The role of spiritual well-being in Spanish cancer patients: Exploring the relationship between health, religiosity and spirituality, and the underlying psychosocial and behavioral pathways

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ABSTRACT

This study aims to examine the interactions of spiritual well-being with different psychosocial and behavioral aspects that have been proposed in the literature as pathways underlying the relationship of religiosity and spirituality (R/S) with physical health, specifically in cancer patients (N = 351). Using a cross-sectional research design, a series of hierarchical regression analyses show the predictive power of different elements of R/S (attachment to God, religious practice, commitment and coping, and spiritual experiences) on spiritual well-being. In turn, spiritual well-being (meaning/peace and faith) predicts gratitude and compassion (as psychological pathways). Thus, finally, spiritual well-being, together with gratitude and compassion, correlates to the rest of the psychological (positive and negative emotions), social (social support) and behavioral (healthy behaviors) pathways to different extents. Spiritual well-being may play an important role in understanding the relationships between R/S and health, so considering it along with its associated factors may be key to improving the health and quality of life of people affected by cancer in Spain.

Keywords: religiosity; spirituality; spiritual well-being; health; cancer; holistic care

In health care contexts, many practitioners and researchers view spirituality as a dimension of the integral and holistic view of human functioning (Cooper et al., 2020). For this reason, in recent years the WHO has proposed the need to rethink its definition in order to explore, together with the physical, mental and social dimensions of health, the fourth dimension: spiritual well-being (Dhar et al., 2013). In this sense, the terms integral or holistic well-being are used to refer to a complete state of well-being, understood as an integration of the four dimensions mentioned above (Chirico, 2016).

Before specifying the idea of spiritual well-being (hereafter abbreviated as SpWB), it is necessary to situate the concept within the broader construct of spirituality. In general, the literature shows a spirituality linked to religion and a spirituality not necessarily framed in a religious tradition (Büssing, 2017). The former, for example, could be defined as the search for and relationship with the sacred or transcendent (Pargament, 1997; Koenig et al., 2012). Spirituality could thus be understood interchangeably with religiosity, in that it is framed by a religion that implies an organized system of symbols, beliefs, practices and rituals that allow closeness with the transcendent (Koenig et al., 2012). However, Koenig et al. (2012) admit that spirituality can also extend beyond organized religion. Vachon et al. (2009) define spirituality as a process of development and awareness, characterized by two movements of transcendence that may or may not be experienced by the same person: a self-transcendence that involves reflection and living based on values, which provide a sense of coherence that allows discovering the purpose and meaning of life, or a transcendence with a Higher Self characterized by the connection with it and personal faith in it, which allows giving meaning to life and death (Vachon et al., 2009). Meaning in life is a central aspect in both conceptions, which is why numerous authors have considered and used it in their definitions (Paul Victor and Treschuk, 2020). Other elements highlighted in the definitions are faith, peace, hope or

connectedness with oneself, with others, with the environment or nature, with God or a Higher Self.

All of the elements mentioned in the different conceptions will be reflected in the way in which SpWB is conceptualized and evaluated. The National Interfaith Coalition on Aging (1975) defined SpWB as "the affirmation of life in a relationship with God, self, community, and environment that nurtures and celebrates wholeness" (p. 1). Based on this, following authors such as Moberg (1971) or Ellison (1983), a vertical SpWB can be observed, referring to the feeling of well-being in relation to God, and a horizontal SpWB, which alludes to a feeling of meaning and purpose in life, without involving any specific religious connotation. Both dimensions are collected by Peterman et al. (2002), who refer to a concept of SpWB that includes both traditional aspects of religious faith and aspects more typical of a non-religious spirituality, such as meaning in life, peacefulness or harmony. They developed one of the most widely used scales for the assessment of this construct, the FACIT-Sp, which includes the Meaning/Peace and Faith dimensions (Peterman et al., 2002). Specifically, this measure was developed with the aim of measuring SpWB in patients with diseases such as cancer, the population of the present study.

Spiritual well-being and cancer

Globally, it is estimated that in recent years cancer incidence and mortality have reached a devastating 19.9 million new cases and 9.7 million deaths per year (International Agency for Research on Cancer, 2024). In Spain, according to data from the Spanish Network of Cancer Registries (2024), the estimated figures for incidence and mortality in recent years are around 280,000 new cases and 120,000 deaths per year. Accordingly, being one of the main causes of morbidity and mortality, cancer poses many physical, mental, social and spiritual challenges throughout the disease process (Puchalski et al., 2012; Sterba et al., 2013). Therefore, research has been devoted to analyzing the different aspects that influence oncology patients from a holistic perspective, in which the spiritual dimension is explicitly reckoned with (Caldeira et al., 2017).

The SpWB of cancer patients has been shown to be related to their mental, physical and social health and well-being (Almaraz et al., 2022). Focusing on physical health, there is a need to understand how it can be affected by SpWB (Jim et al., 2015). In fact, Park (2007) suggested that, despite attempts to understand the pathways underlying the relationship between R/S and health, these should be studied more in populations with physical health problems.

In the specific case of Spain, few studies have focused on the SpWB of cancer patients (Mihic-Gongora et al., 2022), even though the Spanish society has a deeply religious/spiritual tradition. For this reason, studying SpWB and its relationship with the determinants of the relationship between R/S and health in Spanish oncology patients could yield enlightening elements that have not been previously observed in studies conducted in contexts in which the religious or spiritual dimensions have a different weight or value.

Spiritual well-being and its psychosocial and behavioral correlates

When discussing the pathways underlying the relationship between R/S and physical health, there is some consensus that these pathways are mostly psychological, social and behavioral in nature (Koenig et al., 2012; Park et al., 2017). Different authors have tried to develop explanations that, although differing from each other in various aspects, identify common pathways and follow the same logical sequence: R/S influences a series of psychosocial and behavioral pathways that, in turn, influence the physiological systems of the organism, which ultimately determine physical health (Oman & Thoresen, 2005). SpWB could play an

important role within this sequence by relating to the different pathways associated to better physical health of cancer patients.

Firstly, when it comes to establishing a relationship between physical health and R/S, the latter is differentiated into different aspects, usually cognitive, emotional and behavioral (Jim et al., 2015). Previously, Koenig et al. (2012) collected many of these aspects, such as attachment to God, public and private religious practice, religious commitment, R/S experiences, and religious coping. All of them have been shown to be related to SpWB (Wachholtz & Rogoff, 2013; Freeze and DiTomasso, 2015; Brintz et al., 2017; McElroy-Heltzel et al., 2018), so they could play a role in better understanding SpWB.

In any case, within the psychological pathways proposed in the literature, positive psychological traits appear, which would be placed as a previous step to the other pathways. Among these, the present study focuses on gratitude and compassion, both of which have been shown to be related to R/S and, more specifically, to SpWB (Kula Şahin & Bulbuloglu, 2022; Scrantom, 2017; Tudder et al., 2017). In fact, Mills et al. (2015) showed the importance of gratitude in mediating the relationship between SpWB and different variables related to mental and physical health.

This idea has been used by different authors to propose the following sequence in their theories: R/S would promote directly, and indirectly through gratitude and compassion a greater emotional well-being, in which positive and negative emotions, as the subsequent psychological pathway, represent an indicator of such well-being (Oman & Thoresen, 2005; Park, 2007; Koenig et al., 2012; Park, 2012). For example, Ruini and Vescovelli (2013) observed that gratitude is related to a lower level of negative emotions. As for positive emotions, the experimental study by Datu et al. (2022) showed that gratitude is associated with a higher level of these emotions and has effects on them. Regarding compassion, authors such as Förster and Kanske (2022) have pointed out the importance of compassion in the regulation of positive and negative emotions. In this sense, compassion has been associated with higher levels of positive emotions (Pradhan et al., 2024) and lower levels of negative emotions (Saarinen et al., 2021), the latter being a longitudinal study that determined the effects of compassion in reducing negative affectivity over time. But beyond this relationship between positive psychological traits and emotions, SpWB has also been shown to be linked to higher levels of positive emotions (Tudder et al., 2017) and lower levels of negative emotions (Zare et al., 2019).

On the other hand, social support, the role of which is key in cancer patients (Usta, 2012), has been proposed as a main social pathway (Park, 2007; Masters, 2008; Park et al., 2017). A longitudinal study showed a relationship between gratitude and social support, further concluding that the former leads to the latter (Wood et al., 2008): Grateful patients receive more social support. Likewise, Cosley et al. (2010) observed a positive association between compassion and social support. Additionally, SpWB assessed as meaning/peace and faith was also associated with higher levels of perceived social support (Ciria-Suárez et al., 2021).

Finally, there is agreement in establishing healthy behaviors as the main behavioral pathway (Oman & Thoresen, 2005; Koenig et al., 2012; Aldwin et al., 2014; Park et al., 2017). Since religious/spiritual traditions generally promote healthy lifestyles, SpWB itself has been directly linked to higher levels of such behaviors (Lawler-Row & Elliot, 2009). In addition, gratitude has also been shown to be associated with greater engagement in healthy behaviors (Millstein et al., 2016), Likewise, compassion has been cross-sectionally and longitudinally associated with these behaviors (Gluschkoff et al., 2019).

The relationships of SpWB with the different psychosocial and behavioral pathways that are common in the different theoretical approaches have been proposed following the sequential order suggested in these approaches. These relationships can be observed schematically in Figure 1.

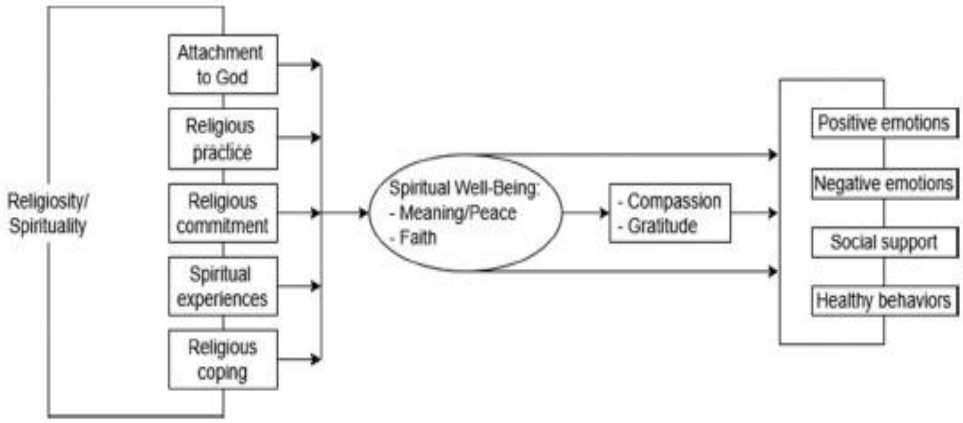

Figure 1. Relationships of spiritual well-being with the proposed pathways.

Note. Diagram of the relationships of SpWB with R/S and the psychosocial and behavioral pathways proposed.

SpWB could play a key role in the *interrelationships* proposed by several authors (see Aldwin et al., 2014, for an overview of the different approaches), given the relevance of this kind of well-being in the overall comprehensive health of individuals and its relationships with the variables involved in the relationship between R/S and physical health. This could have implications such as facilitating understanding of the relationships between R/S and physical health and, consequently, improving care and interventions with patients who require consideration of R/S needs and aspects in their care in different health contexts, such as oncology.

Hence, the present study aimed to understand the role of SpWB (meaning/peace and faith) in the relationship between R/S and health in Spanish cancer patients. To this end, we explored the relationships between SpWB and the proposed R/S, psychosocial and behavioral variables and tested the following hypotheses:

(1) Attachment to God, religious practice, religious commitment, R/S experiences, and religious coping predict higher degrees of SpWB in cancer patients.
(2) Higher degrees of SpWB (meaning/peace and faith) predict a greater disposition to gratitude and compassion.
(3) Higher degrees of SpWB, gratitude, and compassion predict higher levels of positive emotions and lower levels of negative emotions, as well as higher levels of social support and healthy behaviors.

Method

Design

A cross-sectional design was used for data collection between October 2022 and April 2023.

Participants

The sample was obtained from 21 Spanish cancer patient organizations. All participants met the inclusion criteria: being over 18 years of age and a diagnosis of any type of cancer in non-advanced stages of the disease. Based on the number of cancer diagnoses in Spain, with a confidence level of 95% and an error of ±5%, a minimum sample size of 344 was determined,

which we exceeded.

Participants (N=351), of whom 59.5% (n=209) were female and 40.5% (n=142) were male, were between 18 and 80 years of age (M=52.46; SD=13.01). They mainly had a higher education (n=167; 47.6%), were working at the time of the research (n=151; 43%) and belonged to a middle socioeconomic level (n=222; 63.2%). The majority was in a treatment phase of the disease (n=295; 84%), with the most common diagnoses being breast (n=123; 35%), colon (n=29; 8.3%) and lung cancer (n=25; 7.1%).

The Research Ethics Committee of the Complutense University of Madrid approved the study (CE_20220616-10_SOC), and informed consent was obtained from all participants, in compliance with the Helsinki declaration in its latest version.

Measures

Socio-Demographic survey

Through an ad hoc survey, participants were asked about their age, gender, socioeconomic status, educational level, employment status, cancer diagnosis and cancer stage.

Attachment to God

The Brief Trust/Mistrust in God Scale (Rosmarin et al., 2011) was used to assess positive and negative attachment to God, as this instrument has been shown to be suitable for the assessment of these constructs (Koenig et al., 2012). It consists of six items divided into a Trust in God subscale (positive attachment) and a Mistrust in God subscale (negative attachment). It is presented in a five-point Likert-type format (1 = *not at all* to 5 = *very much*). The Spanish adaptation (Almaraz et al., 2021) used had a reliability of $\alpha = 0.95$ (Trust in God subscale) and $\alpha = 0.86$ (Mistrust in God subscale).

Public/private religious practice and religious commitment

The DUREL scale (Koenig & Büssing, 2010) was used for the assessment of public/private religious practice and religious commitment. Item one, related to organizational religiosity, was used to measure public practice through a six-point Likert scale (1 = *not at all* to 6 = *more than once a week*). Item two, referring to non-organizational religiosity, served to measure private practice, with a format similar to the previous one but coded inversely (1 = *more than once a day* to 6 = *never*). For the measurement of religious commitment, the intrinsic religiosity subscale was used, where each item is scored on a five-point scale (1 = *definitely not true* to 5 = *definitely true for me*). The Spanish adaptation (Taylor, 2013) showed adequate reliability, ranging from $\alpha = 0.77$ to $\alpha = 0.82$.

Religious/spiritual experiences

The Daily Spiritual Experiences Scale (DSES) (Underwood & Teresi, 2002) was used to assess R/S experiences. The first part of the scale is presented in a 15-statement format, with six response options (1 = *many times a day* to 6 = *never or hardly ever*). The last item is posed as a question, presented on a four-point Likert scale (1 = *not at all* to 4 = *as close as possible*). The Spanish version (Underwood, 2006) was used, which had a high internal consistency ($\alpha = 0.91$).

Religious coping

The Brief RCOPE (Pargament et al., 1998) was used for the measurement of religious coping. Through its 14 items, divided into two subscales, it allows the evaluation of positive and negative coping patterns. It is presented on a five-point Likert scale (1 = *never* to 5 = *always*). The Spanish version used (Rivera-Ledesma and Montero-López, 2007) showed a more satisfactory reliability for positive religious coping ($\alpha = 0.83$) than for negative religious coping ($\alpha = 0.65$).

Spiritual well-being

The FACIT-Sp12 (Peterman et al., 2002) was used to assess SpWB. It has a total of 12 items presented on a five-point Likert-type scale (0 = *not at all* to 4 = *very much*), measuring two dimensions of SpWB: Meaning/Peace and Faith. The scale adapted to Spanish (Galiana et al., 2016) showed adequate internal consistency ($\alpha = 0.85$).

Compassion

The Compassion of Others' Lives Scale (Chang et al., 2014) contains 26 items, divided into two subscales: empathy and alleviating suffering. Specifically, six items of the alleviating suffering dimension were used for the assessment of compassion, using a five-point Likert scale (1 = *does not describe me well* to 5 = *describes me very well*). The Spanish version used (Klos & Lemos, 2008) showed good reliability ($\alpha = 0.93$), as did the six-item version used in this study ($\alpha = 0.89$).

Gratitude

The GQ-6 Questionnaire (McCullough et al., 2002) was used to measure gratitude, through a seven-point Likert-type scale (1 = *strongly disagree* to 7 = *strongly agree*), where the higher the score, the greater the tendency to experience gratitude. It consists of six items. The internal consistency of the Spanish adaptation (Beléndez, 2011) used was estimated in a range between $\alpha = 0.76$ and $\alpha = 0.84$.

Positive and negative emotions

The Positive and Negative Affect Schedule (PANAS) (Watson et al., 1988) was used to assess emotions, as it consists of two subscales of 10 items each for the measurement of positive emotions (e.g., enthusiastic) and negative emotions (e.g., irritable). Participants were asked to indicate whether they felt each of the emotions in the past week on a five-point Likert scale (1 = *not at all or very slightly* to 5 = *very much*). The Spanish version (López-Gómez et al., 2014) used demonstrated high reliability ($\alpha = 0.92$ for positive emotions and $\alpha = 0.88$ for negative emotions).

Social support

The Multidimensional Scale of Perceived Social Support (Zimet et al., 1988) allows the assessment of social support through different sources. The significant others subscale was used, as it represents an abbreviated version that does not focus on any specific source of support. This subscale consists of four items with a seven-point Likert response format (1 =

strongly disagree to 7 = *strongly agree*). A Spanish adaptation was used (Ruiz et al., 2017) which showed high internal consistency ($\alpha = 0.94$).

Healthy behaviors

The Healthy Lifestyles Questionnaire (Leyton-Román et al., 2018) was used to measure healthy behaviors, since through 12 items this measure provides information about different factors related to a healthy lifestyle: smoking, sleeping habits, respecting mealtimes, and balanced diet. The scale recorded responses in a five-point Likert format (1 = *strongly disagree* to 5 = *strongly agree*). Given that there were too many missing values in the smoking behaviors factor, the factorial structure was evaluated based on the other dimensions, showing adequate structural validity (KMO test (0.793); Bartlett's test of sphericity, $\chi2(36) = 1404.163$, $p<0.001$) and 72.5% of the variance explained. Internal consistency was shown to be adequate, ranging from $\alpha = 0.71$ to $\alpha = 0.85$.

Procedure

We contacted around 100 cancer patient organizations in Spain, of which a total of 21 organizations agreed to collaborate in the study. After the patients who met the inclusion criteria were informed and had accepted the informed consent, they had access to the questionnaire in physical or online format, according to the preference of the entities. The responses were collected guaranteeing the rights of the respondents to be analyzed for research purposes.

Data analysis

First, descriptive measures of sociodemographic and health variables were taken. Pearson's r coefficient was used to analyze the correlations between the different variables evaluated.

Hierarchical regression analysis was performed using the enter entry method to introduce the variables in each hierarchical step. This ensured that all predictor variables were included simultaneously based on a theoretical justification (Field et al., 2009). This method avoids the bias and overfitting of stepwise methods, providing more stable and transparent coefficients, which facilitates the interpretation and generalization of the results (Hair et al., 2019; Tabachnick & Fidell, 2019).

Previously, some aspects were adjusted. First, following Hardy (1993), several sets of dummy variables were created for the different categories of the sociodemographic variables gender, educational level, employment status and socioeconomic level. In addition, to avoid multicollinearity between the categories of each of these variables when introducing them as dummies in the model, a combination of categories was made following authors such as Hardy and Reynolds (2004) or Senaviratna and Cooray (2019), which preserves clarity in the interpretation of the model and avoids forcing a dimensional analysis on categorical variables that do not have a continuous behavior. Given that the original classification of the variables socioeconomic level, educational level and employment status contains too many details, some categories were combined considering their theoretical and empirical similarity in the context of the study (Hardy & Reynolds, 2004).

Likewise, to avoid multicollinearity among the most strongly correlated R/S variables (positive attachment to God, private religious practice, religious commitment, R/S experiences and positive religious coping) (see Table 1) and to improve the interpretability of the models, a Principal Component Analysis (PCA) was performed to obtain components through the linear

relationships between these variables (López González, 1998; Hair et al., 2019). Following Hair et al. (2019), a proportion of variance explained greater than 60% and domain knowledge were established as criteria. The first component met the first criterion by explaining 75.96% of the variance. Furthermore, even considering the conceptual differences between the variables, the similarity between the variables was determined in that the measures through which they are evaluated imply a positive and secure relationship with God and an involvement with beliefs in daily life (Pargament et al., 1998; Underwood & Teresi, 2002; Koenig & Büssing, 2010; Rosmarin et al., 2011). Although private religious practices encompass a range of activities, such as prayer, meditation, and Bible study, only some of these -particularly prayer and meditation- serve as direct means of relational engagement with God. Given that these relational aspects are central to building a positive relationship with God, and that their inclusion helps to reduce multicollinearity in the analysis, the incorporation of private religious practice into this component is conceptually and statistically justified in the context of this study despite the broader nature of the variable. The second component was mainly determined by the "compassionate love" dimension of the DSES (Underwood & Teresi, 2002). Compassion had already been assessed as an outcome of R/S by another measure, so it was decided to omit the second component in order not to obtain redundant information. Thus, a single component was selected, which was labeled "positive relationship with God".

After these preliminary adjustments, hierarchical regression analyses were performed in two steps. In the first step, the sociodemographic variables were added to control for them (Cohen et al., 2003). In the second step, the relevant predictors were added at the same time according to the hypothesis analyzed. Thus, with regard to Hypothesis 1, which seeks to explain SpWB and its dimensions, the second step added the R/S variables. In the case of Hypothesis 2, which seeks to determine the explanatory power of SpWB on compassion and gratitude, the dimensions of SpWB were added as predictors in the second step. Finally, for Hypothesis 3, in which the dependent variables are positive and negative emotions, social support and healthy behaviors, the dimensions of SpWB together with compassion and gratitude were added as predictors in the second step. To be more precise in the analyses, when SpWB was considered as an independent variable, only its dimensions were introduced as predictors to determine its contribution independently.

Models with a p-value less than or equal to 0.05 were considered acceptable. In addition, following authors such as Montgomery et al. (2006) and Kleinbaum et al. (2014), collinearity between model variables was assessed using the Variance Inflation Factor (VIF), with values greater than 10 being considered problematic. SPSS Statistic software (version 27) was used to perform the analyses.

Results

Correlation analysis

All the study variables correlated significantly with each other at the $p<0.01$ level. The correlations can be seen in detail in Table 1.

Table 1. Correlations between study variables.

Variables	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. SpWB	29.65	10.90	–																
2. Meaning/Peace	22.63	6.26	.93	–															
3. Faith	7.02	5.56	.91	.69	–														
4. PA	7.19	4.49	.74	.54	.85	–													
5. NA	6.83	4.01	−.75	−.64	−.75	−.72	–												
6. Public practice	2.51	1.63	.65	.47	.75	.81	−.62	–											
7. Private practice	2.66	1.89	.72	.51	.83	.83	−.67	.76	–										
8. R/S commitment	7.44	4.59	.76	.54	.88	.92	−.73	.84	.88	–									
9. R/S experiences	45.89	22.35	.84	.64	.92	.91	−.74	.82	.87	.93	–								
10. Positive RC	16.33	9.91	.77	.55	.90	.92	−.72	.83	.87	.94	.93	–							
11. Negative RC	13.36	5.46	−.67	−.67	−.57	−.50	.67	−.42	−.51	−.50	−.58	−.48	–						
12. Compassion	23.65	5.00	.64	.62	.56	.43	−.49	.36	.39	.42	.49	.46	−.46	–					
13. Gratitude	32.62	6.48	.83	.78	.74	.65	−.72	.54	.61	.65	.71	.63	−.61	.67	–				
14. PE	33.13	7.49	.81	.84	.65	.50	−.60	.41	.48	.48	.60	.49	−.57	.57	.76	–			
15. NE	19.88	6.55	−.75	−.78	−.60	−.45	.56	−.43	−.52	−.49	−.56	−.47	.58	−.52	−.68	−.74	–		
16. Social support	25.85	3.42	.35	.35	.30	.21	−.24	.23	.20	.24	.29	.25	−.28	.45	.37	.28	−.30	–	
17. HB	38.06	5.69	.54	.55	.45	.31	−.35	.31	.35	.36	.40	.37	−.37	.41	.47	.46	−.53	.29	–

All correlations are significant at the 0.01 level. SpWB: spiritual well-being; PA: positive attachment to God; NA: negative attachment to God; Positive RC: positive religious coping; Negative RC: negative religious coping PE: positive emotions; NE: negative emotions; HB: healthy behaviors.

Hierarchical regression analysis

Only the final models are described below, and their respective tables are shown for each dependent variable. The complete tables for each hierarchical regression analysis, showing the

explained variance added by each model, can be found in the supplementary material.

First, we sought to determine whether R/S and sociodemographic variables predict overall SpWB and each of its dimensions (Hypothesis 1) (Table 2). The final model [F(13, 337) = 58.371, p<0.01] composed of the significant predictors age (β = -0.081, p < 0.05), positive relationship with God (β = 1.608, p < 0.01), negative attachment to God (β = -0.827, p < 0.01), public religious practice (β = 1.485, p < 0.01) and negative religious coping (β = -0.637, p < 0.01) explained 69.2% of the variance in overall SpWB. The variance of the meaning/peace dimension was 54.8% explained by the final model [F(13, 337) = 31.367, p<0.01] which included as significant predictors pensioner/retired (β = 1.657, p < 0.05), positive relationship with God (β = -0.915, p < 0.05), negative attachment to God (β = -0.491, p < 0.01), public religious practice (β = 0.805, p < 0.01) and negative religious coping (β = -0.480, p < 0.01). The final model then [F(13, 337) = 89.580, p<0.01] which had an explanatory power of 77.6% on the variance of the faith dimension was composed of the significant predictors age (β = -0.050, p < 0.01), positive relationship with God (β = 2.523, p < 0.01), negative attachment to God (β = -0.336, p < 0.01), public religious practice (β = 0.679, p < 0.01) and negative religious coping (β = -0.158, p < 0.01).

Table 2. Hierarchical regression analysis for dependent variables (hypothesis 1).

				95% CI			
Final models	R^2	B	SE	LL	UL	*p*	VIF
VD: Overall SpWB							
Intercept	0.692	43.190	2.967	37.353	49.027	0.000	
Age		−0.081	0.041	−0.162	−0.001	0.047	2.605
Positive relationship		1.608	0.608	0.412	2.805	0.009	3.412
Negative attachment		−0.827	0.142	−1.107	−0.547	0.000	3.012
Public practice		1.485	0.383	0.731	2.239	0.000	3.638
Negative coping		−0.637	0.086	−0.806	−0.469	0.000	2.011
VD: Meaning/Peace							
Intercept	0.548	30.942	2.068	26.874	35.010	0.000	
Pensioner/Retired		1.657	0.768	0.146	3.167	0.032	2.010
Positive relationship		−0.915	0.424	−1.749	−0.081	0.032	3.412
Negative attachment		−0.491	0.099	−0.686	−0.296	0.000	3.012
Public practice		0.805	0.267	0.280	1.331	0.003	3.638
Negative coping		−0.480	0.060	−0.597	−0.363	0.000	2.011
VD: Faith							
Intercept	0.776	12.248	1.293	9.704	14.791	0.000	
Age		−0.050	0.018	−0.085	−0.015	0.005	2.605
Positive relationship		2.523	0.265	2.002	3.044	0.000	3.412
Negative attachment		−0.336	0.062	−0.458	−0.214	0.000	3.012
Public practice		0.679	0.167	0.351	1.008	0.000	3.638
Negative coping		−0.158	0.037	−0.231	−0.084	0.000	2.011

Enter method. Only variables significant at the $p < .05$ level included in the final model are shown.

Second, following Hypothesis 2, the predictive power of meaning/peace and faith along with sociodemographic variables on compassion and gratitude was assessed (Table 3). On the one hand, the final model [F(11, 339) = 26.979, p<0.01] formed by the significant predictors pensioner/retired (β = -2.057, p < 0.01), meaning/peace (β = 0.371, p < 0.01) and faith (β = 0.278, p < 0.01) explained 46.7% of the variance of compassion. On the other hand, the final model [F(11,339) = 78.259, p<0.01], which had an explanatory power of 71.7% on the variance of gratitude, was formed by the significant predictors age (β = -0.045, p < 0.05), female gender (β = 1.186, p < 0.01), currently working (β = 0.964, p < 0.05), pensioner/retired (β = 1.608, p < 0.01), meaning/peace (β = 0.524, p < 0.01) and faith (β = 0.444, p < 0.01).

Table 3. Hierarchical regression analysis for dependent variables (hypothesis 2).

Final models	R^2	B	SE	95% CI LL	95% CI UL	*p*	VIF
VD: Compassion							
Intercept	0.467	16.292	1.749	12.852	19.732	0.000	
Pensioner/Retired		−2.057	0.662	−3.360	−0.755	0.002	1.998
Meaning/Peace		0.371	0.045	0.282	0.460	0.000	2.028
Faith		0.278	0.052	0.176	0.381	0.000	2.132
VD: Gratitude							
Intercept	0.717	18.379	1.648	15.137	21.621	0.000	
Age		−0.045	0.023	−0.090	−0.001	0.046	2.458
Female		1.186	0.390	0.418	1.953	0.003	1.051
Currently working		0.964	0.479	0.021	1.907	0.045	1.613
Pensioner/Retired		1.608	0.624	0.380	2.835	0.010	1.998
Meaning/Peace		0.524	0.043	0.440	0.607	0.000	2.028
Faith		0.444	0.049	0.348	0.541	0.000	2.132

Enter method. Only variables significant at the $p < .05$ level included in the final model are shown.

Finally, based on Hypothesis 3, the explanatory power of meaning/peace and faith along with gratitude, compassion and sociodemographic variables on positive and negative emotions, social support and healthy behaviors was determined (Table 4). First, the final model [$F(13, 337) = 76.145$, $p<0.01$] formed by the significant predictors age ($\beta = -0.049$, $p < 0.05$), female gender ($\beta = -0.972$, $p < 0.05$), meaning/peace ($\beta = 0.734$, $p < 0.01$) and gratitude ($\beta = 0.292$, $p < 0.01$) explained 74.6% of the variance of positive emotions. Likewise, the final model [$F(13, 337) = 45.953$, $p<0.01$] which explained 63.9% of the variance of negative emotions, was composed of the significant predictors age ($\beta = -0.080$, $p < 0.01$), pensioner/retired ($\beta = 1.841$, $p < 0.05$), meaning/peace ($\beta = -0.632$, $p < 0.01$) and gratitude ($\beta = -0.185$, $p < 0.01$). It was further observed that the final model [$F(13, 337) = 8.808$, $p<0.01$] which included pensioner/retired ($\beta = -1.576$, $p < 0.01$), high socioeconomic level ($\beta = 1.201$, $p < 0.05$) and compassion ($\beta = 0.214$, $p < 0.01$) as significant predictors, explained 25.4% of the variance of social support. Finally, the final model [$F(13, 337) = 13.734$, $p<0.01$] formed by the only significant predictor meaning/peace ($\beta = 0.383$, $p < 0.01$), accounted for 34.6% of the variance of healthy behaviors.

Table 4. Hierarchical regression analysis for dependent variables (hypothesis 3).

Final models	R^2	B	SE	95% CI LL	95% CI UL	*p*	VIF
VD: Positive emotions							
Intercept	0.746	10.955	2.192	6.643	15.268	0.000	
Age		−0.049	0.025	−0.099	0.000	0.048	2.495
Female		−0.972	0.439	−1.835	−0.109	0.027	1.098
Meaning/Peace		0.734	0.057	0.621	0.846	0.000	3.036
Gratitude		0.292	0.064	0.166	0.418	0.000	4.052
VD: Negative emotions							
Intercept	0.639	44.020	2.286	39.523	48.517	0.000	
Age		−0.080	0.026	−0.131	−0.028	0.002	2.495
Pensioner/Retired		1.841	0.742	0.382	3.299	0.014	2.147
Meaning/Peace		−0.632	0.060	−0.749	−0.514	0.000	3.036
Gratitude		−0.185	0.067	−0.316	−0.054	0.006	4.052
VD: Social support							
Intercept	0.254	17.652	1.717	14.275	21.029	0.000	
Pensioner/Retired		−1.576	0.557	−2.672	−0.481	0.005	2.147
High socioeco. level		1.201	0.581	0.059	2.343	0.039	2.146
Compassion		0.214	0.047	0.121	0.307	0.000	2.147
VD: Healthy behaviors							
Intercept	0.346	24.075	2.674	18.816	29.334	0.000	
Meaning/Peace		0.383	0.070	0.245	0.520	0.000	3.036

Enter method. Only variables significant at the $p < .05$ level included in the final model are shown.

Discussion

This study sought to analyze the relationship between SpWB and the psychological, social and behavioral factors of the relationship between R/S and health in Spanish cancer patients. Our results support our hypotheses, suggesting that SpWB is indeed mostly related as expected to the other variables.

First, Hypothesis 1 proposed that R/S would predict greater SpWB. Although spirituality is not always related to religiousness (Ammerman, 2013), in this research it was observed that SpWB is largely explained by religiosity.

Digging deeper, we note that, first, general SpWB is predicted in part by a positive relationship with God, negative coping, public religious practice, and negative attachment to God. It may be striking how, according to our results, variables that reflect a conflictive relationship with God (negative attachment and coping) have similar importance in explaining SpWB as those that imply a secure relationship with God (and even the experience of organizational religiosity through religious participation in a community). These findings could suggest the importance of mitigating patients' religious discomforts (such as a feeling of abandonment by or indifference to God) to promote their SpWB. This idea is in line with Freeze and DiTomasso (2015), who observed that lower levels of avoidant attachment and anxious attachment to God predict higher SpWB.

The same is true for the meaning/peace dimension. Our results, consistent with Stauner et al. (2020), suggest that less conflictual or negative relationship with God predicts a higher level of feelings of peace and of meaning and purpose in the lives of cancer patients. However, in this case, the negative direction taken by the positive relationship with God as a predictor in the model intended to explain meaning/peace, despite the positive association found in the correlation analyses, was unexpected. We believe that with the VIFs of all predictors being below values considered problematic (Montgomery et al., 2012), this change in the direction of the coefficient may be due to other factors, such as the presence of suppression or mediation effects between variables (Keith, 2019), which may be altering the direct relationship between the positive relationship with God and meaning/peace. In addition, it could be due to the existence of a non-linear relationship or a model that requires further exploration of possible interactions or omitted variables (Cohen et al., 2003). In any case, following Pargament (1997), if religion is understood as “a search for meaning in ways related to the sacred” (p. 32), the results might suggest that religion could be a source of meaning in life in the sample of this study, although a longitudinal study is needed to draw causal conclusions. On the other hand, positive relationship with God and public practice, as well as negative attachment and negative coping predicted a very important part of the faith dimension, since these aspects are central to the religious belief system.

As a brief aside, the role of some sociodemographic variables should not be overlooked. Specifically, regarding meaning/peace, it is noteworthy that employment status involving a change from "not working" to "pensioner/retired" seems to be of particular relevance in explaining this variable. We consider that it may be because retirement can provide an opportunity to experience renewed meaning in life (Yemiscigil et al., 2021), through the possibility of greater participation in social activities and a subsequent prioritization of personal relationships or the availability of more time for reflection on and redefinition of life.

The next step led us to explore the relationship of SpWB with compassion and gratitude. Hypothesis 2 was supported by the predictive capacity of the meaning/peace and faith dimensions on these variables. First, our results suggest that meaning in life, peace and faith predict a higher level of compassion, understood as the tendency to be open to the suffering of others, evoking the desire to alleviate such suffering (Neff, 2003). Our results represent an important step in understanding the relationship of compassion with SpWB,

although we consider it interesting to continue investigating the reciprocal or circular influence, since compassion could increase the sense of life and peace (Saiz et al., 2021).

In turn, following Scrantom's (2017) previous findings, SpWB was shown to be related to gratitude. The observed importance of the faith dimension in explaining the gratitude of Spanish cancer patients may have its foundation in the Christian culture of the country, in the sense that Christianity considers God as the ultimate foundation of gratitude and, therefore, will tend to show gratitude given that all goods are bestowed by God (Emmons & Kneezel, 2005). In addition, the meaning/peace dimension played an important role in explaining the variance of patients' gratitude. In turn, some research has shown that gratitude can be a source of meaning in life (Büssing et al., 2013; Zhang et al., 2021). Therefore, as we suggested with compassion, more research is needed on the role of SpWB in relation to these psychological determinants of the relationship between R/S and health, given the possible reciprocal influences and mutual interactions between these types of variables.

As a final step, we examined whether and how SpWB along with compassion and gratitude predicted the other psychosocial and behavioral pathways. This is what we established in Hypothesis 3, which was supported in different ways.

With respect to emotions, the faith dimension was not a significant predictor. This is remarkable since the literature has widely exhibited the relationship of religious beliefs with positive emotions (Van Cappellen et al., 2021) and negative emotions (Kim-Prieto & Diener, 2009). Patients may cling to their faith also in situations and periods of negative emotions, negative religious coping and religious struggles. However, some authors had previously suggested that meaning and peace play a more relevant role than faith in this regard (Peres et al., 2018). In line with this idea, our results suggest that meaning in life and feelings of peace, explained in part by R/S, predict higher levels of positive emotions and lower levels of negative emotions. Furthermore, the findings of this research highlight that meaning/peace still predicts emotions even when gratitude enters the model. Research such as that of Mills et al. (2015) has shown that gratitude could play a mediating role in the relationships between SpWB and emotions.

Regarding social pathways, the literature has shown a relationship of SpWB and each of its dimensions with a higher degree of social support (Alorani & Alradaydeh, 2018). Although our correlation analyses showed the same, SpWB did not show predictive power, but only compassion, together with the sociodemographic variables pensioner/retired and high socioeconomic level, was found to be significant. One possible explanation could be that it is social support that influences SpWB, and not the other way around (Krause, 2007). SpWB of patients by itself, it seems, does not elicit social support by others yet. In any case, to the extent that in this study SpWB predicts compassion, we believe that the influence of SpWB on social support could occur indirectly through compassion. In addition, we suggest the need for future research to consider the influence that, in the opposite direction, social support might have on compassion in particular and on SpWB in general.

Finally, healthy behaviors were explained to some extent by SpWB. Despite the relevance that these behaviors acquire in certain religious currents (Faries et al., 2023), the faith dimension was not a significant predictor of these behaviors. Instead, the results show that meaning in life and peace predict behaviors aimed at improving and maintaining health. In this regard, Kim et al. (2020) showed that meaning in life could influence physical health through the promotion of these types of behaviors. Furthermore, in this case, neither compassion nor gratitude were shown to be significant predictors of greater engagement in these types of behaviors, in contrast to other studies (Gluschkoff et al., 2019; Millstein et al., 2016).

SpWB has been shown to be connected to the psychosocial and behavioral determinants of the relationship between R/S and physical health proposed by different authors (Oman & Thoresen, 2005; Park, 2007; Masters, 2008; Koenig et al., 2012; Park, 2012; Aldwin et al.,

2014; Park et al., 2017). In summary, our findings mostly support the proposed idea that SpWB is largely explained by R/S and that, moreover, this well-being predicts to different extents, along with gratitude and compassion, several psychological and behavioral pathways. The main exception was social support, which was only explained by compassion, being noteworthy that, in addition, none of the positive psychological traits assessed were significant predictors of healthy behaviors in the presence of the meaning/peace variable. Furthermore, this research provides a tentative global view, since the relationships between the variables have not been studied in isolation, but together with others that form part of the network of interactions that attempts to explain the relationship between R/S and the health of cancer patients. Therefore, based on the findings, we consider that taking SpWB into account may help to improve the understanding of the relationship between R/S and the health of Spanish cancer patients. However, this relationship is not unidirectional. The mutual interplay of variables and circular reinforcement or weakening needs further investigation.

Given the high prevalence of cancer and the impact of this disease on all spheres of people's lives, we consider this work to be a significant step forward in the knowledge of the integral well-being of cancer patients in Spain. The findings may have important implications for numerous areas of cancer patients' health care, for improving care and interventions, and thus for improving their well-being and quality of life. In this sense, we propose that professionals in these fields consider the R/S factors that predict SpWB and promote adequate spiritual care. It can be key to counteract those aspects that generate a detriment to this well-being and enhance those that have benefits for it. With this, it would be possible to achieve higher levels of SpWB that facilitate the development of psychosocial and behavioral pathways that lead to greater physical well-being and, ultimately, to a better state of integral well-being.

Limitations

This study has some limitations that must be considered to understand the scope of the study and to open lines of research that will allow a deeper understanding of the subject.

First, our results allow us to better understand the association of SpWB with psychosocial and behavioral pathways involved in the relationship between R/S and health in the oncological setting in Spain. These findings may provide new clues about the role of SpWB for this type of patients in other contexts with a strong Christian religious tradition. However, the specificity of our study does not allow us to generalize the results to other contexts.

Likewise, the FACIT-Sp (Peterman et al., 2002) was used in the present study for the assessment of SpWB. This instrument presents important strengths, such as being indicated for certain health conditions such as cancer, in addition to evaluating SpWB in a broad manner, assessing aspects such as meaning, peace and faith. However, there are some even broader conceptions of spirituality that include dimensions not contemplated in the FACIT-Sp. Therefore, relational aspects of SpWB, which are captured by the extended version of the FACIT-Sp (FACIT-Sp-Ex), could also be considered in future occasions, as Brintz et al. (2017) have shown.

Thirdly, our predictions regarding social support were partially fulfilled because despite being related to SpWB, none of the dimensions of the latter showed predictive power over social support. We believe that this may be due to the existence of a relationship in the opposite direction. Furthermore, after evaluating our findings, we believe that there may also be explanatory power of positive psychological traits on SpWB. As mentioned above, the literature suggests that not only SpWB may influence these variables, but that gratitude, compassion or social support may also be significant predictors of SpWB. Moreover, SpWB is a multifaceted phenomenon, whose dimensions may be influenced by various aspects of human behavior and experience in different ways. For example, the meaning/peace dimension

may be most closely related to gratitude and compassion, as finding meaning in life and feeling inner peace may foster grateful attitudes and compassionate behaviors. On the other hand, the faith dimension may be more closely related to social support, especially in contexts where religion and spirituality are practiced in communities that offer a sense of belonging and mutual support. In addition, faith may help to cope with situations in which patients experience a dearth of social support. The variability in how these specific dimensions of SpWB interact with other variables highlights the complexity of establishing clear causal pathways. Finally, the influence of external variables such as personality or life experiences could add a layer of complexity to the prediction of causal pathways, and thus could be assessed in future studies. In summary, future research should also focus on the reciprocal and circular relationships among all of these types of psychosocial variables and SpWB or the R/S aspects that predict it, in order to achieve an even better understanding of these relationships.

Finally, given that the design of our study was cross-sectional, with its better feasibility yet also with its limitations in comparison to longitudinal studies, longitudinal designs may help to add further insights into the reciprocal and circular pathways of interaction between the variables at stake. Therefore, it is important to recognize that the predictions mentioned in this study are confined only to the power and limits of cross-sectional studies.

Conclusion

This study is an important contribution to the existing literature on SpWB in Spanish cancer patients by shedding light on several aspects. On the one hand, it has elucidated how SpWB is related to various psychological, social, and behavioral pathways that may underlie the relationship between religiosity, spirituality, and health. Consequently, the results suggest that SpWB may help to understand the relationships between R/S and health, which in the future could have implications for maintaining and improving the health of cancer patients. On the other hand, this study represents an important step in the study of SpWB and the relationship between R/S and health of these patients in Spain, where there is a clear research gap in this regard. The consideration by health professionals of SpWB and the factors that predict it, as well as those that are predicted by it, may be essential for the integral well-being of Spanish people affected by cancer which needs to be promoted as recommended by the WHO in general, and particularly by means of adequate spiritual care. In consequence, these findings provide important data and insights that encourage the inclusion of SpWB and related competences in the training curricula of the different health care professions in Spain.

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Conflicts of interest

The authors have no conflicts of interest to declare.

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Consent to participate

Informed consent was obtained from all individual participants included in the study.

Ethics approval

This study was performed in line with the principles of the Declaration of Helsinki and was approved by the Research Ethics Committee of the Complutense University of Madrid (CE_20220616-10_SOC).

Data availability statement

Study data and materials are available upon request from the corresponding author.

Author contributions

Conceptualization, D.A., J.S., K.B. and F.M.M.; Methodology, D.A., J.S. and F.M.M.; Software, D.A.; Formal Analysis, D.A.; Investigation, D.A.; Resources, D.A.; Data Curation, D.A.; Writing – Original Draft Preparation, D.A., J.S. and F.M.M.; Writing – Review & Editing, D.A., J.S., K.B. and F.M.M.; Visualization, D.A.; Supervision, J.S., K.B. and F.M.M.; Project Administration, D.A. All authors read and approved the final manuscript.

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