


Association between spiritual well-being, quality of life, anxiety and depression in patients with gynaecological cancer in China

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Abstract

The physical and psychological condition of patients with gynaecological cancer has received much attention, but there is little research on spirituality in palliative care. This study aimed to investigate spiritual well-being and its association with quality of life, anxiety and depression in patients with gynaecological cancer. A cross-sectional study was conducted in China in 2019 with 705 patients diagnosed with primary gynaecological cancer. European Organisation for Research and Treatment of Cancer quality of life instruments (EORTC QLQ-SWB32 and EORTC QLQ-C30) and the Hospital Anxiety and Depression Scale were used to measure spiritual well-being, quality of life, anxiety and depression. Univariate and multiple linear regression analyses were performed to examine associations between spiritual well-being, quality of life, anxiety and depression. Functioning scales and global health status were positively correlated with spiritual well-being ($P < .05$). Anxiety and depression were negatively correlated with spiritual well-being ($P < .05$). Depression (-0.362 , $P < .001$) was the strongest predictor of Existential score. Anxiety (-0.522 , $P < .001$) was the only predictor of Relationship with self. Depression (-0.350 , $P < .001$) and Global health (0.099 , $P = .011$) were the strongest predictors of Relationship with others. Religion (-0.204 , $P < .001$) and Depression (-0.196 , $P < .001$) were the strongest predictors of Relationship with someone or something greater. Global health (0.337 , $P < .001$) and Depression (-0.144 , $P < .001$) were the strongest predictors of Global-SWB. Well spiritual well-being is associated with lower anxiety and depression, and better quality of life. Health providers should provide more spiritual care for non-religious patients and combine spiritual care with psychological counselling to help patients with gynaecological cancer, especially those who have low quality of life or severe symptoms, or experience anxiety or depression.

Abbreviations: EORTC = The European Organisation for Research and Treatment of Cancer, EX = existential, HADS = Hospital Anxiety and Depression Scale, RO = relationship with others, RS = relationship with self, RSG = relationship with someone or something greater.

Keywords: anxiety, depression, gynaecological cancer, quality of life, spirituality

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1. Introduction

Gynaecological cancer includes cervical, uterine, ovarian, tubal, vaginal and vulvar cancer, which are serious and potentially life-threatening illnesses.^[1] In 2018, there were approximately 1,309,165 new cases of gynaecological cancer and approximately 609,377 deaths from gynaecological cancer worldwide. In China, about 214,400 new cases of gynaecological cancer occurred in 2015, and there were approximately 74,800 deaths from gynaecological cancer.^[2] In addition to physical pain, patients with cancer often experience enormous psychological stress and financial burden.^[1,3,4] Gynaecological cancer can have negative effects on women's self-concept, body image, sense of femininity and sex life.^[5,6] Moreover, patients with gynaecological cancer experience a higher incidence of anxiety and depression.^[7] In summary, gynaecological cancer has negative effects on the physical and psychological health of patients.

The World Health Organization states that palliative care should integrate the psychological and spiritual aspects of patient care to improve quality of life.^[8,9] Moreover, spirituality seems to be associated with physical and psychological health, especially in patients with cancer.^[10] Spirituality is defined as "a person's experience of connectedness with the essence of life, search for

connectedness to oneself, others, nature, and sacredness”.^[11,12] Spirituality is an integral part of the human experience and is a multidimensional concept, which is not necessarily associated with a religious outlook.^[12,13] Spirituality reflects differences in past experience, philosophical perspective and culture.^[14] Thus, spiritual well-being varies according to factors such as culture and disease experience. Spirituality may play an important role in the ability to cope with fear and distress, an ability that may reduce the impact of cancer-related stressors.^[15] A previous qualitative study showed that spirituality is a complex phenomenon that (1) connects the self with traditional culture, (2) merges mind and body and (3) provides meaning and strength in the cancer journey. The researchers concluded that understanding the role of spirituality is important in developing and delivering safe and culturally appropriate psychosocial care that reduces the burden of cancer and ultimately improves cancer outcomes.^[16] Spiritual well-being in patients is associated with lower pain levels and faster recovery from intercurrent illness.^[17,18] Available study results regarding the correlation between spiritual well-being, anxiety, depression and quality of life are mixed, including both significant and non-significant effects.^[19–22] Hence, further scientific investigation is required get a deeper insight about the association between these concepts.

Research based on the biopsychosocial spiritual model has focused on the physical and psychological condition of patients with gynaecological cancer, but evidence-based research on spirituality in palliative care is lacking.^[12] A previous study in China showed a below-average level of overall spiritual well-being for patients with advanced cancer. Factors that affected spiritual well-being were age and whether patients were religious.^[23] This cross-sectional study focused on Chinese patients with gynaecological cancer. We investigated spiritual well-being in patients with gynaecological cancer and explored the association between spiritual well-being, anxiety, depression and quality of life.

2. Methods

2.1. Study design

This was a cross-sectional study. From January 2019 to June 2019, patients with gynaecological cancer were recruited from West China Second Hospital of Sichuan University, which is a women and children’s medical centre in western China that serves over 5 provinces. Patients who met the inclusion criteria were selected as subjects.

2.2. Participant

Women were eligible if they (1) were diagnosed with primary gynaecological cancer; (2) were able to read and write Chinese; (3) were over 18 years old; (4) had normal cognitive function and intelligence. Patients with gynaecological cancer were excluded if they (1) had a history of mental illness; (2) had other severe organic disease.

2.3. Sample size

According to Kendall’s experience and methods, sample size can be 5 to 10 times the number of independent variables. Our sample size was 8 times the number of independent variables. Considering the unqualified questionnaire, sample size was increased by 5%.

2.4. Assessment instruments

The European Organisation for Research and Treatment of Cancer (EORTC) QLQ-SWB32 measures spiritual well-being in palliative care patients with cancer. The questionnaire was developed following EORTC Quality of Life Group guidelines. It is a stand-alone measure that comprises 32 items on 4 scoring scales and is appropriate for religious and non-religious people. The EORTC QLQ-SWB32 comprises 4 dimensions: Existential (EX, 6 items), Relationship with self (RS, 5 items), Relationship with others (RO, 6 items) and Relationship with someone or something greater (RSG, 5 items). The remaining 10 items comprise a Global-SWB item. Of the 32 items, 31 are rated on a 4-point Likert scale. Responses range from “not at all” to “very much”.^[24] Item 32 (Global-SWB) is analysed separately, as this is a global item that reflects overall spiritual well-being. This item is rated on a 7-point scale ranging from 1 (very poor) to 7 (excellent); we added an option of 0 for “don’t know/can’t answer”.^[8] Sum scores for each dimension and Global-SWB were transformed to correspond to a scale of 0 to 100.

The EORTC QLQ-C30 measures quality of life in patients with cancer. The EORTC QLQ-C30 incorporates 9 multi-item scales: 5 functional scales (Physical, Role, Cognitive, Emotional, and Social function); 3 symptom scales (Fatigue, Pain, and Nausea and vomiting) and a Global health and quality of life scale. The remaining single items assess additional symptoms commonly reported by patients (dyspnoea, appetite loss, sleep disturbances, constipation and diarrhoea), as well as the perceived financial impact of the disease and treatment.^[25] Twenty-eight EORTC QLQ-C30 items are rated on a 4-point Likert scale. Responses range from “not at all” to “very much”. Items 29 and 30 are global items that reflect the overall health and quality of life and are rated on a 7-point scale: 1 (very poor) to 7 (excellent).

The Hospital Anxiety and Depression Scale (HADS) is a self-rated screening questionnaire that detects mild anxiety and depression. It consists of 14 questions: 7 assessing anxiety (HADS-A) and 7 assessing depression (HADS-D). Each item is scored from 0 to 3, producing a sum score of 0 to 21 on each subscale. High scores indicate more severe symptoms.^[26] Although the HADS was designed for use with general hospital outpatients, it has been widely used in primary care.^[27,28]

2.5. Statistical methods

SPSS 21.0 (SPSS Inc, Chicago, IL) was used for statistical analysis. Means (M), standard deviations (SD), number (N) and percentage (%) were used to describe the demographic, clinical and influencing variables. Spearman correlations, Kruskal-Wallis tests and Mann-Whitney *U* tests were conducted to explore the correlation between spiritual well-being and patient variables. Candidate factors ($P \leq .1$) were entered into the multiple linear regression analysis. Collinearity diagnostics and residual analysis were performed to verify the regression model. In all analyses, a *P* value of $<.05$ indicated statistical significance.

2.6. Ethics approval and consent to participate

Our study was approved by the Ethics Committee of West China Second University Hospital, Sichuan University. After providing written informed consent, participants attended an interview.

3. Results

3.1. Demographic and clinical characteristics

A total of 728 patients with gynaecological cancer were recruited; 23 of these were excluded because of missing data. Data were analysed for 705 patients (mean age: 47.4 ± 11.0 years). Most were not religious (90.5%). Ovarian cancer accounted for the largest proportion of cases (45.7%), followed by cervical cancer (29.4%). Most patients had received chemotherapy (73.2%) and had not received radiotherapy (90.5%). The demographic and clinical characteristics are shown in Table 1.

3.2. Spiritual well-being, quality of life, anxiety and depression

Of the EORTC QLQ-SWB32 subscales, RS showed the highest mean score (75.22 ± 10.96), followed by Global-SWB (72.48 ± 34.99). The lowest mean score was for RSG (52.19 ± 11.81). Of the EORTC QLQ-C30 subscales, Role function showed the highest mean score (78.25 ± 22.92), followed by Cognitive function (78.16 ± 17.42); the lowest mean score was for Social function (70.33 ± 21.40). Of the symptom, dimensions, Fatigue (30.50 ± 16.98) showed the highest mean score and Diarrhea showed the lowest (10.31 ± 16.50). The mean score for global health status and quality of life was 63.96 ± 22.24 . On the HADS, the mean anxiety score was 5.26 ± 3.54 , and 23.3% of participants experienced anxiety. The mean depression score was 4.13 ± 3.42 ; 15.3% of participants experienced depression (Table 2).

3.3. Univariate analysis of spiritual well-being

Table 3 shows the correlations between the patient variables and each EORTC QLQ-SWB32 dimension. Patients who were religious had higher scores on the subscales EX and RSG. Scores on Physical function, Role function and Social function showed moderate positive correlations with scores on EX, RS, RO and Global-SWB ($P < .05$). Scores on Cognitive function, Emotional function and Global health status and quality of life showed moderate positive correlations with scores on all EORTC QLQ-SWB32 dimensions ($P < .05$). Fatigue, Nausea and vomiting, Pain and other symptoms showed negative correlations with some EORTC QLQ-SWB32 dimensions ($P < .05$). Financial impact showed a strong negative correlation with all EORTC QLQ-SWB32 dimensions ($P < .01$). Anxiety and Depression showed moderate negative correlations with all EORTC QLQ-SWB32 dimensions ($P < .05$).

3.4. Multivariate analysis of spiritual well-being

Variables that showed significant correlations with all spiritual well-being dimensions in the univariate analysis were entered into a multiple linear regression analysis. Depression (-0.362 , $P < .001$) was the strongest determinant of EX score, and explained 30.3% of its variance; Global health (0.156 , $P < .001$), Anxiety (-0.119 , $P = .014$) and Religion (-0.082 , $P = .009$) were also significant determinants of EX. Anxiety (-0.522 , $P < .001$) was the only determinant of RS, and explained 27.1% of its variance. Depression (-0.350 , $P < .001$) and Global health (0.099 , $P = .011$) were the strongest determinants of RO, and explained 16.1% of its variance. Religion (-0.204 , $P < .001$) and Depression (-0.196 , $P < .001$) were the strongest determinants of

Table 1

Demographic and clinical characteristics of patients with gynaecological cancer.

Variable	Mean \pm SD	N (%)
Age	47.4 ± 11.0	
BMI	23.1 ± 3.2	
Race		
Han		672 (95.3)
Tibetan		24 (3.4)
Hui		2 (0.3)
Others		7 (1.0)
Education level		
Illiterate		24 (3.4)
Primary		315 (44.7)
Secondary		207 (29.4)
University		159 (22.5)
Employment status		
Full time		316 (44.8)
Unemployed		294 (41.7)
Ex-worker		95 (13.5)
Marital status		
Married		639 (90.6)
Never married		23 (3.3)
Divorced		36 (5.1)
Others		7 (1.0)
Religion		
Yes		67 (9.5)
No		638 (90.5)
Cancer type		
Ovarian cancer		322 (45.7)
Cervical cancer		207 (29.4)
Endometrial cancer		94 (13.3)
Trophoblastic tumor		38 (5.4)
Fallopian tube cancer		21 (3.0)
Sarcoma of uterus		7 (1.0)
Others		16 (2.3)
Chemotherapy		
Yes		516 (73.2)
No		189 (26.8)
Radiotherapy		
Yes		67 (9.5)
No		638 (90.5)

RSG, and explained 7.7% of its variance. Global health (0.337 , $P < .001$) and Depression (-0.144 , $P < .001$) were the strongest determinants of Global-SWB, and explained 17.5% of its variance. The contributions of all significant factors in the final model are shown in Table 4.

4. Discussion

Scores on the quality of life functional and global health status subscales showed positive correlations with spiritual well-being. Scores on the quality of life symptom scales, and on anxiety and depression, showed negative correlations with spiritual well-being. Religion, depression, anxiety and quality of life were the strongest predictors of spiritual well-being in patients with gynaecological cancer.

In contrast to a previous studies conducted in China and Europe, the present participants had higher scores on every EORTC QLQ-SWB32 dimension than patients with other advanced cancers, such as gastrointestinal cancer, lung cancer and breast cancer.^[23] This may be because all the participants in the present study were women, and women tend to report higher spiritual well-being scores.^[29] Women

Table 2
Mean scores on spiritual well-being, quality of life, anxiety and depression.

Dimension	Mean \pm SD	N (%)
EORTC QLQ-SWB32		
Existential (EX)	68.43 \pm 13.35	
Relationship with self (RS)	75.22 \pm 10.96	
Relationship with others (RO)	70.69 \pm 13.02	
Relationship with someone or something greater (RSG)	52.19 \pm 11.81	
Global-SWB	72.48 \pm 34.99	
EORTC QLQ-C30		
Physical function (PF)	76.96 \pm 16.24	
Role function (RF)	78.25 \pm 22.92	
Cognitive function (CF)	78.16 \pm 17.42	
Emotional function (EF)	74.16 \pm 18.23	
Social function (SF)	70.33 \pm 21.40	
Fatigue (FA)	30.50 \pm 16.98	
Nausea and vomiting (NV)	17.40 \pm 18.97	
Pain (PN)	20.45 \pm 18.29	
Dyspnea (DY)	13.90 \pm 18.26	
Sleep disturbance (SL)	28.13 \pm 25.52	
Appetite loss (AP)	22.32 \pm 21.76	
Constipation (CO)	25.15 \pm 23.99	
Diarrhea (DI)	10.31 \pm 16.50	
Financial impact (FI)	38.25 \pm 29.75	
Global health status and quality of life (GH)	63.96 \pm 22.24	
HADS		
Anxiety (HADS-A)	5.26 \pm 3.54	
None (0–7)		541 (76.7)
Mild (8–10)		113 (16.0)
Moderate (11–14)		40 (5.7)
Severe (15–21)		11 (1.6)
Depression (HADS-D)	4.13 \pm 3.42	
None (0–7)		597 (84.7)
Mild (8–10)		80 (11.3)
Moderate (11–14)		21 (3.0)
Severe (15–21)		7 (1.0)

are also more likely to utilise cancer information services and other support services.^[30,31] In addition, the patients in this study were in different stages of cancer, whereas those in Rohde et al's study were all in the advanced stage.^[29] Further study could explore the relationship between cancer stage and spiritual well-being for cancer patient-adjusting for other confounding factors. The highest mean scores in the present study were on Relationship with self (RS); the highest scores in some previous studies have been on Relationship with others (RO).^[8,29] The lowest mean scores in the present study were on Relationship with someone or something greater (RSG), which is consistent with previous studies conducted in China and Europe.^[8,23,29] EORTC QLQ-C30 global health status and functional scores were comparable with those found for previous studies. In the present study, the highest symptom scores were on the Fatigue symptom; in contrast, previous studies of patients with breast cancer or lung cancer found that Sleep disturbance showed the highest scores.^[17,32] Moreover, we found scores on Financial impact (FI) were higher than previous study and Financial impact (FI) showed a strong negative correlation with all EORTC QLQ-SWB32 dimensions.^[17] This may be because of differences in medical insurance policies. Although most people in China have medical insurance, cancer costs are only partly covered by insurance. Thus, medical costs may be a problem for patients with gynaecological

cancer in China. Health providers should consider the spiritual well-being of patients with gynaecological cancer with poor economic condition. Regarding anxiety and depression, the mean HADS-A and HADS-D scores were lower than for patients with other cancers, such as breast cancer and lung cancer, respectively.^[17,33] This may be because of differences in cancer staging across studies. Future studies are needed to explore the variation in patient psychological condition at different cancer stages.

Consistent with previous studies,^[8] being religious was associated with higher scores on the Existential (EX) and RSG subscales. As expected, patients who were religious had better spiritual well-being (as shown by scores on the EX and RSG dimensions). In the present study, 90.5% of patients were not religious. After a cancer diagnosis, such patients may not know how to cope with the subsequent fear and distress. Patients who are religious may be more able to cope with the spiritual questions that illness raises, as religious traditions can offer much accumulated wisdom to help people to manage fear and distress.^[34,35] Moreover, a previous study found that non-religious patients had greater spiritual needs.^[36] Thus, healthcare providers should give non-religious patients more information on how to cope with cancer-related stressors. Future studies could develop spiritual care programs that focus on non-religious patients or are useful for patients irrespective of their denomination.

EORTC QLQ-C30 functional dimension scores were positively correlated with scores on most EORTC QLQ-SWB32 dimensions, and EORTC QLQ-C30 symptom dimension scores were negatively correlated with scores on most EORTC QLQ-SWB32 dimensions. The multiple linear regression analysis showed that Global health (GH) was positively associated with EX, RO and Global-SWB. Chaar et al found similar results using the FACIT-Sp-12 to measure spiritual well-being and EORTC QLQ-C30 to measure quality of life.^[17] It should be noted that each measure has its own distinct conceptualisation of spiritual well-being and other dimensions. The univariate and multivariate results indicated that low functional level and severe symptoms can reduce spiritual well-being in patients with gynaecological cancer, whereas good quality of life global health can increase spiritual well-being. The present results confirmed the association between spirituality and physical health.^[37,38] Healthcare providers should consider the spiritual well-being of patients with gynaecological cancer who have low quality of life or severe symptoms.

The present results showed that anxiety and depression were negatively correlated with all EORTC QLQ-SWB32 dimensions and that anxiety was negatively associated with EX and RS. Depression was negatively associated with EX, RO, RSG and Global-SWB. These results are consistent with those of previous studies using similar measures.^[17,39,40] Chaar et al used the FACIT-Sp-12 to measure spiritual well-being and the HADS to measure anxiety and depression.^[17] Johnson et al used the Spiritual Well-Being Scale and the Profile of Mood States Anxiety subscale to investigate the association between spirituality and mental health.^[39] The present results indicate that anxiety and depression may decrease spiritual well-being in patients with gynaecological cancer. In other words, patients experiencing anxiety or depression require more spiritual care. These results confirm the association previously found between spirituality and psychological health.^[40,41] Healthcare providers should combine spiritual care with psychological counselling to help patients with gynaecological cancer (especially those experiencing anxiety or depression) to cope with distress and the illness experience.

Table 3
Univariate analysis of spiritual well-being.

Variables	Existential (EX)	Relationship with self (RS)	Relationship with others (RO)	Relationship with someone or something greater (RSG)	Global-SWB
Age*	-0.047	-0.013	0.042	0.039	0.038
BMI*	-0.035	0.011	-0.016	-0.047	0.066*
Race†	4.636	5.588	2.317	3.319	0.748
Education level†	5.473	2.069	5.683	9.465***	0.241
Employment status†	4.770*	0.025	3.512	0.205	0.134
Marital status†	3.184	3.457	1.217	4.808	0.972
Religion (Yes)‡	-2.128**	-0.548	-1.189	-4.827***	-0.598
Cancer type†	5.182	10.670*	6.407	4.992	5.124
Chemotherapy (Yes)‡	-1.113	-0.329	-1.065	-1.337	-0.499
Radiotherapy (Yes)‡	-0.576	-0.097	-0.737	-0.039	-1.209
Physical function (PF)*	0.217***	0.211***	0.140***	0.043	0.191***
Role function (RF)*	0.167***	0.141***	0.087**	-0.008	0.131***
Cognitive function (CF)*	0.275***	0.229***	0.243***	0.094**	0.158***
Emotional function (EF)*	0.382***	0.408***	0.268***	0.076**	0.339***
Social function (SF)*	0.266***	0.305***	0.173***	0.049	0.243***
Fatigue (FA)*	-0.158***	-0.228***	-0.086**	0.037	-0.208***
Nausea and vomiting (NV)*	-0.056	-0.056	-0.099***	0.025	-0.184***
Pain (PN)*	-0.148***	-0.147***	-0.085**	0.033	-0.167***
Dyspnea (DY)*	-0.128***	-0.172***	-0.134***	0.003	-0.110***
Sleep disturbance (SL)*	-0.231***	-0.168***	-0.128***	-0.040	-0.233***
Appetite loss (AP)*	-0.131***	-0.122***	-0.114**	0.067*	-0.152***
Constipation (CO)*	-0.064*	-0.020	-0.085**	0.013	-0.123***
Diarrhea (DI)*	-0.072*	-0.063*	-0.117***	0.002	-0.065*
Financial impact (FI)	-0.187***	-0.176***	-0.196***	-0.129***	-0.192***
Global health status and quality of life (GH)*	0.391***	0.181***	0.255***	0.122***	0.468***
Anxiety (HAD-A)*	-0.484***	-0.468***	-0.326***	-0.153**	-0.333***
Depression (HAD-D)*	-0.558***	-0.353***	-0.428***	-0.221***	-0.354***

* Spearman correlation.

† Kruskal-Wallis test.

‡ Mann-Whitney U test.

* P ≤ .1.

** P < .05.

*** P < .01.

4.1. Limitations

This study had several limitations. First, the sample may not be representative of all patients with gynaecological cancer in China, as patients were recruited from one hospital in western China. Second, the results suggest that patients with gynaecological

cancer have better spiritual well-being than patients with other advanced cancers. However, our patients were at different stages of gynaecological cancer, so it is difficult to determine whether the present findings differ from previous findings because of difference in cancer type or differences in cancer staging. Third, the values of adjusted R² in the multiple linear regression analysis were relatively small, so the regression models only explained a small portion of the variance in each spiritual well-being dimension.

Table 4
Multivariate analysis of spiritual well-being.

Variable	Std. β (P)	Adj. R ²
Existential (EX)		0.303
Depression (HADS-D)	-0.362 (<.001)	
Global health (GH)	0.156 (<.001)	
Anxiety (HADS-A)	-0.119 (.014)	
Religion (Yes)	-0.082 (.009)	
Relationship with self (RS)		0.271
Anxiety (HADS-A)	-0.522 (<.001)	
Relationship with others (RO)		0.161
Depression (HADS-D)	-0.350 (<.001)	
Global health (GH)	0.099 (.011)	
Relationship with someone or something greater (RSG)		0.077
Religion (Yes)	-0.204 (<.001)	
Depression (HADS-D)	-0.196 (<.001)	
Global-SWB		0.175
Global health (GH)	0.337 (<.001)	
Depression (HADS-D)	-0.144 (<.001)	

4.2. Future directions

Considering the economic and cultural differences among different regions of China, we suggest a multicenter study to investigate the level of spiritual well-being of patients with gynaecological cancer in China. Moreover, future study could compare the level of spiritual well-being of patients in different cancer stage-adjusting other confounding factors. The determinants of spiritual well-being are still equivocal, other potential influence factors need further study to explore.

5. Conclusion

We assessed spiritual well-being and found significant associations between spiritual well-being and quality of life, anxiety and depression. The findings indicated that spiritual well-being is

associated with lower anxiety and depression and better quality of life. Having a formal religious affiliation is associated with higher levels of spiritual well-being. Health providers should provide more spiritual care for non-religious patients to help them to cope with cancer-related stressors. Healthcare providers should combine spiritual care with psychological counselling to help patients with gynaecological cancer, especially those who have low quality of life or severe symptoms, or experience anxiety or depression to cope with distress and the illness experience.

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