

# Development and Evaluation of the Thai Spiritual Well-Being Assessment Tool for Elders with a Chronic Illness

Pennapa Unsanit, Rachanee Sunsern, Wanlapa Kunsongkeit, Mary Elizabeth O'Brien, Patricia C. McMullen

**Abstract:** Spiritual well-being plays a crucial role in one's perception of health and illness. Due to their vulnerable health, physical changes and deterioration, the elderly are at risk of encountering health problems, including chronic illnesses. Thus, Thai health care providers are especially interested in how the elderly maintain and promote their health through their sense of spiritual well-being. An enhanced sense of spiritual well-being has been found to play an important role in helping elderly with chronic illnesses deal with the health care issues they face on a daily basis. Although spiritual well-being has been defined, based on one's personal experiences, culture and context, little is known about the concept and no known instrument exists to measure it within the context of the Thai culture. The lack of an appropriate assessment tool for measuring spiritual well-being, within the Thai context, continues to make it difficult for health care providers, throughout Thailand, to measure and appropriately intervene with chronically ill elders in regards to their spiritual well-being. Therefore, the purposes of this study were to: develop the Thai Spiritual Well-being Assessment Tool for Elders with Chronic Illnesses (TSWBATECI); and, assess the tool's psychometric properties.

The study design used qualitative and quantitative approaches to gather data. Qualitative data were obtained via review of the literature and three focus groups or individual interviews with 27 elders with chronic illnesses, who declared to be of a Buddhist, Islamic or Christian faith. From content analysis of the qualitative data, the TSWBATECI was developed. Content validity of the tool was examined by seven experts in spiritual development, comparative religion and spirituality in nursing and resulted in minor revisions of the items' wording. Following the content validity assessment, the instrument was given to 10 chronically ill elders who made suggestions on further item refinement so as to improve the tool's clarity and readability. The revised tool then was pilot tested on 90 chronically ill elders, from the three faiths, for the purpose of determining what items should be retained or deleted. Next, the instrument was administered to 600 chronically ill elders, who were of one of the three religious faiths, to test its reliability and construct validity via exploratory factor analysis. The outcome resulted in the tool being revised again, with the final version consisting of 41-items. Finally, the reliability and construct validity of the 41-item tool was tested, using second-order confirmatory factor analysis, on 2160 chronically ill elders, who were of the three religious faiths.

The final version of the instrument was found to account for 81.90% of the total explained variance. The content validity index of the tool was determined to be 0.82 to 0.95, and its Cronbach's alpha coefficient was found to be 0.97. The instrument could be accurately described as having a goodness of fit ( $\chi^2 = 821.09$ ,  $df = 747$ ,  $\chi^2/df = 1.10$ ,  $GFI = .96$ ,  $RMSEA = .03$ ,  $SRMR = .07$ ). Thus, the Thai Spiritual Well-being Assessment Tool for Elders with Chronic Illnesses appeared to be a valid and reliable instrument for assessing spiritual well-being of elderly Thais with chronic illnesses.

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**Key words:** Spiritual well-being; Instrument development; Thai elderly; Chronic Illness

## Introduction

Spiritual well-being is a form of dynamic energy that brings meaning and direction to life, provides individuals inner strength to cope with stress, including physical illness and emotional and psychological distress, and plays a crucial role in

**Correspondence to:** Pennapa Unsanit, RN, PhD (Candidate)

Burapha University, Chonburi, Thailand 20131

**E-mail:** rapennapa@mahidol.ac.th

**Rachanee Sunsern**, RN, PhD, Associate Professor, Faculty of Nursing, Rambhai Barni Rajabhat University, Chantaburi, Thailand.

**Wanlapa Kunsongkeit**, RN, PhD, Assistant Professor, Faculty of Nursing, Burapha University, Chonburi, Thailand.

**Mary Elizabeth O'Brien**, RN, PhD, FAAN, AHN, Professor Emeritus, School of Nursing, The Catholic University of America, Washington DC, USA.

**Patricia C. McMullen**, PhD, JD, CNS, CRNP, Associate Professor and Dean, School of Nursing, The Catholic University of America, Washington DC, USA

one's perception of health and illness.<sup>1</sup> In addition, spiritual well-being strongly affects how one interprets and responds to signs and symptoms of illness.<sup>2</sup> As shown in prior studies, spiritual well-being can promote positive and active adjustment via facilitation of individuals' use of skills, cognition, behavior and resources to deal with emotional and psychological distress.<sup>1,3</sup> In addition, spiritual well-being has been identified as an important factor in coping with illness and maintaining health and well-being.<sup>4,5</sup> This also appears to apply to elderly who become increasingly vulnerable to health problems, due to aging, leading to physical changes and degeneration.<sup>6,7</sup>

Although spiritual well-being has been recognized and accepted as an important component in the maintenance of one's health,<sup>8</sup> there is not an universal definition, nor definite indicators and appropriate assessment tools, regarding the concept.<sup>9,10</sup> Furthermore, spiritual well-being has been defined within the context of one's personal experiences, faith, beliefs, culture and environment.<sup>9,11</sup> This is most evident in Thailand where there is not an accepted definition of spiritual well-being,<sup>12,13</sup> nor specific assessments or indicators of spiritual well-being, within the Thai culture, in regards to elders with chronic illnesses. Although a number of studies regarding the concept of spiritual well-being<sup>14,15</sup> have been relevant to Western culture, religion and context, few pertinent to the Thai culture and context have been conducted.<sup>11</sup> Therefore, there appears to be a need for a definitive definition of spiritual well-being, and an assessment tool to measure the concept, with respect to the Thai culture and context.

## **Review of the Literature**

Throughout the literature spirituality, spiritual health and spiritual well-being, as concepts, appear related in meaning and are used interchangeably.<sup>9</sup> Although spirituality is viewed as an universal human phenomenon, definitions of the concept are abstract,

intangible, elusive, ambiguous and confusing.<sup>13,16,17</sup> Spirituality has been defined as a dimension of one's being,<sup>18</sup> and seen as a mysterious transcendent force associated with a Supreme Being that motivates one towards the ultimate values of connecting and belonging.<sup>19</sup> In other words, spirituality is seen as a force that fosters the desire to belong to someone or something, give to others, or make life better.

Spiritual health, as a sub-concept of spirituality, is viewed as one's ability to attain harmony with the universe, thereby experiencing a sense of peace, happiness and enlightenment.<sup>20</sup> In other words, spiritual health occurs when one is in a state of well-being and the human spirit has motivated him/her to search for meaning and purpose in life, as well as to seek the supernatural or a meaning that transcends one's self, in order to experience the wholeness of life.<sup>20,21</sup> Thus, one's spiritual health is recognized as being related to how one lives and incorporates the belief that good health occurs when a balance exists among one's mind, body and spirit.<sup>18,21</sup>

Spiritual well-being is defined as one's expression of harmony with respect to a sense of well-being in relation to a Supreme Being, as well as to a sense of meaning, purpose and satisfaction with life.<sup>22,23</sup> Thus, spiritual well-being is viewed as being analogous to the presence of spiritual health, as an indicator of spiritual health, and recognized as not existing as a distinct entity.<sup>14</sup>

Since spirituality has an imprecise definition and conceptual framework, it has been difficult to measure. Although Western studies have specifically investigated spiritual well-being,<sup>11</sup> the concepts of spirituality, spiritual health and spiritual well-being have been used interchangeably throughout Thai research.<sup>11,12</sup>

Thai health care providers are especially interested in how the elderly maintain and promote their health through their sense of spiritual well-being. Due to the aging process, the elderly are at risk of encountering health problems, including chronic

illnesses, physical disabilities, and psychological and social disturbances.<sup>24, 25</sup> The health problems they face tend to be associated with increased morbidity and mortality.<sup>25</sup>

An enhanced sense of spiritual well-being has been found to play an important role in helping elderly with chronic illnesses deal with the health care issues they face on a daily basis.<sup>27</sup> However, the lack of an appropriate assessment tool for measuring spiritual well-being, within the Thai context, continues to make it difficult for health care providers, throughout Thailand, to measure and appropriately intervene with chronically ill elders in regards to their spiritual well-being.

Five assessment tools have been used to measure spiritual well-being, including the: Spiritual Well-Being Scale (SWB);<sup>27</sup> JAREL Spiritual Well-being Scale;<sup>15</sup> Spiritual Assessment Scale (SAS);<sup>23</sup> Spiritual Well-Being Questionnaire;<sup>28</sup> and, FACT-Spiritual Well-Being assessment tool.<sup>29</sup> However, these instruments were constructed within the context of a Western, Judeo-Christian, perspective and do not measure all the attributes of spiritual well-being. Thus, they are not appropriate for use in assessing the spiritual well-being of Thais. Therefore, the purposes of this study were to: develop the Thai Spiritual Well-being Assessment Tool for Elders with Chronic Illnesses (TSWBATECI); and, assess the tool's psychometric properties.

## Method

**Design:** An integrated qualitative and quantitative design that consisted of two phases was used. Phase I utilized a qualitative approach in the: definition and framework of spiritual well-being; and, development of an interview guide. Phase II utilized a quantitative approach in the: development of an operational definition of spiritual well-being; development and refinement of the TSWBATECI; and, psychometric testing of the tool's validity and reliability.

**Ethical Consideration:** Approval to conduct the study was obtained from the primary investigator's (PI) academic institution and the primary care units (PCU) used as study sites. Potential subjects were verbally informed, by the PI or one of 10 trained research assistants (RA), about: the study's purpose; what involvement in the study would entail; confidentiality and anonymity issues; the right to withdraw without repercussions; and, potential risks. Those consenting to participate were asked to sign a consent form prior to data collection.

**Sampling:** For Phase I, purposive sampling was used to obtain a total of 27 subjects (four each from the northern, southern, northeastern, eastern and western regions, and seven from the central/Bangkok region, of Thailand). Subjects were obtained via the nurses working in the PCUs in each region. The nurses, who were received the selection criteria from the PI, identified potential subjects from their respective PCUs and provided their names and telephone numbers to the PI. The PI contacted the potential subjects, assured they met the selection criteria and told them about the study. The inclusion criteria included being: at least 60 years of age; chronically ill; a member of the community; able to verbally respond to questions; without obvious symptoms of mental infirmity; willing to participate and share experiences; and, either Buddhist, Muslim or Christian. Twenty-seven subjects consented and were randomly assigned to participate in a focus group (n = 12) or be individually interviewed (n = 15).

For Phase II, selection of potential subjects was achieved via a four-step stratified random sampling process whereby six provinces from the six regions (central, northern, northeastern, eastern, western and southern), comprised of Buddhists, Muslims and Christians, were identified. Then one district that represented each of the three religions, within each selected province, was identified. Next, one sub-district that represented each of the three religions, within each of the selected districts, was identified. Finally, from the 120 selected sub-districts, all

individuals 60 years of age and older, who had a chronic illness and were Buddhist, Muslim or Christian, were identified via a list of names obtained from the nurses of each sub-district's PCU. This process yielded a total of 2901 potential subjects.

From the 2901 potential subjects, 2160 subjects were randomly selected and consented to participate. Of the 2160 subjects, 600 were randomly selected (100 from each of the six regions) for testing the reliability and construct validity, via exploratory factor analysis, of the developed instrument, while the entire sample (2160) was used to test the instrument's reliability and construct validity via confirmatory factor analysis. The number of subjects used in each of these testing methods was based upon Hair and colleagues suggestions that approximately 10 cases, per variable, be used for conducting exploratory factor analysis of an instrument, and 20 cases, per variable, be used for conducting confirmatory factor analysis.<sup>31</sup>

**Sample:** The 27 subjects in Phase I included 15 females (55.6%) and 12 males (44.4%) who were 61 to 78 years of age (mean = 70.22 years) and either Buddhist (n = 9; 33.33%), Muslim (n = 9; 33.33%) or Christian (n = 9; 33.33%). Twelve (44.44%) of them lived with both their spouse and children, while 11 (40.74%) lived only with their children. Two (7.41%) subjects had no formal education, ten (37.03%) were educated at the primary school level, seven (25.93%) at the secondary school level, six (22.22%) at the undergraduate college level and two (7.41%) at the graduate college level. They had either: hypertension (n = 15; 55.56%); diabetes mellitus (n = 4; 14.8%); gout (n = 4; 14.8%); rheumatoid arthritis (n = 2; 7.4%); colon cancer (n = 1; 3.7%); or, chronic renal failure (n = 1; 3.7%).

The 600 subjects in Phase II, whose data were used to test the instrument's construct validity, via exploratory factor analysis, ranged in age from 60 to 86 years (mean = 70.77) and, predominantly, were: female (n = 387; 64.5%); married (n = 428; 71.3%); primary school educated (n = 508; 84.7%);

and, retired (n = 548; 91.3%); Most of the subjects lived with their children (n = 398; 66.3%). All of them had either: hypertension (n = 271; 45.2%); diabetes mellitus (n = 187; 31.2%); rheumatoid arthritis (n = 65; 10.8%); coronary artery disease (n = 38; 6.3%); cancer (n = 15; 2.5%); chronic obstructive pulmonary disease (n = 13; 2.2%); or, a stroke (n = 11; 1.8%). In addition, 200 of them were Buddhist, 200 were Islamic and 200 were Christian.

The 2160 subjects in Phase II, whose data were used to test the developed instrument's reliability and construct validity, via confirmatory factor analysis, ranged in age from 60 to 110 years of age (mean = 69.85 years). They were Buddhist (n = 720), Islamic (n = 720) or Christian (n = 720). All of them had one or more chronic illness, including: hypertension (n = 1520; 70.4%); diabetes mellitus (n = 620; 28.7%); rheumatoid arthritis (n = 590; 27.3%); chronic obstructive pulmonary disease (n = 148; 6.9%); coronary artery disease (n = 146; 6.8%); or, a cerebral vascular accident (n = 17; 3.6%). Predominantly, they were: female (n = 1205; 55.80%); married (n = 1439; 66.62%); primary school educated (n = 1544; 71.48%); and, retired (n = 1417; 65.60%). Approximately half (n = 1098; 50.83%) of the subjects lived with two or more people, with 684 (31.67%) living with their children. Only 77 (3.57%) of them lived alone.

**Procedure:** During Phase I, to explore the meaning of spiritual well-being among Thai elderly with chronic illnesses, the PI developed an interview guide based upon a review of the literature on spiritual well-being and the Theory of Spiritual Well-being in Illness.<sup>23</sup> The semi-structured interview guide consisted of two sections. The first section asked for personal data, including: age; gender; religion; education, living arrangements and type(s) of chronic illness. The second section consisted of 15 questions related to each subject's perception of the meaning and characteristics of: spirituality; spiritual health; spiritual well-being; beliefs and faith; religious

practices; spiritual contentment; and, search for the meaning of life. Examples of the questions were: “If you hear the words spirituality, spiritual health and spiritual well-being, what do they mean to you?”; “How important is spiritual well-being to you?”; “What do you do spiritually when you are suffering from your chronic illness?”; and, “How would you describe your spiritual well-being when dealing with your chronic illness?”

After the 27 subjects in Phase I consented, the interview guide was used, by the PI, during her interview of 15 of them. The time and date of each interview were arranged, prior to implementation, and conducted in each subject’s respective home. Each interview took approximately 45 minutes to complete. The interview guide also was used in the three focus groups that were comprised of the remaining 12 Phase I subjects. The 1<sup>st</sup> focus group consisted of four Buddhists, the 2<sup>nd</sup> four Muslims and the 3<sup>rd</sup> four Christians. The time and date for each focus group was arranged, prior to implementation, and conducted, by the PI, for approximately 50 minutes in the home of a member of each respective focus group.

During the individual interviews and focus groups, all verbalizations were audio-tape recorded. In addition, field notes were compiled regarding observations made and information obtained that might be helpful in analysis of the data. After completion of each interview and focus group, the PI transcribed the tape recordings verbatim.

**Phase II:** During Phase II, an operational definition of spiritual well-being was developed, along with a demographic data sheet and various versions of the TSWBATECI. The development of the TSWBATECI was based upon an in-depth literature review and data from the interviews and focus group discussions that took place during Phase I.

The demographic data sheet requested information about each subject’s: age; gender; religion; chronic illnesses; education; employment; and, living arrangements. The 1<sup>st</sup> version of the TSWBATECI

consisted of 57 items within five domains: happiness in life (n = 12); life equilibrium (n = 5); purpose in life (n = 5); effective way of coping (n = 15); and, passion for life (n = 20). After the pool of items was compiled, a five-point rating scale was developed to measure the level agreement/disagreement with each item. The description and scores for the possible responses ranged from: 0 = “Strongly disagree” to 4 = “Strongly agree.” The total score for the tool was obtained by summing across all 57 responses, providing a possible score of 0 to 228. Higher scores suggested a higher sense of spiritual well-being.

Next, the 1<sup>st</sup> version of the TSWBATECI was submitted for content validity examination by seven experts in spiritual development, comparative religion and spirituality in nursing. Based upon the experts’ suggestions, 10 items were reworded for clarity, leading to creation of the 2<sup>nd</sup> version of the tool. The content validity index of the 2<sup>nd</sup> version, based upon the experts’ assessment, revealed: relevance = 0.87; clarity = 0.85; simplicity = 0.88; and, lack of ambiguity = 0.87.

After the content validity index of the 2<sup>nd</sup> version of the tool was determined, the instrument was given to 10 purposively selected elders with chronic illnesses, who were not involved in other parts of the study, to assess the clarity and readability of its items. Based upon the subjects’ input, minor changes in item wording occurred, leading to creation of the 3<sup>rd</sup> version of the tool. The rewording of items included changing: “You can adjust your lifestyle, regardless of environmental changes” to “You can always change your way of life;” and, “Your chronic illness makes you understand nature and yourself” to “Your chronic illness helps you understand the truth and nature of life.”

A pilot test was conducted on the 3<sup>rd</sup> version of the tool, using 90 purposively selected elders with chronic illnesses, to determine which items needed to be retained, revised or eliminated. These determinations were made, through use of item

analysis, whereby items that had correlations that were either too high ( $r \geq .80$ ) or too low ( $r < .30$ ) would be eliminated.<sup>30</sup> All 57 items had correlation coefficients ranging from 0.30 to 0.80 and, therefore, were retained. The 90 subjects (30 Buddhists, 30 Muslims and 30 Christians) used in the pilot testing were obtained from one of the sub-districts not used in the subject selection for the final testing of the tool. The names of potential subjects for the pilot testing were obtained from nurses working in the PCU of each selected sub-district.

Next, the 3<sup>rd</sup> version of the 57-item TSWBATECI, along with the demographic data sheet, was verbally administered to examine its reliability and construct validity. The two instruments were verbally administered, by the PI or one of the trained RAs, to the 600 randomly selected subjects from the 2160 identified for Phase II, in their homes or respective PCU. The subjects' responses were recorded on the respective instruments. Verbal administration of the instruments was selected because many elderly have visual problems. This process took approximately 20 to 30 minutes, per subject, to complete. The instruments the RAs administered were mailed, upon completion, to the PI. Due to the lower factor loading and presence of redundancy among items, found from the data obtained from the 600 subjects, the TSWBATECI was reduced to 41 items.

The final 41-item TSWBATECI, along with the demographic data sheet, was administered to all 2160 Phase II subjects, to examine its reliability and construct validity. Because the final tool had been reduced from 57 items to 41 items, the possible total score ranged from 0 to 164. The instrument administration process was the same used during evaluation of the 3<sup>rd</sup> version of the TSWBATECI.

**Data Analysis:** The qualitative data obtained from the interviews and focus groups were analyzed via content analysis. Given that the existing theory and research on spiritual well-being was incomplete, a directed approach was used in performing the content

analysis.<sup>31, 32</sup> All of the lines of each transcript were numbered and all text, that on first impression appeared to represent a spiritual well-being phenomenon, was highlighted. Then, the meaningful segments of the data were assigned a code, and the codes were placed into themes and categories. Two members of the research team discussed and refined the themes and categories until consensus was reached.

Demographic data and scores for the various versions of the TSWBATECI were calculated using descriptive statistics. Pearson's correlation coefficient was used to assess the inter-item correlations of the TSWBATECI. The reliability and construct validity of the 3<sup>rd</sup> version of the TSWBATECI were carried out via Cronbach's alpha and exploratory factor analysis, respectively. The reliability and construct validity of the final version of the TSWBATECI were carried out via Cronbach's alpha and second-order confirmatory factor analysis, respectively.

## **Results**

Exploratory factor analysis, performed on the 3<sup>rd</sup> version of the TSWBATECI, was done to determine which items warranted retention and which should be eliminated. Hair and colleagues suggest items should be eliminated when an item has a low communality, a factor loading is less than 0.30, and its contribution to the overall instrument is of little importance (i.e. its meaning relative to the other items is unclear).<sup>30</sup> They suggest a new factor solution that excludes the eliminated items then should be undertaken and the results reevaluated. Based upon Hair and colleagues suggestions, a factor analysis was conducted, leading to elimination of seven items (#12, 19, 26, 35, 36, 49 & 54) because they did not load strongly on a single factor and had factor loadings of less than 0.40.<sup>30</sup> This reduced the number of tool items from 57 to 50. The remaining 50 items then were re-analyzed, by way of a second factor analysis, leading to elimination of nine more items (#1, 3, 9, 10, 24, 30, 34, 40 & 45) because they failed to load strongly on a single

factor and had factor loadings of less than 0.40. As a result, the number of items was reduced from 50 to 41 under eight distinct factors (happiness in life, acceptance of chronic illness, life equilibrium, passion for life, self-transcendence, optimistic personality, a purpose in life and willingness to forgive) with a total explained variance of 81.90%. Details of the final

factor structure and factor loadings are presented in **Table 1**. The name of one of the prior factors/domains identified during creation of the tool items was changed to more accurately reflect the content, and names were given to the three new factors/domains that emerged during analysis.

**Table 1** Exploratory factor analysis of the TSWBATECI (n = 600)

| Item                                                          | Statement                                                                                             | Factor loading | Communalities (h <sup>2</sup> ) |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------|---------------------------------|
| <b><u>Factor 1: Acceptance of chronic illness</u></b>         |                                                                                                       |                |                                 |
| <i>Eigenvalue = 15.27; Percent of total variance = 41.86%</i> |                                                                                                       |                |                                 |
| 14                                                            | You feel angry when you suffer from the symptoms and effects of your chronic illness.                 | .89            | .83                             |
| 17                                                            | You always believed you would not have a chronic illness.                                             | .89            | .79                             |
| 18                                                            | You feel angry about having a chronic illness and that it cannot be cured.                            | .89            | .80                             |
| 13                                                            | You hate that it is you who has a chronic illness.                                                    | .88            | .79                             |
| 16                                                            | You worry that the symptoms of your chronic illness may be irreversible.                              | .87            | .78                             |
| 15                                                            | Anxiety about your chronic illness causes you to lose sleep.                                          | .86            | .77                             |
| <b><u>Factor 2 : Happiness in life</u></b>                    |                                                                                                       |                |                                 |
| <i>Eigenvalue = 10.10; Percent of total variance = 17.32%</i> |                                                                                                       |                |                                 |
| 4                                                             | Your life is perfect and you don't need anything else.                                                | .72            | .65                             |
| 5                                                             | Although you are suffering from a chronic illness, you feel happy.                                    | .71            | .63                             |
| 8                                                             | You can cope with your chronic illness in old age and be happy.                                       | .64            | .60                             |
| 2                                                             | You never suffer with your chronic illness.                                                           | .63            | .64                             |
| 11                                                            | You are satisfied with all of your capabilities.                                                      | .63            | .63                             |
| 6                                                             | You don't feel disappointed with your past.                                                           | .60            | .51                             |
| 7                                                             | Even though you a have chronic illness, you can live a normal live.                                   | .48            | .59                             |
| <b><u>Factor 3: Life equilibrium</u></b>                      |                                                                                                       |                |                                 |
| <i>Eigenvalue = 9.00; Percent of total variance = 6.61%</i>   |                                                                                                       |                |                                 |
| 21                                                            | You can live with conflict.                                                                           | .83            | .73                             |
| 22                                                            | You can always change your way of life.                                                               | .83            | .76                             |
| 23                                                            | You can change your way of life to adapt to a change in situations.                                   | .79            | .77                             |
| 20                                                            | You feel certain that you are ready to confront serious life problems.                                | .70            | .72                             |
| 25                                                            | You are satisfied with your condition, even if everything around you changes.                         | .54            | .63                             |
| <b><u>Factor 4: Passion for life</u></b>                      |                                                                                                       |                |                                 |
| <i>Eigenvalue = 7.66, Percent of total variance = 4.82%</i>   |                                                                                                       |                |                                 |
| 27                                                            | Life is valuable; you want to keep it even though you experience suffering from your chronic illness. | .79            | .70                             |

**Table 1** Exploratory factor analysis of the TSWBATECI (n = 600) (Continued)

| Item                                                        | Statement                                                                                              | Factor loading | Communalities (h <sup>2</sup> ) |
|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----------------|---------------------------------|
| 31                                                          | You have courage and power to continue living.                                                         | .71            | .73                             |
| 28                                                          | Your suffering will not destroy your courage to do good deeds.                                         | .66            | .64                             |
| 29                                                          | Even when you are ill, you can do good things.                                                         | .65            | .69                             |
| 33                                                          | You have the courage to care for yourself during your chronic illness.                                 | .61            | .73                             |
| 32                                                          | You can live with your chronic illness as healthy people do.                                           | .58            | .63                             |
| <b><u>Factor 5: Self-transcendence</u></b>                  |                                                                                                        |                |                                 |
| <i>Eigenvalue = 7.25; Percent of total variance = 3.88%</i> |                                                                                                        |                |                                 |
| 39                                                          | You like doing anything for the sufferer/beggar.                                                       | .88            | .72                             |
| 38                                                          | You like to help people who are live in poverty.                                                       | .84            | .77                             |
| 41                                                          | You need to help others to accept your chronic illness.                                                | .64            | .67                             |
| 37                                                          | You can give love and goodness to others.                                                              | .59            | .62                             |
| 42                                                          | You feel ready to know about the symptoms of your chronic illness, regardless if they are good or bad. | .49            | .61                             |
| <b><u>Factor 6: Optimistic personality</u></b>              |                                                                                                        |                |                                 |
| <i>Eigenvalue = 6.98; Percent of total variance = 2.79%</i> |                                                                                                        |                |                                 |
| 44                                                          | Your chronic illness helps to make you understand the truth and nature of life.                        | .76            | .73                             |
| 46                                                          | Your chronic illness will make you adapt and change to better behavior.                                | .74            | .73                             |
| 47                                                          | The chronic illness that you have gives you and others valuable ideas.                                 | .68            | .72                             |
| 43                                                          | Your chronic illness can bring good things into your life.                                             | .64            | .59                             |
| 48                                                          | Your chronic illness is a good experience.                                                             | .63            | .68                             |
| <b><u>Factor 7: A purpose in life</u></b>                   |                                                                                                        |                |                                 |
| <i>Eigenvalue = 6.81; Percent of total variance = 2.44%</i> |                                                                                                        |                |                                 |
| Currently, what do you have to live for?                    |                                                                                                        |                |                                 |
| 51                                                          | Doing more good things.                                                                                | .87            | .75                             |
| 52                                                          | Practicing Dharma more.                                                                                | .82            | .75                             |
| 50                                                          | Looking forward to seeing children and grandchildren mature.                                           | .69            | .63                             |
| 53                                                          | Being a benefit to my community and society.                                                           | .69            | .54                             |
| <b><u>Factor 8: Willingness to forgive</u></b>              |                                                                                                        |                |                                 |
| <i>Eigenvalue = 6.6; Percent of total variance = 2.18%</i>  |                                                                                                        |                |                                 |
| 56                                                          | Your chronic illness makes you forgive yourself for your mistakes.                                     | .78            | .80                             |
| 55                                                          | Your chronic illness helps you know how to forgive others.                                             | .71            | .73                             |
| 57                                                          | Your chronic illness makes you want to forgive others.                                                 | .70            | .75                             |

TSWBATECI = Thai Spiritual Well-Being Assessment Tool for Elders with a Chronic Illness

**Table 2** Second-order confirmatory factor analysis of the TSWBATECI (n = 2160)

| Latent Variable: Spiritual well-being                                                     | Factor loading<br><i>b</i> ( <i>se</i> ) | SE         | Determinant coefficient<br>( $R^2$ ) | Residual variance |
|-------------------------------------------------------------------------------------------|------------------------------------------|------------|--------------------------------------|-------------------|
| <b><u>1. Happiness in life</u></b>                                                        | <b>.80</b>                               | <b>.02</b> | <b>.68</b>                           | <b>.32</b>        |
| Item 2: You never suffer with your chronic illness.                                       | .60                                      | .01        | .51                                  | .16               |
| Item 4: Your life is perfect and you don't need anything else.                            | .61                                      | .01        | .69                                  | .12               |
| Item 5: Although you are suffering from a chronic illness, you feel happy.                | .65                                      | .01        | .66                                  | .00               |
| Item 6: You don't feel disappointed with your past.                                       | .63                                      | .01        | .52                                  | .16               |
| Item 7: Even if you have a chronic illness, you can live a normal live.                   | .63                                      | .01        | .63                                  | .11               |
| Item 8: You can cope with your chronic illness in old age and be happy.                   | .86                                      | .01        | .42                                  | .16               |
| Item 11: You are satisfied with all of your capabilities.                                 | .85                                      | .01        | .45                                  | .15               |
| <b><u>2. Acceptance of chronic illness</u></b>                                            | <b>.62</b>                               | <b>.03</b> | <b>.48</b>                           | <b>.22</b>        |
| Item 13: You hate that it is you who has a chronic illness.                               | .51                                      | .00        | .73                                  | .32               |
| Item 14: You feel angry when you suffer the symptoms and effects of your chronic illness. | .85                                      | .02        | .94                                  | .08               |
| Item 15: Anxiety about your chronic illness causes you to lose sleep.                     | .53                                      | .02        | .76                                  | .30               |
| Item 16: You worry that the symptoms of your chronic illness may be irreversible.         | .52                                      | .02        | .86                                  | .29               |
| Item 17: You always believed you would not have a chronic illness.                        | .81                                      | .02        | .92                                  | .10               |
| Item 18: You feel angry about having a chronic illness and it cannot be cured.            | 1.17                                     | .04        | .98                                  | .16               |
| <b><u>3. Life equilibrium</u></b>                                                         | <b>.90</b>                               | <b>.02</b> | <b>.81</b>                           | <b>.19</b>        |
| Item 20: You feel certain that you are ready to confront serious life problems.           | .66                                      | .01        | .82                                  | .10               |
| Item 21: You can live with conflict.                                                      | .62                                      | .01        | .75                                  | .13               |
| Item 22: You can always change your way of life                                           | .64                                      | .01        | .83                                  | .08               |
| Item 23: You can change your way of life to adapt to a change in situations.              | .63                                      | .01        | .78                                  | .11               |
| Item 25: You are satisfied with your condition, even if everything around you changes.    | .57                                      | .01        | .68                                  | .15               |

**Table 2** Second-order confirmatory factor analysis of the TSWBATECI (n = 2160) (Continued)

| Latent Variable: Spiritual well-being                                                                           | Factor loading<br><i>b</i> ( <i>se</i> ) | SE         | Determinant coefficient<br>( $R^2$ ) | Residual variance |
|-----------------------------------------------------------------------------------------------------------------|------------------------------------------|------------|--------------------------------------|-------------------|
| <b><u>4. Passion for life</u></b>                                                                               |                                          | <b>.85</b> | <b>.03</b>                           | <b>.76</b>        |
| Item 27: Life is valuable; you want to keep it even though you experience suffering from your chronic illness.  | .65                                      | .01        | .43                                  | .21               |
| Item 28: The suffering will not destroy your courage to do good deeds.                                          | 1.02                                     | .03        | .98                                  | .03               |
| Item 29: Even when you are ill, you can do good things.                                                         | .62                                      | .01        | .43                                  | .15               |
| Item 31: You have courage and power to continue living.                                                         | .75                                      | .02        | .91                                  | .06               |
| Item 32: You can live with your chronic illness as healthy people do.                                           | .66                                      | .01        | .37                                  | .25               |
| Item 33: You have the courage to care for yourself during your chronic illness.                                 | .67                                      | .01        | .39                                  | .22               |
| <b><u>5. Self-transcendence</u></b>                                                                             | <b>.98</b>                               | <b>.02</b> | <b>.94</b>                           | <b>.06</b>        |
| Item 37: You can give love and goodness to others.                                                              | .63                                      | .01        | .78                                  | .11               |
| Item 38: You like to help people who are living in poverty.                                                     | .61                                      | .01        | .74                                  | .13               |
| Item 39: You like do anything for the sufferer/beggar.                                                          | .55                                      | .01        | .66                                  | .15               |
| Item 41: You need to help others to accept your chronic illness.                                                | 1.06                                     | .01        | .92                                  | .10               |
| Item 42: You feel ready to know about the symptoms of your chronic illness, regardless if they are good or bad. | .62                                      | .01        | .69                                  | .17               |
| <b><u>6. Optimistic personality</u></b>                                                                         | <b>.98</b>                               | <b>.02</b> | <b>.95</b>                           | <b>.05</b>        |
| Item 43: Your chronic illness can bring good things into your life.                                             | 1.00                                     | .01        | .87                                  | .15               |
| Item 44: Your chronic illness helps to make you understand the truth and nature of life.                        | .65                                      | .01        | .71                                  | .17               |
| Item 46: Your chronic illness will make you adapt and change to better behavior.                                | 1.02                                     | .01        | .89                                  | .13               |
| Item 47: The chronic illness that you have gives you and others valuable ideas.                                 | 1.05                                     | .01        | .91                                  | .11               |
| Item 48: Your chronic illness is a good experience.                                                             | 1.41                                     | .02        | .91                                  | .21               |

**Table 2** Second-order confirmatory factor analysis of the TSWBATECI (n = 2160) (Continued)

| Latent Variable: Spiritual well-being                                                                         | Factor loading<br><i>b</i> ( <i>se</i> ) | SE            | Determinant coefficient<br>( <i>R</i> <sup>2</sup> ) | Residual variance |       |       |       |       |
|---------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------|------------------------------------------------------|-------------------|-------|-------|-------|-------|
| <b><u>7. A purpose in life</u></b>                                                                            | <b>.88</b>                               | <b>.03</b>    | <b>.77</b>                                           | <b>.24</b>        |       |       |       |       |
| Currently, what do you have to live for? Item 50: Looking forward to seeing children and grandchildren mature | .61                                      | .02           | .44                                                  | .19               |       |       |       |       |
| Item 51: Doing more good things.                                                                              | .71                                      | .02           | .80                                                  | .13               |       |       |       |       |
| Item 52: Practicing Dharma more.                                                                              | .76                                      | .03           | .86                                                  | .09               |       |       |       |       |
| Item 53: Becoming a benefit to my community and society.                                                      | .87                                      | .03           | .75                                                  | .25               |       |       |       |       |
| <b><u>8. Willingness to forgive</u></b>                                                                       | <b>.97</b>                               | <b>.02</b>    | <b>.93</b>                                           | <b>.07</b>        |       |       |       |       |
| Item 55: Your chronic illness makes you know to how to forgive others.                                        | 1.52                                     | .01           | .96                                                  | .08               |       |       |       |       |
| Item 56: Your chronic illness makes you forgive yourself for your mistakes                                    | 1.57                                     | .01           | .98                                                  | .04               |       |       |       |       |
| Item 57: Your chronic illness makes you want to forgive others.                                               | .63                                      | .01           | .72                                                  | .15               |       |       |       |       |
| <b>Fit indices for measurement of the model of spiritual well-being assessment tool</b>                       |                                          |               |                                                      |                   |       |       |       |       |
| $\chi^2$                                                                                                      | df                                       | $\chi^2 / df$ | CFI                                                  | NFI               | GFI   | AGFI  | SRMR  | RMSEA |
| 821.09                                                                                                        | 747                                      | 1.10          | .96                                                  | .96               | .96   | .96   | .07   | .03   |
| <b>The suggested values</b>                                                                                   |                                          |               | ≥ .90                                                | ≥ .90             | ≥ .95 | ≥ .95 | < .08 | < .06 |

TSWBATECI = Thai Spiritual Well-Being Assessment Tool for Elders with a Chronic Illness

SE = Standard Error

CFI = Comparative Fit Index, a value equal to or over .90 is considered acceptable

NFI = Normed Fit Index, a value equal to or over .90 is considered acceptable

GFI = Goodness of Fit Index, a value equal to or over .95 is considered acceptable

AGFI = Adjusted Goodness of Fit Index, a value equal to or over .95 is considered acceptable

SRMR = Standardized Root Mean Residual, a value less than .08 is considered acceptable

RMSEA = Root Mean Square Error of Approximation, a value less than .06 is considered acceptable

Confirmatory factor analysis (2<sup>nd</sup> order), performed on the final 41-item version of the TSWBATECI, was done for the purposes of describing and estimating the identified factors. The responses to the 8 factors and 41 indicators or observable variables were examined. **Table 2** shows the results of the 2<sup>nd</sup> order confirmatory factor analyses that reveal the individual item reliability had a standardized factor loading greater than 0.60. Therefore, the proposed model provided an adequate fit. The overall goodness of fit of the model suggests the proposed model fit the data reasonably well. The other fit indices (GFI = Goodness of Fit Index; NFI = Normed Fit Index; AGFI = Adjusted Goodness of Fit Index; RMSEA = Root Mean Square Error of Approximation; and, SRMR = Standardized Root Mean Residual) also confirmed the

hypothesized model fit well. The parameter estimates indicate all of the 8 dimensions and 41 indicators contributed significantly to the measurement of spiritual well-being.

Analysis of the internal consistency (Cronbach's alpha coefficient) for each of the subscales and the overall scale can be found in **Table 3**. The criterion level for the alpha coefficient value should be at least 0.70 to indicate sufficient internal consistency in a new tool.<sup>33</sup> Cronbach's alpha coefficient for the overall scale, in this study, was 0.98. The results of Cronbach's alpha coefficient and the corrected item-total correlation of each factors was found to be greater than 0.80 and 0.60, respectively. Accordingly, these findings indicate those domains and items had internal consistency.

**Table 3** Internal consistency reliability of the TSWBATCEI (n = 2160)

| Factor                                  | No. of items | Corrected item-total correlation | Cronbach's alpha coefficient |
|-----------------------------------------|--------------|----------------------------------|------------------------------|
| Factor 1: Happiness in life             | 7            | .64 – .73                        | .92                          |
| Factor 2: Acceptance of chronic illness | 6            | .82 – .87                        | .94                          |
| Factor 3: Life equilibrium              | 5            | .70 – .83                        | .93                          |
| Factor 4: Passion for life              | 6            | .70 – .75                        | .92                          |
| Factor 5: Self-transcendence            | 5            | .69 – .80                        | .91                          |
| Factor 6: Optimistic personality        | 5            | .65 – .79                        | .90                          |
| Factor 7: A purpose in life             | 4            | .57 – .74                        | .84                          |
| Factor 9: Willingness to forgive        | 3            | .76 – .83                        | .89                          |
| <b>Total</b>                            | <b>41</b>    | <b>.64 – .87</b>                 | <b>.98</b>                   |

TSWBATECI = Thai Spiritual Well-Being Assessment Tool for Elders with a Chronic Illness

## Discussion and Implications

The purpose of this study was to develop and examine the psychometric properties of a spiritual well-being assessment tool for elderly Thais with a

chronic illness. If an instrument is not reliable and valid, all findings based upon its measurements will be confounded and all hypothesized relationships among a study's variables will be questionable.<sup>33,34</sup> The fact the assessment tool was found to be valid and reliable was

supported by the use of both qualitative and quantitative methods<sup>35</sup> that were used during: clarification of the definition of spiritual well-being; development and selection of instrument items; and, examination of the instrument's psychometric properties.

The findings suggest the TSWBATECI had good content and construct validity. Validity of the tool was enhanced by the use of the ten research assistants, who were nurses or other health care providers in the communities where the subjects resided. In addition, these research assistants were trained, by the PI, to assure consistence among their research activities, and were knowledgeable about the religious preferences and practices of the subjects within their respective communities. These attributes proved helpful in understanding the subjects' responses during both phases of the study. The fact that data was collected, throughout the study, in the homes or PCU's of the subjects also was a contributing fact to the validity of the instrument. This practice allowed for privacy and sufficient time for the subjects' responses.

The results indicate the TSWBATECI has good internal consistency reliability. Instrument reliability plays an important role, in research, because reliable instruments enhance the power of a study to detect significant differences or relationships actually occurring in the population under study.<sup>33-35</sup> Reliability of the TWSBATECI was enhanced by reducing random error caused by fluctuation in memory/mood and environmental conditions that influence the effect of the object being measured. This study reduced random error by giving the subjects a reasonable amount of time to respond to the items on the assessment scale, as well as them to provide data within a familiar setting (their home or PCU). Finally, the thorough training of the RAs (inter-rater reliability ranged from 0.90 – 0.96) also helped to enhance the internal consistency reliability of instrument.

The final version of the TSWBATECI consisted of 41-items within eight domains (happiness in life,

acceptance of chronic illness, life equilibrium, passion for life, self-transcendence, optimistic personality, a purpose in life and willingness to forgive). Several of the domains, in this study, were similar to those noted in prior research and the literature. For example, the domains of "happiness in life," "life equilibrium (i.e. "harmonious interconnected")", "purpose in life," "optimistic personality," "self-transcendence" and "willingness to forgive" were found to appear in other studies, conceptual analyses or spiritual well-being instruments<sup>9, 15, 23, 27, 28, 29, 36, 37</sup> Although labeled differently in prior research, the essence of the domain, "passion for life," in this study, was found to be similar to prior research, in that it focused on one's power to continue living, regardless of adversity.<sup>6-9</sup> Since the TSWBATECI was specifically developed for elders with chronic illnesses, the domain, "acceptance of chronic illness," was found to be unique when compared to other instruments.<sup>27-29</sup> Finally, the TSWBATECI was developed using chronically ill elders who were Buddhist, Islamic or Christian. Thus, the instrument, compared to other spiritual well-being instruments, and did not focus only on subjects who practiced a Judeo-Christian religion.<sup>15, 23, 27-29</sup>

In conclusion, the TSWBATECI should prove helpful to health care providers in assessing the sense of spiritual well-being among Thai elders with chronic illnesses. Having information about the spiritual well-being of an individual can assist in development of interventions that promote appropriate and quality health care. However, the uniqueness of the TSWBATECI, compared to other spiritual well-being instruments, is that it was developed within the context of the Thai culture, with a specific focus on chronically ill elders.

## **Limitations and Future Research**

All research instruments have limitations and the TSWBATECI is no exception. The tool is to be used only in assessing spiritual well-being among Thais

who are elderly, chronically ill and Buddhist, Islamic or Christian. Therefore, it would not be inappropriate for use with other groups of individuals. Secondly, the tool does not indicate specific degrees of spiritual well-being or non-spiritual well-being. This is because of the lack of a cut-off point between spiritual well-being and non-spiritual well-being. Therefore, degrees of spiritual well-being cannot be assessed by way of the TSWBATECI. In addition, since many elderly Thais have difficulty reading instrument questions, due to visual problems or lack of education, the instrument needs to be administered by way of interview rather than via self-report. Mailing the instrument to subjects for self-report may not provide reliable data.

Based upon the results, future research needs to focus on the use and psychometric assessment of the TSWBATECI. In addition, further research should be undertaken regarding the use of spiritual well-being assessment tools with elderly Thais who have chronic illnesses, especially in regards to the significance of their religious faith/spiritual belief to their spiritual well-being.

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## การพัฒนาและประเมินคุณภาพเครื่องมือประเมินความผาสุกทางจิตวิญญาณ ในผู้สูงอายุไทยที่เจ็บป่วยด้วยโรคเรื้อรัง

เพ็ญนา อุ่นสนิท, รัชณี สรรเสริญ, วลภา คุณทรงเกียรติ, Mary Elizabeth O'Brien, Patricia C. McMullen

**บทคัดย่อ :** ความผาสุกทางจิตวิญญาณมีความสำคัญอย่างยิ่งต่อการรับรู้สุขภาพ และความเจ็บป่วยของผู้สูงอายุ เนื่องจาก การที่มีสุขภาพอ่อนแอ สภาพร่างกายเสื่อมถอย ทำให้ผู้สูงอายุต้องเผชิญกับปัญหาสุขภาพ และการเจ็บป่วยด้วยโรคเรื้อรัง ประเด็นปัญหานี้จึงเป็นที่สนใจของผู้ให้บริการทางสุขภาพในผู้สูงอายุที่จะป้องกันและส่งเสริมสุขภาพของผู้สูงอายุโดยการ ส่งเสริมความผาสุกทางจิตวิญญาณ เนื่องจากพบว่าความผาสุกทางจิตวิญญาณมีบทบาทสำคัญในการช่วยผู้สูงอายุที่เจ็บ ป่วยด้วยโรคเรื้อรังจัดการกับปัญหาสุขภาพที่พวกเขาเผชิญในชีวิตประจำวันได้ แม้ว่าคำจำกัดความขึ้นอยู่กับ ประสิทธิภาพ ประเพณี วัฒนธรรมของบุคคลนั้นๆ ในวัฒนธรรมไทยมีความรู้เกี่ยวกับแนวคิดนี้น้อยมาก และยังไม่มีเครื่องมือประเมินความ ผาสุกทางจิตวิญญาณ ถ้าไม่มีการพัฒนาเครื่องมือประเมินความผาสุกทางจิตวิญญาณที่เหมาะสมกับบริบทของไทย จะ ทำให้ผู้ให้การดูแลสุขภาพเผชิญกับความยากลำบากในการประเมิน และไม่สามารถให้การดูแลสุขภาพจิตวิญญาณที่เหมาะสม กับผู้สูงอายุที่เจ็บป่วยด้วยโรคเรื้อรังได้ ดังนั้นการศึกษานี้มีวัตถุประสงค์เพื่อพัฒนาและทดสอบคุณสมบัติของเครื่องมือ ประเมินความผาสุกทางจิตวิญญาณในผู้สูงอายุไทยที่เจ็บป่วยด้วยโรคเรื้อรัง

รูปแบบการศึกษาใช้วิธีการรวบรวมข้อมูลเชิงคุณภาพ และเชิงปริมาณ การสนทนากลุ่ม 3 กลุ่มและสัมภาษณ์เชิง ลึกรายบุคคล ของผู้สูงอายุที่เจ็บป่วยด้วยโรคเรื้อรัง นับถือศาสนาพุทธ อิสลาม และคริสต์จำนวน 27 คน ในการศึกษาเชิง คุณภาพ 5 โดเมนของเครื่องมือประเมินความผาสุกทางจิตวิญญาณถูกพัฒนาขึ้นจากการวิเคราะห์เนื้อหาเชิงคุณภาพ ความ ตรงเชิงเนื้อหาตรวจสอบโดย ผู้เชี่ยวชาญด้านการพัฒนาจิตวิญญาณ ศาสนาเปรียบเทียบ และจิตวิญญาณการพยาบาล จำนวน 7 คน ผลการวิเคราะห์มีการปรับ เปลี่ยนคำของข้อคำถามเพียงเล็กน้อย มีค่าความตรงเชิงเนื้อหา .82-.95 ตรวจสอบความตรงเชิงโครงสร้าง และความเชื่อมั่นเบื้องต้นโดยใช้การวิเคราะห์ปัจจัย เชิงสำรวจในผู้สูงอายุที่เจ็บป่วยด้วยโรค เรื้อรัง ที่นับถือศาสนาใดศาสนาหนึ่งใน 3 ศาสนา จำนวน 600 คน จากการวิเคราะห์นี้มีผลให้เครื่องมือมีการปรับเปลี่ยนอีก ครั้ง สุดท้ายเครื่องมือประเมินความผาสุกทางจิตวิญญาณ ประกอบด้วย 8 ปัจจัย 41 ข้อคำถาม และนำไปทดสอบความตรง เชิงโครงสร้างและค่าความเชื่อมั่นโดยใช้การวิเคราะห์ปัจจัยเชิงยืนยัน ในผู้สูงอายุที่เจ็บป่วยด้วยโรคเรื้อรัง ที่นับถือศาสนาใด ศาสนาหนึ่งใน 3 ศาสนา จำนวน 2160 คน เครื่องมือนี้สามารถอธิบายความแปรปรวนทั้งหมดได้ร้อยละ 81.90 ทั้งฉบับมีค่า ความเชื่อมั่นชนิดทดสอบคอลลิงภายใน .97 โมเดลที่พัฒนาขึ้นมีความตรงเชิงโครงสร้างค่อนข้างสูง ( $\chi^2 = 821.09, df = 747, \chi^2/df = 1.10, GFI = .96, RMSEA = .03, SRMR = .07$ ) ดังนั้น เครื่องมือมีความตรงและความเชื่อมั่น สามารถนำไป ใช้ประเมินความผาสุกทางจิตวิญญาณในกลุ่มผู้สูงอายุที่เจ็บป่วยด้วยโรคเรื้อรัง และในบริบทของไทยได้เป็นอย่างดี

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**คำสำคัญ:** ความผาสุกทางจิตวิญญาณ เครื่องมือ การพัฒนา ผู้สูงอายุไทย การเจ็บป่วยเรื้อรัง

**ติดต่อที่:** เพ็ญนา อุ่นสนิท, RN, PhD (Candidate) คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา ชลบุรี ประเทศไทย 20131 E-mail: rapennapa@mahidol.ac.th  
**รัชณี สรรเสริญ,** RN, PhD. รองศาสตราจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยราชภัฏรำไพพรรณี จันทบุรี ประเทศไทย.  
**วลภา คุณทรงเกียรติ,** RN, PhD. ผู้ช่วยศาสตราจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา ชลบุรี ประเทศไทย.  
**Mary Elizabeth O'Brien,** RN, PhD, FAAN, AHN. Professor Emeritus, School of Nursing, The Catholic University of America, Washington DC, USA.  
**Patricia C. McMullen,** PhD, JD, CNS, CRNP. Associate Professor and Dean, School of Nursing, The Catholic University of America, Washington DC, USA