

# Validity and Reliability of Thai Version of the Missoula-Vitas Quality-of-Life Index

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**Abstract:** Quality of life is an important outcome measure of palliative care among people who are terminally ill; however, there are no specific instruments to measure this outcome in Thailand. This study examined the validity and reliability of Thai version of the Missoula-Vitas Quality-of-Life Index. Four steps were used: forward-backward translation; content validity testing by expert committee confirmation; construct validity testing by the convergent, known-groups technique and exploratory factor analysis; and internal consistency reliability testing. One hundred and eighty Thais with advanced cancer receiving palliative care at 5 healthcare settings participated in the convergent, exploratory factor analysis and reliability testing, and 126 were a part of the 180 participants in the known-groups technique. The sample size was determined via estimation of the population proportion from each of the selected study sites. The Thai version of the Index has acceptable content validity and known group technique can differentiate quality of life total scores, functional and interpersonal dimensions. Factor analysis yielded seven factors accounting for 60.88% of variance and five domains of the original Index accounting for 49.9% of variance. An examination of the factor loadings did not support the theoretical structure of the instrument and the internal consistency reliability in each dimension was rather low. The instrument may not have suitable psychometric properties but has some clinical utility for assessing the overall quality of life. Therefore we recommend that another instrument for people with advanced cancer within the Thai cultural context be developed and tested.

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## Introduction

Quality of life (QOL) is an important issue that has attracted the attention of researchers, practitioners, policymakers and the public at large.<sup>1</sup> It is an important outcome of measure in health care systems and is

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most generally considered as a multidimensional construct. QOL is also considered the most important outcome in palliative care settings and palliative care research.<sup>2, 3</sup> The World Health Organization has emphasized that the ultimate goal of palliative care is to achieve the best QOL for patients, for whom there are no curative treatment options, as well as their families.<sup>4</sup>

Measuring QOL enables a broader, more comprehensive evaluation of treatment or services. As with other fields of medicine, treatment and interventions in palliative care equally need to be evidence-based.<sup>5</sup> The need for quality assurance and effectiveness in palliative care has been emphasized. Therefore, there is increasing need for QOL, the ultimate final outcome indicator, to be more routinely measured in clinical practice. Even though many QOL measurement tools have been designed, most may not be ideal for use with patients receiving palliative care, as many do not explore the specific dimensions of QOL at the end-of-life.<sup>6</sup> The importance of QOL assessment in palliative care should especially include aspects such as existential, transcendence, or spiritual domains.<sup>3</sup> The Missoula-Vitas Quality-of-Life Index (MVQOLI) was specifically designed to focus on QOL at the terminal phase of illness, which includes these three aspects.<sup>7</sup> In Thailand, there are no specific valid and reliable instruments for terminally ill people. This may be due, in part, to the lack of systematic developed or translated instruments. Thus, the aim of this research was to test the reliability and validity of the Missoula-Vitas Quality-of-Life Index (MVQOLI)<sup>7</sup> translated into Thai (MVQOLI-Th).

## **Literature Review**

The MVQOLI developed in the USA by Byock and Merriman,<sup>7</sup> is based on a framework of growth and development at the end-of-life and the concepts of landmarks and tasks of life closure, and is specifically designed to focus on the terminal phase of illness.<sup>7</sup> The MVQOLI has been used in many different

healthcare settings including hospice, hospital, home health, long-term care (including assisted living), outpatient palliative care, disease management, and pre-hospice programs. The Index addresses five QOL domains (symptoms, function, interpersonal, wellbeing, and transcendence) that have clinical relevance for palliative care.<sup>7</sup> Each subscale contains two “assessment” items, two “satisfaction” items, and one “importance” item. The initial psychometric validation provided evidence for internal consistency reliability (Cronbach’s alpha = 0.77).<sup>7</sup> The authors found support for the construct validity of the MVQOLI by correlating the tool scores with convergent and divergent constructs and broad construct validity of the total score ( $r = 0.43$  with global QOL),<sup>7</sup> but did not address more specific details about its characteristics important for research purposes, such as the empirical factor structure.

Namisango et al.<sup>8</sup> conducted a validation study of a modified version of the MVQOLI-M in patients with advanced AIDS in Uganda. Adequate test-retest reliability ( $r = 0.60$ ) and internal consistency (Cronbach’s alpha = 0.85) were reported. However, the construct validity using factor analytic techniques was not explained but there was adoption of the five subscale structure proposed by the tool developers.<sup>8</sup> Schwartz et al.<sup>9</sup> conducted MVQOLI factor analysis in patients with end-stage renal disease in the USA, and abbreviated the measure by omitting the importance items associated with each subscale. They found that the prior subscales were not well supported by factor analysis results, thus effecting the theoretical structure of the instrument.<sup>9</sup>

Subsequently, Selman et al.<sup>10</sup> examined the factor structure of the MVQOLI in patients receiving palliative care in South Africa and Uganda. The results showed that a five-factor solution, accounting for 55% of variance, presented the best model of fit. These factors corresponded relatively closely to the original subscales, with only 4 of 20 items not loading on the factor corresponding to the appropriate subscale. Internal consistency was high (Cronbach’s alpha = 0.83).<sup>10</sup>

In Thailand, there are no Thai validated tools to assess QOL for patients with cancer at the end-of-life. Current tools do not explore specific dimensions, which could capture major aspects of QOL at the end-of-life. To improve evaluations of how end-of-life Thai perceive their QOL may be achieved by translating the available specific end-of-life QOL tools to compare therapeutic strategies and thus improve care in the palliative care setting. Thus, the aims of this study were to: 1) test construct validity that consists of convergent, known group technique and factor analysis, and 2) test internal consistency of the Thai MVQOLI version in patients with advanced cancer.

## **Method**

**Design:** This study used a cross-sectional quantitative descriptive design, which was a part of a large study of palliative care strategies and quality of life in patients with advanced cancer.<sup>11</sup>

**Measure:** The MVQOLI has 26 items: one global QOL item and five subscales, symptoms (5 items), function (5 items), interpersonal (5 items), well-being (5 items), and transcendence (5 items). Each subscale contains two “assessment” items, two “satisfaction” items, and one “importance” item. Examples of the items appear in Table 2. Possible responses to the one item assessing overall QOL ranged from “worst possible”=1 to “best possible”=5. The other 25 items had possible responses of: a) “agree strongly”=-2 to “disagree strongly”=+2 for negatively focused assessment items; b) “agree strongly”=+2 to “disagree strongly”=-2 for positively focused assessment items; c) “agree strongly”=+4 to “disagree strongly”=-4 for positively focused satisfaction items; d) “agree strongly”=-4 to “disagree strongly”=+4 for negatively focused satisfaction items; and, e) “agree strongly”=5 to “disagree strongly”=1 for importance items. Weight dimensional subscale scores are calculated by multiplying the important score with the sum of average assessment plus the average satisfaction score. Weighted subscale

scores range from -30 to +30, the higher the score reflected the better the QOL. The final score in each dimension reflects the overall impact of that domain on quality of life. Negative dimensions are reducing QOL and positive dimensions are increasing QOL, and the size of each dimension reflects the amount of impact. Total QOL score is calculated by the sum of the weighted dimension scores being divided by 10, then 15 is added; this is a mathematical conversion to generate total scores between 0 and 30.<sup>7</sup> The total score can range from 0-30, and the higher the score reflects better QOL. The MVQOLI demonstrated internal consistency (Cronbach’s alpha = 0.77).<sup>7</sup>

### ***Development of Thai version of MVQOLI:***

Four steps were used for this.

Step 1: Forward-backward translation and committee approach. Permission from the tool’s author was obtained prior to the translation process. The MVQOLI were translated (forward translations) into Thai by the first investigator who was a native Thai speaker, and was reviewed by the second author who is bilingual in Thai and English. The forward translation was then sent to a bilingual nursing professor (who neither saw nor had access to the original English version) to translate from Thai to English (back translation). The back translated version was then compared with the original English version by a native English language professor. The paired concepts of the two translations could be evaluated as having exactly the same meaning, almost the same meaning, or a different meaning. The paired concepts with different meanings were revised until the equivalence between the original and back-translated versions was accepted as the MVQOLI-Th.

Step 2: Content validity of the MVQOLI-Th was validated by five experts, three of whom were nursing instructors in oncology, one an expert in palliative care, an Advanced Practice Nurse specialist in oncology, and a physician specialized in palliative care. The experts were asked to agree or disagree with items in questionnaire as well as comment on each item. CVI calculated by the average proportion of items on an instrument that

achieved a rating of 3 or 4 on a 4-point relevance scale by the content experts.<sup>12</sup>

Step 3: Construct validity testing. Convergent, known-groups, and factor analysis were used to test construct validity. For convergent validity testing, the convergent validity of MVQOLI-Th were evaluated by examining the correlation between global QOL (1 item) and MVQOLI-Th total scores.

For known-groups comparison, that is, the extent to which the MVQOLI-Th scores differentiated according to patient's location services, we selected the participants from the hospitals' inpatient departments (IPD) and outpatient department (OPD) and excluded participants at home and religious-based organizations because the context of care was different. We hypothesized that OPD participants would report better QOL than those where were from the IPD. We used an independent t-test with participants grouped by location services OPD (n=55) versus IPD (n=71)) to evaluate the difference of the QOL between two groups.

Exploratory factor analysis (EFA) was chosen to assess the construct validity of the MVQOLI-Th instead of confirmatory factor analysis (CFA), because only the two previous factor analyses summarized the difference structure.<sup>9,10</sup> Moreover, although the original Index was analyzed and a numbers of factors are already known, these do not always hold when it is translated into different languages and used in populations with a different cultures and ways of life. These differences can lead to a misfit in CFA. Thus, we conducted EFA using principal components methods with varimax rotation to examine construct validity with a Thai population. Schwartz et al.<sup>9</sup> concluded that factor analysis did not support the theoretical structure of the instrument, whereas Selman et al.<sup>10</sup> supported the theoretical structure, therefore, it was important to be able to compare the results with theirs. Following previous factor analysis,<sup>9,13,14</sup> raw scores were used: all items were scored on a 1 (worst) to 5 (best) Likert scale rather than according to the scoring protocol put forward by the MVQOLI developers. The global QOL (1 item) was not included in EFA

because it was a separate subscale. This item should presumably correlate with all or any factors rather than a single specific factor. The five "importance" items were also not included as they were used to assess the contribution of the domain to overall quality of life, and hence were omitted in factor analyses of the tool.

Step 4: Internal consistency reliability testing.

Reliability was assessed by calculating the Cronbach's alpha coefficient, which is a measure of the internal consistency of responses. Internal consistency gives an estimate of the equivalence of sets of items from the same test. The coefficient of internal consistency provides an estimate of the reliability of measurement and is based on the assumption that items measuring the same construct should be correlated.<sup>15</sup>

**Sample:** The population under study included 1,294 Thais who were diagnosed with stage IV cancer, and were receiving palliative care (as recorded in their medical record), between 2005–2009. Of this population there were 313 reported cases, in 2009, at the selected Buddhist temple; 62 and 93 reported cases, in 2009, at the two selected community hospitals; 535 reported cases, in 2008, at the selected university hospital; and, 291 reported cases, in 2005, at the selected cancer center hospice. The sample size was determined via estimation of the population proportion from each of the selected study sites,<sup>16</sup> resulting in a need for 180 participants (44 from the temple, 22 from two community hospitals, 74 from the university hospital, and 40 from the cancer center hospice). The sample, throughout the study, was purposively selected. Eligible patients were required to: be at least 18 year of age; diagnosed as having advanced cancer; receiving palliative care; not receiving any aggressive or curative treatment); knowing about their diagnosis; and able to speak, read, and write Thai. Potential participants were excluded if they: had hematologic cancer; had a deteriorated physical status or illness; and/or were unable to answer the questionnaires.

After reviewing the available medical records to identify potential participants, we purposively recruited

212 potential participants. Twenty-three (10.8%) of the 212 potential participants refused to participate since they felt too ill/fatigued ( $n=21$ ; 9.9%) or simply did not want to participate ( $n=2$ ; 1%). In addition, seven (3.3%) failed to complete the MVQOLI-Th because of being transferred to another hospital ( $n=2$ ; 1%), resulting in 180 participants completing the study.

Participants in EFA and internal consistency were 180 Thais with advanced cancer receiving palliative care at 5 healthcare settings in Thailand. From the rule of 5,<sup>13</sup> the participants-to-variables-ratio should be no lower than 5,<sup>13</sup> so 180 participants was considered to be enough.

One hundred and twenty-six participants are a part or subset of the 180 participants in known-groups technique. The sample size was determined by using Cohen's table<sup>17</sup> ( $\alpha = .05$ ,  $d=0.6$ , and  $\text{Power}=.80$ ), resulting in a need for 45 participants per group so 55 and 71 participants in each group is considered to be enough.

The 180 Thais who completed the study, ranged in age from 20–84 years (mean = 55.21 years) and predominantly were: female ( $n = 109$ ; 60.6%); married ( $n = 126$ ; 70.0%); and primary school graduates ( $n = 98$ ; 54.4%). The participants predominantly had breast cancer ( $n = 51$ ; 28.3%) followed by: hepatobiliary cancer ( $n = 32$ ; 17.8%); lung cancer ( $n = 26$ ; 14.4%); colorectal cancer ( $n = 19$ ; 10.6%); gynecology cancer ( $n = 17$ ; 9.4%); head-neck cancer ( $n = 16$ ; 8.9%); bladder cancer ( $n = 9$ ; 5%); gastro-intestinal cancer ( $n = 5$ ; 2.8%); and, osteosarcoma ( $n = 5$ ; 2.8%).

**Ethical considerations:** This study was approved by the Institutional Review Board of the Faculty of Medicine, Ramathibodi Hospital, Mahidol University, as well as by the administrators of the palliative care settings used as study sites. Each potential participant

was informed about: the purpose of the study; what his/her involvement would entail; confidentiality and anonymity issues; voluntary involvement; and, the right to withdraw at any time without repercussions. All participants who consented to participate were asked to sign a consent form.

**Data Analysis:** In the analysis of convergence, the Pearson's coefficient of correlation was used to measure a relationship between MVQOLI-Th total scores and the global QOL (1 item). For the known-group technique, the independent t-test was used to compare differences between the OPD and IPD group on the QOL total scores and all dimensions. Data analysis in the EFA proceeded in three steps. First, descriptive statistics were calculated to check if the data set was appropriate for factor analysis. Second, principle components analysis was performed for factor extraction. The Keiser-Guttman rule (eigen-value >1.0) and the scree plot were used for factor retention. Varimax rotation was performed for factor rotation. Finally, internal consistency coefficients (Cronbach's alpha) were calculated with 26 items (one global QOL item and five subscales). All data were analyzed using the Statistical Package for Social Science (SPSS for Windows 18.0). The significance level was set at 0.05.

## **Results**

### *Content validity index*

The content validity index of the MVQOLI-Th questionnaire was .94. When differentiating known groups was examined by comparing the MVQOLI-Th subscale scores of groups stratified by location services, participants at OPD reported significantly higher mean score on total QOL, global QOL (1 item), functional, and interpersonal than those patients at IPD (see **Table 1**)

**Table 1** Comparison of MVQOLI-Th total scores and all subscales scores between IPD and OPD Group

| QOL/dimension       | IPD (n= 71) | OPD (n= 55) | t-Value | p value |
|---------------------|-------------|-------------|---------|---------|
|                     | M (SD)      | M (SD)      |         |         |
| Global QOL (1 item) | 3.08        | 3.36        | -2.01   | .046    |
| Symptoms            | 7.58        | 9.33        | -1.61   | .110    |
| Functional          | 5.35        | 10.36       | -3.65   | .000    |
| Interpersonal       | 10.68       | 14.30       | -2.29   | .024    |
| Well-being          | -1.06       | 2.01        | -1.74   | .085    |
| Transcendence       | 5.67        | 8.49        | -1.57   | .120    |
| Total QOL           | 17.82       | 19.45       | -3.50   | .001    |

#### Convergent validity

Correlation analysis between the overall QOL, as measured by the global one item, and the MVQOLI-Th total score revealed a moderate positive relationship ( $r = 0.364, p < .01$ ), demonstrating convergent validity.

#### Exploratory factor analysis

Exploratory factor analysis with a Varimax rotation was conducted on 20 items of the MVQOLI-Th. The global QOL 1 item and "Importance" items from original tool (items 5, 10, 15, 20, and 25) were excluded. The factor analyses were completed using standardized

"raw" MVQOLI-Th scores, that is, scored on a five-point Likert scale. The Kaiser-Meyer-Olkin measure of sampling adequacy (0.69) and Bartlett's test of sphericity ( $\chi^2 = 676.61, df = 190, p < .001$ ) suggested that the data set was appropriate for an EFA. All item-factor loading below 0.40 was removed for clarity.

#### Seven-factor varimax-rotated solution

A principal component analysis showed seven factors with eigen-values  $>1$ . Based on the scree plot, the number of factors appeared to be seven which explained 60.88% of common variance (see Table 2).

**Table 2** Seven- and five factor varimax-rotated solution of 20-item MVQOLI-Th

|                                                                                       | Seven-factor varimax-rotated solution |     |     |   |     |   |   | Five-factor varimax-rotated solution |     |     |   |   |
|---------------------------------------------------------------------------------------|---------------------------------------|-----|-----|---|-----|---|---|--------------------------------------|-----|-----|---|---|
|                                                                                       | 1                                     | 2   | 3   | 4 | 5   | 6 | 7 | 1                                    | 2   | 3   | 4 | 5 |
| 7. I am no longer able to do many of the things I like to do.                         | .69                                   |     |     |   |     |   |   | .50                                  |     |     |   |   |
| 2. I feel sick all the time.                                                          | .69                                   |     |     |   |     |   |   | .59                                  |     |     |   |   |
| 24. Life has lost all value for me; every day is a burden.                            | .65                                   |     |     |   |     |   |   | .65                                  |     |     |   |   |
| 21. I feel more disconnected from all things now than I did before my illness.        | .61                                   |     |     |   |     |   |   | .57                                  |     |     |   |   |
| 19. The longer I am ill, the more I worry about things "getting out of control".      | .58                                   |     |     |   |     |   |   | .60                                  |     |     |   |   |
| 8. I am satisfied with my ability to take care of my basic needs.                     | .55                                   |     |     |   | .41 |   |   | .57                                  |     |     |   |   |
| 6. I am dependent on others for personal care.                                        | .52                                   |     |     |   |     |   |   | .54                                  |     |     |   |   |
| 13. In general, these days I am satisfied with relationships with family and friends. |                                       | .82 |     |   |     |   |   |                                      | .54 |     |   |   |
| 12. I feel closer to others in my life now than I did before my illness.              |                                       | .66 |     |   |     |   |   |                                      | .64 |     |   |   |
| 14. At present, I spend as much time as I want to with family and friends.            |                                       | .61 |     |   |     |   |   |                                      | .52 |     |   |   |
| 17. If I were to die suddenly today, I would feel prepared to leave this life.        |                                       |     | .86 |   |     |   |   |                                      |     | .79 |   |   |

**Table 2** Seven- and five factor varimax-rotated solution of 20-item MVQOLI-Th (Continued)

|                                                                                   | Seven-factor varimax-rotated solution |       |      |      |      |      |      | Five-factor varimax-rotated solution |       |      |      |      |
|-----------------------------------------------------------------------------------|---------------------------------------|-------|------|------|------|------|------|--------------------------------------|-------|------|------|------|
|                                                                                   | 1                                     | 2     | 3    | 4    | 5    | 6    | 7    | 1                                    | 2     | 3    | 4    | 5    |
| 23. I am comfortable with the thought of my own death.                            |                                       |       | .85  |      |      |      |      |                                      |       | .78  |      |      |
| 4. I am satisfied with the current control of my symptoms.                        |                                       |       |      | .71  |      |      |      | .44                                  |       |      |      |      |
| 11. I have recently been able to say important things to the people close to me.  |                                       |       |      | .70  |      |      |      |                                      |       |      |      |      |
| 1. My symptoms are adequately controlled.                                         |                                       |       |      | .65  |      |      |      |                                      | .45   |      |      |      |
| 22. I have a better sense of meaning in my life now than I have had in the past.  |                                       |       |      |      | .75  |      |      |                                      |       |      |      | -.43 |
| 18. I am more satisfied with myself as a person now than I was before my illness. |                                       |       |      |      | .46  |      | .44  | .56                                  |       |      |      |      |
| 9. I accept the fact that I cannot do many of the things that I used to do.       |                                       |       |      |      |      | .66  |      | .46                                  |       |      | .45  | .43  |
| 16. My affairs are not in order; I am worried that many things are unresolved.    |                                       |       |      |      |      | .63  |      |                                      |       |      | .58  |      |
| 3. I accept my symptoms as a fact of life.                                        |                                       |       |      |      |      |      | .81  |                                      |       |      |      |      |
| Proportion of variance                                                            | 17.24                                 | 11.31 | 8.62 | 6.76 | 5.99 | 5.76 | 5.19 | 17.24                                | 11.31 | 8.62 | 6.76 | 5.99 |
| Eigen-value                                                                       | 3.45                                  | 2.26  | 1.72 | 1.35 | 1.20 | 1.15 | 1.04 | 3.45                                 | 2.26  | 1.72 | 1.35 | 1.20 |

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Global quality of life item and weighting items excluded;

item-factor loading below 0.40 removed for clarity.

Also shown in Table 2, factor 1 (eigen-value = 3.45), explained 17.24% of the common variance. The three *Function* items (item 6, 7, 8) and items 2, 19, 21, 24 loaded most highly on to factor 1.

Factor 2 (eigen-value = 2.26), explained 11.31% of the common variance. The three items (item 12, 13, 14) from the *Interpersonal* subscale loaded together on to Factor 2.

Factor 3 (eigen-value = 1.72), explained 8.62% of the common variance. The content of factor 3 containing item 17 (“If I were to die suddenly today, I would feel prepared to leave this life.”) and item 23 (“I am comfortable with the thought of my own death.”).

Factor 4 (eigen-value = 1.35), explained 6.76% of the common variance. The two items from the *Symptoms* subscale item 1 (“My symptoms are adequately controlled.”) and item 4 (“I am satisfied with the current control of my symptoms.”) loaded together, with item 11 (“I have recently been able to say important things to the people close to me”) loading on Factor 4.

Factor 5 (eigen-value = 1.2), explained 5.99% of the common variance. The content of factor 5 containing item 18 (“I am more satisfied with myself as a person now than I was before my illness.”) and item 22 (“I have a better sense of meaning in my life now than I have had in the past.”).

Factor 6 (eigen-value = 1.15), explained 5.76% of the common variance. The content of factor 5 containing item 9 (“I accept the fact that I cannot do many of the things that I used to do.”) and item 16 (“My affairs are not in order; I am worried that many things are unresolved.”).

Factor 7 (eigen-value = 1.04), explained 5.19% of the common variance, with only item 3 (“I accept my symptoms as a fact of life.”) loading.

The results showed that some items in the study did not load onto the respective subscales found in the original MVQOLI, with two items loading high on more than one factor. The seven-factor solution shows some resemblance to the five subscales posited by Byock et al.<sup>7</sup> with factor 1, 2, and 4 corresponding

reasonably well to the *Function*, *Interpersonal*, and *Symptoms* subscales, respectively. However, there were a number of mismatches compared with the findings of Byock et al.<sup>7</sup> Given these results and the test developers' notion of five subscales underpinning the MVQOLI, we then examined a five-factor solution.

#### *Five-factor varimax-rotated solution*

Given that the original version of questionnaire contained five factors, we decided to use a specifying extraction of only a five factor solution in the analysis. Then a principle factoring method was used to extract the five factors which explained 49.9% of common variance. An examination of the factor loadings in the 20-item analysis did not support the theoretical structure of the MVQOLI-Th. Some items did not load onto the respective subscales found in the original MVQOLI. In general, the highest loading items within each factor were not items that were hypothesized to load together, one item loading high on more than one factor and two items (item 3 "I accept my symptoms as a fact of life" and item 11 "I have recently been able to say important things to the people close to me") not loading on any factor (see **Table 2**).

#### *Reliability*

For the internal consistency reliability testing of the MVQOLI-Th scores, the inter-item correlation coefficients ranged between -.386 and .537. The corrected item-total correlation values were positive for all items except item 5. The internal consistency of the 26-item MVQOLI-Th was scored as recommended by its authors; the standardized Cronbach's alpha coefficient was 0.68 and did not increase by more than 0.1 if any of the items were deleted.<sup>18</sup> Internal consistencies for the five MVQOLI-Th subscales using the authors' MVQOLI scoring procedure were as follows: Symptoms  $\alpha = 0.145$ , Function  $\alpha = 0.320$ , Interpersonal  $\alpha = 0.478$ , Well-being  $\alpha = 0.413$ , and Transcendence  $\alpha = 0.207$ .

## **Discussion**

The aim of this study was to test the validity and reliability of MVQOLI translated into Thai. Even though, this instrument was translated to use in

patients with advanced disease, no systematic evaluation has been reported.<sup>11</sup>

For convergent validity, the correlation coefficients showed moderate correlation between MVQOLI-Th total scores and global QOL indicating appropriate classification.

For validity, evidence demonstrates the ability of the instrument to differentiate between the groups. The known-group technique indicated that the MVQOLI-Th could discriminate in QOL total scores, global QOL (1 item), functional, and interpersonal domain between OPD and IPD group. This supports the assumption that the OPD group had higher QOL than those of IPD group. The lack of a significant difference between the two groups in well-being and transcendence dimension may be due to psycho-spiritual well-being relating to their own faith, tradition, hope, and meaning in life.<sup>19</sup> There were individual differences in the extent to which patients with advanced cancer find meaning in their experience, so that it does not depend on being inside hospital or the community as an outpatient. There was not a significant difference between the groups in the symptoms dimension, meaning that symptoms control can be done whilst in hospital or as an outpatient.

Factor analysis is an important step in demonstrating the validity of a psychometric instrument and helps to identify the major constructs or dimensions that underpin a measure and any subscales.<sup>20</sup> The factor structure of the MVQOLI-Th in the samples included in this study did not support the theoretical structure of the instrument. In general, the highest loading items within each factor were not items that were hypothesized to load together. Similar to the one of two previous studies,<sup>9</sup> there was not good evidence for those constructs thought to underpin the five subscales of the MVQOLI. Another previous study<sup>10</sup> however, found evidence of five factors underpinning the MVQOLI, which corresponds reasonably well to the subscales described by the MVQOLI developers.

In factor analysis using both the seven and five factor solution, *Function* and *Interpersonal* subscales,

the items loading identified corresponded closely to the original MVQOLI subscales. However the *Symptoms*, *Well-being* and *Transcendence* subscales the items were fragmented to various factors. In factor 1, there was some overlap between the *Function*, *Transcendence*, and *Symptoms* subscales, with item 21, 24 of *Transcendence* subscale and item 2 (“I feel sick all the time.”) of *Symptoms* subscale loading on factor 1 (*Function*). There was some overlap between the *Well-being*, and *Transcendence* subscales that was consistent with previous studies suggested that the items from well-being and transcendence dimensions of the MVQOLI may be used together as a single.<sup>10, 14</sup> In the seven factor solution, factors 3 and 5 had items of well-being and transcendence mixed together.

Factor analysis did not correspond to the original subscales: an examination of the factor loadings in the 20-item analysis did not support the theoretical structure of the instrument. This may be due to cultural differences in the Thai version comparable with the original version. The total scale internal consistency of Cronbach’s alpha coefficient was 0.68 (slightly lower than the 0.7 criterion<sup>18</sup> for a new scale). Moreover, some subscales have a low Cronbach’s alpha-value, meaning some items are not all measuring the same thing. It could reflect the multidimensionality of the subscale because of each subscale contained 3 dimensions (assessment, satisfaction, and importance). The symptoms domain using the authors’ MVQOLI-Th scoring procedure had weakest internal consistency. A possible explanation for this finding is that the item 5 statement, “Physical discomfort overshadows any opportunity for enjoyment” was quite confusing and was not able to bring out the importance of physical symptoms to the *Symptoms* domain. Consistent with the study of Namisango et al.<sup>8</sup> the *Symptoms* dimension of MVQOLI had the weakest internal consistency and item 5 was also problematic. Moreover, only item 5 had the corrected item-total correlation values negative with all items.

Even though, the instrument may not have suitable psychometric properties, Schwartz et al.<sup>9</sup> suggested that the MVQOLI facilitated a more holistic approach by providing a framework and information about patient needs related to physical, emotional, social, and spiritual concerns. Use of the instrument can stimulate in-depth discussions that enhance the understanding of healthcare providers and families about patient concerns, thus it has some clinical utility for assessing overall QOL.

## Conclusion

This study constituted a major preliminary step in evaluating the psychometric properties of the MVQOLI in a different culture. The result did not confirm the psychometric validity of the translated tool. Thus, we cannot assume that constructs that have been shown to be valid in Western populations will generalize to other cultures and in other languages.<sup>21</sup>

## Limitations and Recommendations

There are a number of limitations to this study. First, it is difficult to conduct a study with patients with advanced cancer, for example due to lack of energy, high study attrition rates, and thus finding people able to complete a instrument two or more times. Therefore the test-retest reliability could not be performed. Second, in order to participate, patients were required to be well enough to engage in self-report data collection, which may bias our data against those with cognitive problems and nearing the end of life. Data collection must be cautious because it is a sensitive issue to patients and their family members. Third, the sample size for the patients with advanced cancer receiving palliative care was limited, and random sampling could not be performed.

The limitation of the instrument was that the scoring of the instrument is a complex weighting system that increases difficulty in the interpretation of the results. Factor analysis did not correspond to the original subscales and the internal consistency

reliability in each dimension was rather low. Item 5 in the *Symptoms* dimension was identified as difficult to understand and internal consistency was increased when this item was dropped. This item should be clarified.

Another limitation is cultural sensitivities consistent with the study of Namisango et al.,<sup>8</sup> and its validity and reliability in different cultures considering the view that perceptions and valuations of the QOL domains may vary from culture to culture.

**Implications for nursing practice.** While there is no standard tool to assess QOL of Thais with terminal illness, we recommend that MVQOLI-Th be used after dropping item 5 (“Physical discomfort overshadows any opportunity for enjoyment”). However, some culturally sensitive issues were found in this research study,<sup>8</sup> thus we recommend that a new Thai instrument be developed and tested.

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## ความตรงและความเที่ยงของแบบสอบถามดัชนีวัดคุณภาพชีวิตมิสซูลา วิตาส ฉบับภาษาไทย

ปิยะวรรณ โภคพลากรณ์ สมจิต หนูเจริญกุล

**บทคัดย่อ:** คุณภาพชีวิตเป็นตัวชี้วัดผลลัพธ์ที่สำคัญของการดูแลแบบประคับประคองในผู้ป่วยระยะท้าย แต่ไม่มีเครื่องมือเฉพาะที่พัฒนาอย่างเป็นระบบในการวัดผลลัพธ์นี้ในประเทศไทย การศึกษานี้มีวัตถุประสงค์เพื่อตรวจสอบความตรงและความเที่ยงของแบบสอบถามดัชนีวัดคุณภาพชีวิตมิสซูลา วิตาส ฉบับภาษาไทย การศึกษาประกอบด้วย 4 ขั้นตอน คือ การแปลทวนกลับจากภาษาอังกฤษเป็นภาษาไทย และจากไทยเป็นอังกฤษ การตรวจสอบความตรงตามเนื้อหาโดยผู้ทรงคุณวุฒิ การตรวจสอบความตรงเชิงโครงสร้างโดยความเที่ยงตรงเชิงเหมือน เทคนิคกลุ่มรู้ชัด และวิเคราะห์องค์ประกอบ และการทดสอบความเที่ยงความสอดคล้องภายใน กลุ่มตัวอย่างเป็นคนไทยที่เป็นมะเร็งระยะลุกลามและได้รับการดูแลแบบประคับประคองจากสถานพยาบาล 5 แห่ง จำนวน 180 คน ใช้ในการทดสอบความเที่ยงตรงเชิงเหมือน วิเคราะห์องค์ประกอบ และการทดสอบความเที่ยงความสอดคล้องภายใน กลุ่มตัวอย่าง 126 คน ซึ่งเป็นส่วนหนึ่งของกลุ่มตัวอย่าง 180 คน ใช้ในการทดสอบเทคนิคกลุ่มรู้ชัด ผลการศึกษาพบว่าแบบสอบถาม ฉบับภาษาไทยมีความตรงตามเนื้อหาที่ยอมรับ และเทคนิคกลุ่มรู้ชัดสามารถแยกความแตกต่างของคุณภาพชีวิตโดยรวม มิติการทำหน้าที่ และความสัมพันธ์ระหว่างบุคคล ผลการวิเคราะห์องค์ประกอบเชิงสำรวจ พบว่าเครื่องมือนี้ประกอบด้วย 7 องค์ประกอบ ซึ่งสามารถอธิบายความแปรปรวนของเครื่องมือโดยรวม คิดเป็น 60.88% และเมื่อวิเคราะห์ที่กำหนด 5 องค์ประกอบตามเครื่องมือต้นฉบับ จะสามารถอธิบายความแปรปรวนได้ทั้งหมด 49.9% ผลการวิเคราะห์องค์ประกอบไม่ได้ยืนยันความตรงเชิงโครงสร้าง และความสอดคล้องภายในของแต่ละด้านค่อนข้างต่ำ ดังนั้นคุณสมบัติของเครื่องมือในการวัดทางด้านจิตวิทยาอาจไม่เหมาะสมนัก แต่เครื่องมือนี้มีประโยชน์ทางคลินิกสำหรับการประเมินคุณภาพชีวิตโดยรวม ดังนั้นผู้วิจัยเห็นสมควรว่าควรจะพัฒนาเครื่องมือวัดคุณภาพชีวิตในบริบทวัฒนธรรมไทยสำหรับผู้ที่ป่วยในระยะท้ายของชีวิตขึ้นใหม่

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