6 shows that the correlation analysis between each item and the total index score shows that each item has a significant correlation.

In Table 3, patients with different educational levels also had different spiritual well-being (One-way ANOVA, $F=7.711$, $p<0.001$). Patients with university degrees had significantly lower spiritual well-being ($p<0.05$) than patients with other educational levels. Based on the analysis of marital status, single/divorced/widowed patients have lower spiritual well-being (independent sample t test, $p<0.05$) than those in married patients. There were statistical differences in the spiritual well-being (One-way ANOVA, $F=11.903$, $p<0.001$) of patients of different religions. Further analysis showed that compared with patients who believed in Christianity, patients with no religious beliefs, Taoism, folk beliefs, and Buddhism had lower spiritual well-being; patients with no religious beliefs also had lower spiritual well-being than

Table 6 Item Analysis of the Patient's Spiritual Well-Being Scale (PtSpWBS) (n=661)

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	45.99	8.934									0.899
PSNQ1	3.29	0.785	-0.847	0.095	-0.013	0.190	11.828***	0.709	0.992	0.470**	
PSNQ2	3.03	0.853	-0.475	0.095	-0.571	0.190	21.673***	1.294	1.553	0.717**	
PSNQ3	3.05	0.883	-0.631	0.095	-0.378	0.190	21.591***	1.322	1.587	0.711**	
PSNQ4	3.10	0.898	-0.679	0.095	-0.443	0.190	16.310***	1.110	1.415	0.615**	
PSNQ5	3.39	0.744	-1.009	0.095	0.362	0.190	14.277***	0.789	1.042	0.514**	
PSNQ6	2.88	1.086	-0.416	0.095	-1.189	0.190	29.137***	1.781	2.040	0.693**	
PSNQ7	2.82	1.091	-0.301	0.095	-1.285	0.190	23.956***	1.663	1.960	0.669**	
PSNQ8	2.74	1.135	-0.250	0.095	-1.368	0.190	22.409***	1.656	1.974	0.641**	
PSNQ9	3.15	0.951	-0.815	0.095	-0.425	0.190	16.397***	1.117	1.422	0.558**	
PSNQ10	3.00	0.972	-0.579	0.095	-0.750	0.190	27.847***	1.641	1.890	0.749**	
PSNQ11	3.22	0.887	-0.922	0.095	-0.034	0.190	19.211***	1.228	1.508	0.670**	
PSNQ12	2.69	0.997	-0.118	0.095	-1.094	0.190	12.372***	0.937	1.291	0.496**	
PSNQ13	3.15	0.868	-0.679	0.095	-0.440	0.190	25.735***	1.408	1.641	0.733**	
PSNQ14	3.21	0.811	-0.788	0.095	0.003	0.190	21.077***	1.203	1.451	0.708**	
PSNQ15	3.27	0.821	-0.933	0.095	0.186	0.190	22.148***	1.270	1.518	0.750**	

Notes: ** $p<0.01$; *** $p<0.001$.

patients who believe in Buddhism (post hoc comparison tests, $p<0.05$). Different employment status had a significant difference in spiritual well-being (One-way ANOVA, $F=3.684$, $p<0.01$). Further analysis showed that compared to those patients who were retiring with pension, those patients who were staying without pay due to illness, retiring, quitting work due to illness, and working full time had lower spiritual well-being (post hoc comparison tests, $p<0.05$). Based on the analysis of economic status, patients with different monthly income status also had different spiritual needs (One-way ANOVA, $F=6.588$, $p<0.001$). Patients with a monthly salary above 100,001 have higher spiritual well-being than patients with other monthly salary levels (post hoc comparison tests, $p<0.05$). Patients without hospitalization experience have lower spiritual well-being than patients with hospitalization experience (independent sample t test, $p<0.05$).

In this study, the Cronbach's alpha value of the DS-MV was 0.953, the mean total DS-MV score was 26.98 ($SD=17.19$); the Cronbach's alpha value of the PHQ-9 was 0.858, the mean total PHQ-9 score was 7.09 ($SD=5.44$). The Spearman rank correlation test was conducted between PtSpWBS and DT, PHQ-9, and DS-MV. The Results showed that the patient's spiritual well-being were highly negatively correlated with distress ($\gamma=0.405$, $p<0.001$), and highly negatively correlated with the patient's depression. ($\gamma=0.423$, $p<0.001$), which is highly negatively correlated with demoralization ($\gamma=0.549$, $p<0.001$). In other words, the more distress, depression or demoralization a chronic patient had, the lower their spiritual well-being were. Comparing cancer and non-cancer patients, although there was a statistical difference in PHQ-9 (8.14 ± 5.56 v.s 6.72 ± 5.31 , t value= -2.885 , $p=0.004$, Independent samples T -test) and DS-MV (29.55 ± 15.37 v.s 26.17 ± 18.23 , $p=0.035$, t value= -2.119 , Independent samples T -test), there was no statistical difference in PtSpWBS (45.94 ± 7.90 v.s 45.73 ± 9.38 , $t=-0.280$, $p=0.780$, Independent samples T -test).

The T test was used to test the difference between the high and low groups on each question. The entire sample was divided into high and low groups based on 27% of the total score of the scale. Then the difference between the two groups in the average number of each question was compared to see whether there was a significant difference. The results showed that the scale t value (decision value) of each question reaches the level of significant difference ($p<0.001$), so there is no need to reduce the number of questions in the scale (Table 6). In addition, a correlation analysis is performed between each item and the total score. If the correlation between the individual item and the total score is higher, it means that the item is more homogeneous with the overall scale. If the correlation coefficient between the individual item and the total score is If it is lower than 0.30, it means that the item is not homogeneous with the entire scale, and the item should be considered for deletion. The analysis results are shown in Table 6. Each item has a significant correlation with the total score, and the correlation coefficient of each question is higher than 0.400, $p<0.01$, so there is no need to reduce the number of questions.

Table 7 showed the odds ratio analysis based on the PtSpWBS low group (27%) score of 41. Using the PtSpWBS score ≤ 41 as the cut-off point, compared with female patients, the unadjusted odds ratio of males developing lower spiritual well-being was 0.697, 95% C.I. was 0.49–0.99, $p=0.046$. After controlling for other conditions (age, education,

Table 7 The Odds Ratio Analysis Based on the PtSpWBS Low Group Score of 41

Variable	Unadjusted OR	95% CI	p value	Adjusted OR	95% CI	p value
Age	1.033	1.02–1.05	0.000	1.036	1.01–1.06	0.003
Gender						
Male/female	0.697	0.49–0.99	0.046	0.513	0.31–0.86	0.011
Education level						
Junior high school and below/university	2.519	1.48–4.29	0.001	1.254	0.54–2.93	0.602
High school or junior college/university	2.212	1.50–3.26	0.000	1.997	1.15–3.46	0.014
Master degree and above/university	2.738	1.46–5.12	0.002	2.064	0.95–4.51	0.069
Marital status						

(Continued)

Table 7 (Continued).

Variable	Unadjusted OR	95% CI	p value	Adjusted OR	95% CI	p value
Married/single, divorced or widowed	2.352	1.68–3.30	0.000	2.002	1.21–3.31	0.007
Religion						
Catholicism / Christianity	0.255	0.07–0.94	0.039	0.029	0.00–0.21	0.000
Buddhism / Christianity	0.440	0.25–0.78	0.005	0.415	0.20–0.87	0.020
Taoism / Christianity	0.226	0.12–0.43	0.000	0.185	0.09–0.40	0.000
I-Kuan Tao / Christianity	0.582	0.12–2.90	0.509	0.258	0.04–1.49	0.130
No religious belief / Christianity	0.148	0.09–0.26	0.000	0.179	0.09–0.36	0.000
Folk belief / Christianity	0.195	0.10–0.37	0.000	0.153	0.07–0.33	0.000
Islam / Christianity	0.364	0.11–1.25	0.109	0.359	0.08–1.54	0.168
Multi-religious / Christianity	0.291	0.07–1.24	0.095	0.366	0.05–2.47	0.303
Employment status						
Unemployed before illness / Retiring with pension	0.967	0.19–4.91	0.967	2.986	0.48–18.64	0.242
Staying without pay due to illness/ Retiring with pension	0.391	0.17–0.91	0.030	1.534	0.46–5.13	0.487
Quitting work due to illness / Retiring with pension	0.368	0.18–0.77	0.008	0.766	0.30–1.98	0.581
Student/ Retiring with pension	0.644	0.23–1.83	0.408	6.542	1.43–30.04	0.016
Housekeeping/ Retiring with pension	0.829	0.41–1.67	0.598	0.779	0.32–1.90	0.583
Working full time/ Retiring with pension	0.552	0.34–0.91	0.019	2.838	1.21–6.68	0.017
Working part time/ Retiring with pension	0.552	0.23–1.31	0.178	0.941	0.32–2.81	0.913
Monthly income (NTD)						
\$30,000 or below / >\$10,001 or more	0.339	0.08–1.50	0.155	0.311	0.03–3.16	0.323
\$30,001–\$50,000 / \$10,001 or more	0.220	0.05–0.99	0.048	0.217	0.02–2.16	0.193
\$50,001–\$100,000/ >\$10,001 or more	0.223	0.05–1.03	0.055	0.146	0.01–1.50	0.105
Hospital experience						
Yes/no	1.522	1.01–2.29	0.044	1.573	0.93–2.68	0.095

marriage, religion, employment status, monthly income, hospitalization experience), the adjusted odds ratio of male patients with lower spiritual well-being compared to females was 0.513, and the 95% confidence interval was 0.31–0.86, $p=0.011$. After controlling for other conditions (age, education, religion, employment status, monthly income, hospitalization experience), the adjusted odds ratio of developing higher spiritual well-being in patients with marriage compared to others was 2.002, with a 95% C.I. of 1.21–3.31, $p=0.007$. After controlling for other conditions (age, marriage, religion, employment status, monthly income, hospitalization experience), the adjusted odds ratio of developing higher spiritual well-being in patients with high school or junior college compared to university was 1.997, with a 95% C.I. of 1.15–3.46, $p=0.014$. After controlling for other conditions (age, education, marriage, employment status, monthly income, hospitalization experience), the adjusted odds ratio of Catholic patients having lower spiritual well-being compared to Christians was 0.029, and the 95% C.I. was 0.00–0.21, $p<0.001$. The adjusted odds ratio of Buddhist patients having lower spiritual well-being compared to Christians was 0.415, and the 95% C.I. was 0.20–0.87, $p=0.020$.

The adjusted odds ratio of Taoist patients having lower spiritual well-being compared to Christians was 0.185, and the 95% C.I. was 0.09–0.40, $p < 0.001$. The adjusted odds ratio of non-religious patients having lower spiritual well-being compared to Christians was 0.179, and the 95% C.I. was 0.09–0.36, $p < 0.001$. The adjusted odds ratio of folk believers having lower spiritual well-being compared to Christians was 0.153, and the 95% C.I. was 0.07–0.33, $p < 0.001$. After controlling for other conditions (age, gender, education, marriage, religion, monthly income, hospitalization experience), the adjusted odds ratio of patients with student status of developing higher spiritual well-being compared with retirees with pensions was 6.542, the 95% C.I. was 1.43–30.04, $p = 0.016$. Compared with retirees with pensions, the adjusted odds ratio of patients with high spiritual well-being who work full-time was 2.838, and the 95% confidence interval was 1.21–6.68, $p = 0.017$. The unadjusted odds ratio of patients with hospitalization experience of developing higher spiritual well-being compared without hospitalization experience was 1.522, the 95% C.I. was 1.01–2.29, $p = 0.044$.

Discussion

Unlike previous spiritual assessment tools which have been mostly developed based on expert opinions,^{14–21,31} the Patient's Spiritual Well-Being Scale (PtSpWBS) is a tool that directly collects opinions from patients, conducts hermeneutic analysis, is designed based on the results of qualitative research, and is then validated by quantitative research to assess the spiritual well-being of patients. The PtSpWBS was designed to be used by clinical spiritual care providers to assess the spiritual well-being of patients, which is also different from the purpose of most existing tools used by health care professionals to screen patients for spiritual needs. For this purpose, the research assistants for the quantitative study of this study were 17 clinical spiritual care providers and 9 pastors, which is what makes this study unique.

From our qualitative research, we found that 33 themes can be analyzed when patients talk about issues related to spirituality and spiritual care (Table 2). After final confirmation by the research team, 5 themes that were difficult to classify were deleted, and the 28 themes were finally divided into 15 topics, which belonged to 2 domains, namely spiritual awareness and spiritual dynamics. Spiritual awareness is the antecedents of spiritual health.³² In Christianity, spiritual dynamics was originally defined as power from God to do his work.³³ In our study, spiritual dynamics refers to the inner and outer work done by patients for spiritual well-being. Research shows that young people's spiritual development involves the dynamic interaction of three dimensions: belonging and connection, awareness and awakening, and lifestyle.³⁴ We hypothesize that there may be two interactive mechanisms between spiritual awareness and spiritual dynamics in patients. The first is because of the distress, depression or demoralization caused by the disease, which leads to a sense of crisis or even suicidal ideation,²⁶ so one realizes that one has not enough spiritual well-being, that is, spiritual awareness, and then starts to take internal or external actions of spiritual dynamics. The second is that patients who have already participated in religious activities have awakened to their spiritual awareness through the internal and external spiritual dynamics of religious rituals. We believe that these two mechanisms are likely to cycle into each other, and such a mechanism allows patients to have the possibility of post-traumatic growth and even spiritual growth.³⁰

In the quantitative research part, 661 patients participated in this study and completed all scales. As the results show, the high reliability and validity scores confirm that the PtSpWBS is a suitable tool for use to evaluate patient's spiritual well-being in Taiwan. The PtSpWBS established through this study consists of 15 questions and encompasses two domains: spiritual awareness and spiritual dynamics. Results of the component analysis of the PtSpWBS produced three components, namely, spiritual health, religious connection and spiritual awareness. These component s are consistent with the definitions of spirituality, spiritual needs and spiritual well-being by many scholars.^{14–21} Through the qualitative research results, 15 questions were designed from the two domains of spiritual awareness and spiritual dynamics to establish the PtSpWBS. After the quantitative research, it was found that the three components after the component analysis of the PSNQ are spiritual health, religion connect and spiritual awareness. We believe that such results are quite consistent in qualitative and quantitative research. In qualitative research, the domain of spiritual awareness develops questions 1, 2, 3, 4, 5, and 15 of the PtSpWBS (Tables 1 and 2); in component analysis of quantitative research, questions 1, 4, and 5 are classified under spiritual awareness, while questions 2, 3, and 15 are classified into spiritual health. Despite the above differences, after Discussions at the research meeting, we found that questions 1, 4, and 5 are indeed directly related to awareness and acceptance. Although questions 2, 3, and 15 are also awareness issues, they are also It can reflect spiritual health, and according to analysis, it can better reflect spiritual health. In qualitative research, the

domain of spiritual dynamics can be subdivided into spiritual health and religion connection in quantitative research. In qualitative research analysis, it is believed that spiritual dynamics includes internal and external spiritual activities. In component analysis, it can be seen more clearly that spiritual inner activities can be said to be spiritual health, while spiritual external activities can be said to be religion connection.^{34–37}

This study found that in Taiwan, the spiritual well-being of patients are significantly related to religious beliefs, education level, marital status, employment status, monthly income, and whether they have ever been hospitalized (Table 3). In palliative care, respecting patients' religious beliefs and providing spiritual care has become the norm in the bio-psycho-social-spiritual model of medical care.^{38,39} Although the medical model for patients also uses the bio-psycho-social-spiritual model to provide medical treatment, it pays less attention to spiritual care, and there is not enough research on the relationship between religion and spiritual care. This study found that there are statistical differences in the lower spiritual well-being of patients with different religious beliefs, especially among the large number of patients with Taoist and folk beliefs. There are many large general hospitals with Christian and Buddhist backgrounds in Taiwan, but there are only a few general hospitals with Taoist backgrounds. Whether this is related to the results of this study, we cannot deduce, but it is true that Christian clinical pastoral care and clinical Buddhist counseling have been developing in Taiwan for some time.^{10,40,41} There used to be Taiwanese Buddhism-based acute care general hospitals that provided spiritual care through nursing and developed the 21-item version of the Spiritual Care Needs Inventory (SCNI) for nursing assessment.⁴¹ Their research found that young people, women, and people of Christian faith have higher spiritual care needs, which is very different from our research findings. Are these due to differences in hospitals with different religious backgrounds, or differences between acute patients and chronic patients, or differences in inquiries between nurses and spiritual care providers, or scale design stems from differences between expert opinions and patient opinions? It is impossible to draw a conclusion here, but there is indeed a need for further discussion in the future. In the findings of this study, in addition to religious beliefs, other factors related to spiritual needs are not discussed in detail due to focus on discussion and space reasons. However, this does not mean that we think these findings are unimportant, but we hope to focus more on the PtSpWBS itself.

Table 5 lists the 15 questions of the PtSpWBS in order from low score to high score. The top three questions with the lowest scores are question 12 “During my illness, I never felt powerless” (2.69 ± 0.997), question 8 “I will help myself through religious rituals or actions when appropriate” (2.74 ± 1.135) and question 7 “During my illness, I believed God could help me” (2.82 ± 1.091). Question 12 is about spiritual health, and questions 8 and 7 are about religious connection. The top three questions with the highest scores are question 5 “I can accept the limitations of life” (3.39 ± 0.744), question 1 “I am clearly aware of my inner feelings” (3.29 ± 0.785) and question 15 “I feel my soul is at peace” (3.27 ± 0.821). Questions 5, 1, and 15 are all questions about religion awareness. Such findings seem to mean that patients are more likely to have spiritual awareness of themselves in terms of spiritual well-being, but in terms of spiritual dynamics, including spiritual health and religious connection, they are more in need of spiritual care. Such findings make us believe that it is necessary for the health care system to provide spiritual care for patients, because patients need inner and outer spiritual dynamics, and the health care system providing spiritual care provides the needs for outer dynamics.^{42–44}

Previous studies on cancer care and palliative care have found that patients' demoralization, depression and spirituality are related.^{45–47} In this study, the PtSpWBS was negatively correlated with the PHQ-9 and the DS-MV, which means that patients of depression or demoralization have lower spiritual well-being. However, there was no correlation between the two scales PtSpWBS and DT, which was a surprising result for us. One of the purposes of the DT is to screen for spiritual distress. Nurses at MacKay Memorial Hospital use the DT to screen all inpatients for bio-psycho-social-spiritual distress. However, our past research in MacKay Memorial Hospital has found that the DT, the PHQ-9, and the DS-MV were related to the psychological state of cancer patients and suicidal ideation.²⁶ Such results are puzzling, and we need to design other studies in the future to understand.

Since the PtSpWBS is designed as a tool for clinical spiritual care providers and pastors to assess the spiritual well-being of patients, it is necessary to find cutoff scores for clinical spiritual care. The results of odds ratio analysis based on the PtSpWBS low group score of 41 points (Tables 7), we suggest that when clinical spiritual care providers or pastors design clinical spiritual care paths, if they use the PtSpWBS as an assessment tool, they can choose 41 points as the cut-off points. If a patient has a PtSpWBS score of 41 or lower, high-intensity spiritual care needs to be provided. If the

patient's PtSpWBS score is higher than 41 points, the patient will be provided with the most basic spiritual care. In addition, the PtSpWBS is an assessment tool developed through qualitative and quantitative research for spiritual care providers or pastors caring for patients with chronic diseases; therefore, clinical pastoral education (CPE) lessons and even Objective Structured Clinical Examination (OSCE) can be designed based on these research results in the future.

Our study has four limitations. First, all the research procedures were conducted in the same hospital, and it was a general hospital with a Christian background of more than a hundred years of tradition. Second, even though 661 patients participated in the quantitative study, it was not possible to cover all categories of patients. Third, this study only tested the reliability and validity of the PtSpWBS and did not conduct a long-term assessment on the same group of patients. Therefore, whether it is suitable for long-term follow-up or the use of pre- and post-tests still requires further research. Fourth, Taiwan is a multi-religious and multi-cultural country. Whether the PtSpWBS can be extended to other parts of the world still requires further research.

Despite these limitations, this research has four implications. First, the PtSpWBS is constructed from the opinions of patients and family members, rather than from experts, so it is better able to reflect and assess the spiritual well-being of patients. Second, when this study used the PtSpWBS to study patients, the research assistants were all full-time clinical spiritual care providers and pastors. Therefore, we can look forward to the feasibility of future clinical use. Third, the PtSpWBS is designed for clinical spiritual care providers and pastors who specialize in providing spiritual care, so further spiritual counseling or spiritual care training can be designed through PtSpWBS. Fourth, in the past, spiritual care with a religious background rarely used quantitative data to evaluate the effectiveness. The PtSpWBS has good reliability and validity and can be used to quantitatively assess spiritual well-being. The PtSpWBS is appropriate for professional clinical spiritual care providers and pastors in medical institutions with clear division of labor to assess the spiritual well-being of patients.

Conclusion

In an era when the medical system has become multidisciplinary healthcare that provides fine division of labor and diverse cooperation, in some medical institutions, spiritual care can be provided through more professional clinical spiritual care providers rather than through nursing or other medical professionals. The study constructed the PtSpWBS for clinical spiritual care providers and pastors to evaluate spiritual well-being of patients; this scale has good reliability and validity. Qualitative research found that the two domains of spiritual well-being are spiritual awareness and spiritual dynamics. Quantitative research found that the PtSpWBS includes three components: spiritual health, religious connection and spiritual awareness. The PtSpWBS developed in this research suggests a cut-off point, which can be truly used by departments that specialize in providing spiritual care in medical institutions to conduct spiritual well-being assessments, and even further design clinical service paths and educational training courses for spiritual care.

Consent

Informed Consent was obtained from all participants in the study.

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