

ORIGINAL RESEARCH:  
RESEARCH METHODOLOGY PAPER

## PSYCHOMETRIC PROPERTIES OF SPIRITUAL INDEX OF WELL-BEING AMONG FILIPINO WOMEN WITH BREAST CANCER

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**Abstract**

**Background:** Breast cancer patients need to be treated not only physically and emotionally but also spiritually. Hence, the assessment of the spirituality of patients is essential to provide holistic nursing care. However, there was no culturally valid and reliable instrument that measures spirituality among Filipino women with breast cancer.

**Objective:** The study was conducted to determine the psychometric properties of the spiritual index of well-being among Filipino women with breast cancer.

**Methods:** A descriptive cross-sectional design was utilized in the study, and a sample of 170 Filipino women with breast cancer were included. The World Health Organization guidelines were used to translate the original instrument to Filipino, and content validity was computed using the Davis technique. Also, confirmatory factor analysis with maximum likelihood estimation was performed to assess the construct validity of the instrument. Cronbach's  $\alpha$  and item-total correlations were done to assess the internal consistency of the Filipino version of the spiritual index of well-being.

**Results:** The Filipino version of the spiritual index of well-being had an item content validity index (I-CVI) ranging from 0.86 to 0.92 and a scale content validity index (S-CVI) of 0.95. The confirmatory factor analysis (CFA) showed factor loadings of 0.42 to 0.72. Also, the CFA model revealed a  $\chi^2/df = 2.51$ , root mean square error of approximation = 0.074, comparative fit index = 0.091, goodness of fit index = 0.98, Tucker-Lewis index = 0.93, incremental fit index = 0.91, and standard root mean square residual = 0.072.

**Conclusion:** The Filipino version of the spiritual index of well-being was cross-culturally valid and reliable in measuring the spiritual index of well-being among Filipino women with breast cancer.

**KEYWORDS**

breast cancer; Filipino; psychometric properties; spiritual index of well-being

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### BACKGROUND

Cancer is the second leading cause of death worldwide and accounted for about 9.6 million deaths globally ([World Health Organization, 2018](#)). About 70% of this death is in low- and middle-income countries, with breast cancer being the second most commonly occurring cancer in women ([World Cancer Research Fund International, 2018](#)). In the Philippines, data from the [Philippine Cancer Society \(2015\)](#) revealed that one out of 13 Filipino women is expected to develop breast cancer in their lifetime with an age-standardized rate (ASR) of 47 per 100,000 women ([Ferlay et al., 2015](#)).

Breast cancer patients are faced with immense stress, such as disruptions in their lifestyle and untoward side effects from treatment ([Meraviglia, 2006](#)). This can have a significant impact on the life of the patient, especially in terms of physical functioning and psychological

well-being. Thus, developing strategies to help the patient cope with the sudden change in their situation is essential. [Lazarus and Folkman \(1984\)](#) define coping as a dynamic process that involves cognitive and behavioral efforts to empower an individual to adjust to internal or external demands brought about by the disease. Previous studies have revealed that adherence to spirituality as a coping strategy helps patients withstand the physical and psychological stresses brought about by the diagnosis and treatment of cancer ([Krok, 2008](#); [Mccray, 1993](#); [Meraviglia, 2004](#)).

Spirituality has been defined as the experiences and expressions of the spirit in a unique and dynamic process reflecting faith in God or a supreme being; connectedness with oneself, others, nature, or God; and integration of the dimensions of mind, body, and spirit ([Meraviglia, 1999](#)). Recognizing the spiritual needs of cancer patients can result in a positive psychological outcome in dealing with their diagnosis

(Hatamipour et al., 2015). However, literature has revealed that the current spirituality measures contain items that do not directly measure the strength of spirituality of an individual (Baumsteiger & Chennaveille, 2015; Yabut, 2018). Hence, there is a need to develop a culturally valid and reliable tool that measures spirituality among Filipino women with breast cancer. Thus, the study was conducted to determine the psychometric properties of the spiritual index of well-being (SIWB) scale among Filipino women with breast cancer.

## METHODS

### Study Design and Participants

The study utilized a descriptive cross-sectional study and employed a convenience sample of 170 Filipino women with breast cancer. The number of samples was based on the criteria that at least 10 participants are needed for each scale item in conducting a confirmatory factor analysis (Nunnally, 1978). Since the instrument contains 12 items, a sample of 120 is needed. However, a total of 200 questionnaires were distributed, and upon removing incompletely filled survey questionnaires and participants who did not return the survey forms, a total of 170 were included with a response rate of 85%.

### Instrument

**Spiritual Index of Well-Being (SIWB).** This instrument was developed by Frey et al. (2005) that was used to determine the meaningfulness of life and spiritual well-being. It described the perspective of the patients on spirituality and its relationship with subjective health and well-being. The instrument contains a total of 12 items and two domains, namely: self-efficacy and life scheme. Six items measure self-efficacy (Items 1, 2, 3, 4, 5, and 6) that determine the activities performed by a person to overcome obstacles that may threaten their functioning and reach a goal. On the other hand, six items measure the life scheme (Items 7, 8, 9, 10, 11, and 12), which assess the sense of coherence and the ability of a person to view a situation in a positive way. The items in the instrument are rated using a five-point Likert scale ranging from “strongly agree” (one point), “agree” (two points), “neither agree nor disagree” (three points), “disagree” (four points), and “strongly disagree” (five points). The overall Cronbach’s  $\alpha$  coefficient for the tool was 0.91, while the self-efficacy scheme and life scheme sub-domains had a coefficient of 0.89 and 0.86.

### Translation of the Instrument

The forward translation and validation of the instrument were conducted following the guidelines of the [World Health Organization as cited in Soriano and Calong Calong \(2019b\)](#). Forward translation from English to Tagalog (local language) was done by a bilingual health professional who has a Master’s Degree in Public Health and special training on instrument translation. The Filipino version was evaluated and reviewed for the consistency of each item with its corresponding item in the English version by an expert panel. The expert panel consisted of two nursing lecturers with a PhD in Nursing, two nursing lecturers with an MA degree in Nursing, one chief nurse with five years of supervisory experience, and a psychometrician. Several evaluations were conducted on the translated tool to establish semantic and content equivalence. After evaluating the Filipino version of the instrument, it was back-translated by an independent translator with a PhD degree in Linguistics and who has no knowledge of the instrument. Then, any discrepancies that were observed in the

translations were resolved to develop the pre-final version of the instrument. Pre-testing and cognitive debriefing were done among participants who met the set inclusion criteria in the study. The meanings of the translation were clearly understood by the participants, and no problem was encountered during the pre-testing.

### Data Analysis

The study determined the construct validity of the spiritual index of well-being (SIWB) scale using confirmatory factor analysis (CFA) with maximum likelihood estimation following the two-factor model of Frey et al. (2005). The variances of factors were fixed at 1, which provided the identification in the analysis. The following values were set in the estimation of the model fit: relative chi-square ( $\chi^2/df$ )  $\leq 3$ , (b) root mean square error approximation (RMSEA)  $\leq 0.08$ , (c) comparative fit index (CFI)  $\geq 0.90$ , (d) goodness of fit index (GFI)  $\geq 0.95$ , (e) Tucker–Lewis index  $\geq 0.90$ , (f) incremental fit index (IFI)  $\geq 0.90$ , (g) standardized root mean square residual (SRMR)  $\leq 0.08$  (Kline, 2016). For the determination of content validity, the criteria set by Davis (1992) as cited in Soriano (2019) was followed wherein an Item-Level Content Validity Index (I-CVI) of 0.78 and a Scale-Level Content Validity Index (S-CVI) of 0.80 were considered acceptable in an expert panel consisting of six members. In determining the internal consistency reliability, Cronbach’s alpha coefficient, and item-total correlation were measured. An alpha coefficient of more than 0.70 (Polit & Beck, 2014 as cited in Soriano & Calong Calong, 2019a), item-total correlation of higher than 0.30, and inter-item correlations of 0.30 to 0.70 (Ferketich, 1991) were considered satisfactory. SPSS version 21.0 and JASP version 0.13.1 were utilized in analyzing the data gathered.

### Ethical Consideration

The study is part of a larger study entitled “Spiritual Well-Being, Self-Transcendence and Spiritual Practices among Filipino Women with Breast Cancer.” The ethical clearance was secured from Arellano University-Ethics Review Board (AU-ERB Chair, Dr. Remedios Fernandez; Contact Number: (+632) 8-734-7371 Local 216). The goals of the study were fully explained to the participants, and informed consent was given to them. The study complied with all the guidelines as set in the Declaration of Helsinki.

## RESULTS

### Profile of the Participants

A total of 170 participants were included in the study with a mean age of 51.85 ( $\pm 7.07$ ), while the mean year of diagnosis with breast cancer was 2.56 ( $\pm 1.36$ ). In terms of religion, all the participants are Christians, while for the civil status, 53 were single, 94 were married, and 23 were widowed.

### Content Validity

In determining the content validity of the instrument, an expert of the panel consisting of six members was formed. Then, the index was computed using the Davis technique wherein the items in the scale were rated using a four-point Likert scale, which was interpreted as 1= not relevant, 2=somewhat relevant, 3=quite relevant, and 4= highly relevant. Based on the results, the translated tool had an I-CVI ranging from 0.86 to 0.92 and an S-CVI of 0.95.

**Construct validity**

For the construct validity, the study utilized the original two-factor model proposed by Frey et al. (2005). The CFA model output with factor loadings and standardized estimated is shown in Figure 1. The

12 items were loaded on two latent variables ranging from 0.42 to 0.72. The result of CFA revealed a  $\chi^2/df = 2.51$ , RMSEA = 0.074, CFI = 0.091, GFI=0.98, TLI = 0.93, IFI = 0.91, and SRMR = 0.072.

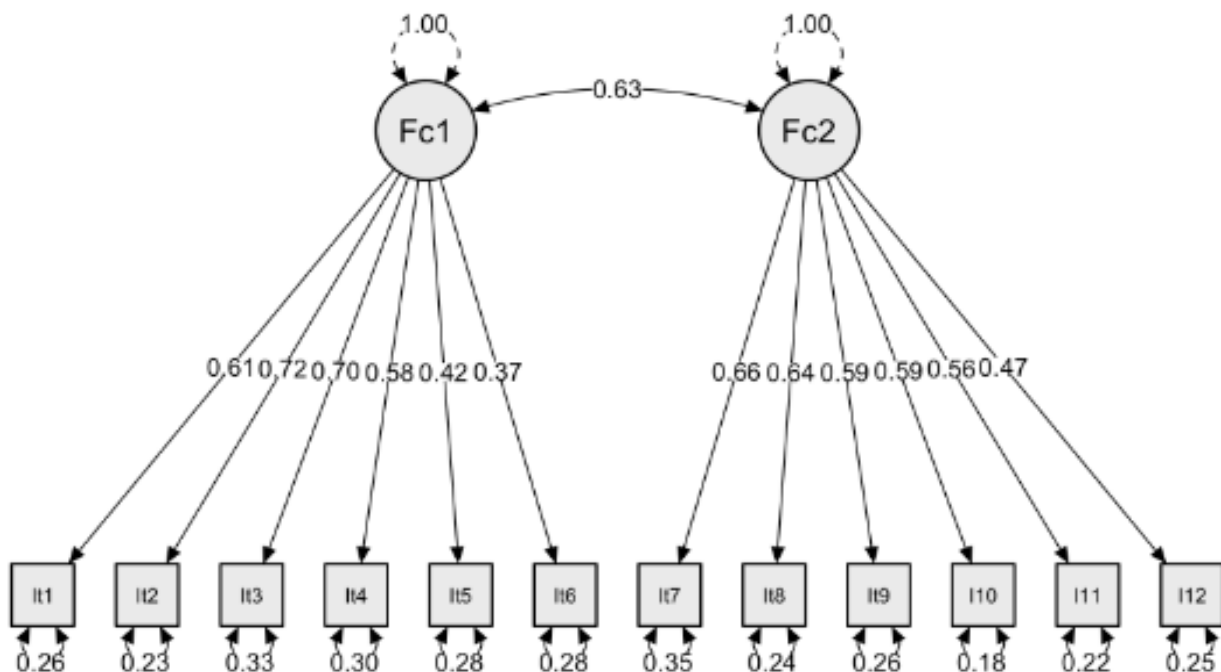
**Table 1** Model Fit Parameters for the SIWB-F (n=170)

Model	$\chi^2/df$	RMSEA	CFI	GFI	TLI	IFI	SRMR
Acceptable Values	$\leq 3.00$	$\leq 0.08$	$\geq 0.90$	$\geq 0.95$	$\geq 0.90$	$\geq 0.90$	$\leq 0.08$
Index Values	2.51	0.074	0.91	0.98	0.93	0.91	0.072

**Internal consistency reliability**

After establishing the validity of the instruments, the internal consistency of the instrument was measured using Cronbach's alpha coefficient, item-total correlation, and inter-item correlation. The results revealed item-total correlation ranging from 0.489 to 0.694,

inter-item correlation from 0.310 to 0.689, and an over-all Cronbach's  $\alpha$  coefficient of 0.903. Specifically, the Cronbach's  $\alpha$  coefficient for the self-efficacy scheme and life scheme was 0.864 and 0.889, respectively.

**Figure 1** Confirmatory Factor Analysis of the Filipino version of SIWB**Table 2** Cronbach's  $\alpha$  coefficients of the subscales of Filipino Version of SIWB

Item	Mean (SD)	Item-total Correlation	Cronbach's $\alpha$ if item deleted
1. There is not much I can do to help myself.	4.26 (0.80)	0.659	0.893
2. Often, there is no way I can complete what I have started.	4.16 (0.87)	0.694	0.892
3. I can't begin to understand my problems.	4.27 (0.91)	0.617	0.896
4. I am overwhelmed when I have personal difficulties and problems.	4.38 (0.80)	0.602	0.896
5. I don't know how to begin to solve my problems.	4.47 (0.68)	0.489	0.901
6. There is not much I can do to make a difference in my life.	4.57 (0.64)	0.592	0.897
7. I haven't found my life's purpose yet.	4.34 (0.89)	0.602	0.897
8. I don't know who I am, where I came from, or where I am going.	4.37 (0.80)	0.693	0.892
9. I have a lack of purpose in my life.	4.45 (0.78)	0.673	0.893
10. In this world, I don't know where I fit in.	4.51 (0.72)	0.660	0.894
11. I am far from understanding the meaning of life.	4.52 (0.73)	0.658	0.894
12. There is a great void in my life at this time.	4.62 (0.69)	0.598	0.897

**Table 3** Cronbach's  $\alpha$  coefficients of the Filipino version of SIWB

Domains	Item	Cronbach's $\alpha$
Self-efficacy scheme	6	0.864
Life scheme	6	0.889
Overall score	12	0.903

Note: Overall Cronbach's  $\alpha$  for 12 items=0.903

## DISCUSSION

The objective of the study was to ascertain the validity and reliability of the Filipino version of the Spiritual Index of Well-Being (SIWB-F) scale among Filipino women with breast cancer. In order to begin the process, the guidelines of [World Health Organization, as cited in Soriano and Calong Calong \(2019b\)](#) in translation and adaptation of instruments were followed. According to [Guillemin et al. \(1993\)](#), translation and cultural adaptation are necessary if an instrument will be administered to a new population in another country with a different language. This process will ensure semantic equivalence and will avoid selection bias among participants who will not be able to take part in the study due to language barriers ([Beaton et al., 2000](#)). Upon the pre-testing and cognitive debriefing, no issues or problems were encountered related to the final Filipino version of the instrument.

The result of the confirmatory factor analysis revealed that the internal structure of the SIWB-F is valid and has a good model fit. This is consistent with the original English version ([Frey et al., 2005](#)), the English version among community-dwelling elderly individuals ([Daaleman et al., 2002](#)), and the English version among individuals with psychiatric disabilities ([Fukui et al., 2012](#)), and Chinese version ([Wu et al., 2017](#)) of the SIWB. In addition, the same items were loaded on the two factors, that is items 1 to 6 in factor 1 and items 7 to 12 in factor 2. However, the other Chinese version conducted by [Lee and Salman \(2016\)](#) involving 150 Taiwanese elders, items number 7 were omitted, and items 1 to 6 were loaded on factor 1 and items 8 to 12 on factor 2. The difference in the results can be attributed to the number of samples employed in the study.

In determining the content validity of the SIWB-F, the translated tool had an I-CVI ranging from 0.86 to 0.92 and an S-CVI of 0.95. The values obtained met the recommended value for I-CVI (0.78) and S-CVI (0.80) in an expert panel consisting of six members ([Davis, 1992 as cited in Soriano, 2019](#)). The finding suggests that the items in the SIWB-F are acceptable and content valid.

For the internal consistency reliability, Cronbach's  $\alpha$  coefficient, item-total correlation, and inter-item correlation were computed. The Cronbach's  $\alpha$  coefficient for 12 items was 0.903, which is similar to the original English version of the tool with a Cronbach's  $\alpha$  coefficient of 0.91 ([Frey et al., 2005](#)), the English version among community-dwelling elderly individuals ( $\alpha=0.87$ ) ([Daaleman et al., 2002](#)), the English version among individuals with psychiatric disabilities ( $\alpha=0.88$ ) ([Fukui et al., 2012](#)) and the Chinese version with  $\alpha$  coefficient of 0.94 ([Wu et al., 2017](#)). On the other hand, the  $\alpha$  coefficient for self-efficacy scheme and life scheme was 0.864 and 0.889, which is consistent with the original English version (self-efficacy scheme,  $\alpha=0.89$  and life scheme,  $\alpha=0.86$ ), the English version among community-dwelling elderly individuals (self-efficacy scheme,  $\alpha=0.83$

and life scheme,  $\alpha=0.80$ ) ([Daaleman et al., 2002](#)), the English version among individuals with psychiatric disabilities (self-efficacy scheme,  $\alpha=0.92$  and life scheme,  $\alpha=0.91$ ) ([Fukui et al., 2012](#)) and Chinese version (self-efficacy scheme,  $\alpha=0.86$  and life scheme,  $\alpha=0.93$ ). The results indicate higher consistency reliability as the values obtained were higher than the recommended alpha coefficient of more than 0.70 ([Polit & Beck, 2014 as cited in Soriano & Calong Calong, 2019a](#)). On the other hand, the item-total and inter-item correlations met the acceptable criteria ([Ferketich, 1991](#)).

There are a few limitations in the study that needs to be recognized. First is the homogeneity of the participants in terms of religion. The participants are entirely Christians failing to capture those who belong to other religions such as Islam. Also, the use of other validity and reliability measures such as convergent and discriminant validity and test-retest reliability were not conducted; hence, future studies involving these measures are suggested.

## CONCLUSION

The Filipino version of SIWB is cross-culturally valid and reliable in measuring spirituality among Filipino women with breast cancer. Hence, the instrument can be used to develop training to enhance the spiritual care competencies among nurses to develop holistic nursing care to breast cancer patients.

### Declaration of Conflicting Interest

The author has no conflict of interest to disclose.

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None.

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### Author Biography

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### Data Availability Statement

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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