Development of the Health Empowerment Scale (HES) for the Students in the Pondok School of Three Southern Border Provinces

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Abstract

The main objectives of this research were to develop an instrument to measure empowerment of Muslim students regarding their health and status, and to determine its psychometric properties. The Health Empowerment Scale (HES) was developed by using qualitative and quantitative methods. A multistage sampling method was used to obtain 891 subjects who were randomly assigned to this research. Data collection for HES was done from September 2008 to February 2009. The psychometric properties testing of the instrument consisted of determining the construct validity by using exploratory factor analysis and the reliability by using coefficient alpha and discriminant analysis. The results of the study included the following: HES comprised thirty items and four factors that explained a total of 35.783 % of variance. Factor loadings of the HES were ranged from 0.475-0.801. The four factors consisted of: *Factor I*: Participation, discussion, and changing behaviors for social well-being (9 items) with factor loadings ranging from 0.475-0.713 and accounted for 21.331% of variance with an eigenvalue of 18.984; *Factor II*: Participation, discussion, and changing behaviors for spiritual well-being (10 items) with factor loadings ranging from 0.420-0.736 and accounted for 5.696% of variance with an eigenvalue of 5.070; *Factor III*: Participation and discussion for religious well-being (6 items) with factor loadings ranging from 0.520-0.720 and accounted for 4.569% of variance with an eigenvalue of 4.067; and *Factor IV*: Participation, discussion, and changing behaviors for psychological well-being (5 items) with factor loadings ranging

from 0.726-0.801 and accounted for 4.186% of variance with an eigenvalue of 3.726. Finally, the 30-Item of HES was tested for reliability using Cronbach's coefficient alpha, which the result was 0.926.

Keywords: Health Empowerment Scale (HES), Student, Pondok School, Southern Border Provinces

Introduction

The concept of empowerment is mostly used in providing care not only for disabled persons, elderly, female factory workers, but also for patients with HIV and children. Additionally, it is a valuable concept in many disciplines, such as psychology, sociology, politics, and business and management. This is because empowerment can help to build confidence, increase a sense of self-awareness, promote self-esteem and self-efficacy, and overcome barriers. Empowerment can be viewed as a process and an outcome (Chamberlin, 1997; Cox & Parsons, 1994; Israel, Checkoway, Schulz, & Zimmerman, 1994; Potter & Perry, 2003; Zimmerman & Warschausky, 1998).

In Finnish intensive care units, the concept of empowerment was studied and found to have three components: behavioral, verbal, and outcome empowerment (Suominem, Leino-Kilpi, Merja, Doran & Puuka, 2001). The behavioral empowerment referred to the sense of control that one has gained through his/her own actions over the work environment and specific job tasks including job autonomy while verbal empowerment referred to the ability to express views and opinions and to defend them in the workplace. Last, outcome empowerment referred to the sense of how much one can influence the outcomes of his/her job. After reviewing the literatures, there is none that studies the empowerment scale in a Thai context specifically on Muslim students. Most of empowerment scales are developed in western cultures. Generally, the empowerment scale that was developed for one culture is neither sufficient nor appropriate for cross-cultural study; therefore, different cultures require appropriate constructs and instruments (Lee, Jones, Mineyama, & Zhang, 2002; Saito, Nomura, Noguchi, & Tezuka, 1996). The development of a new empowerment scale related to Islamic context for students, conceptual framework, population and sample, and setting are required. To adequately assess empowerment of Muslim students, a tool is very important and is needed to provide an effective and efficient approach.

Objectives

To develop the Health Empowerment Scale (HES) in order to measure the level of empowerment regarding health among students in the Islamic schools of southern border provinces, Thailand, and to determine the psychometric properties of the HES.

Conceptual Framework

The conceptual framework of this research consists of three concepts, namely health, empowerment, and a norm-referenced framework. First, health is an increasingly important global issue, particularly for health promotion and maintenance, wellness, and illness prevention. It means different things to different people (Jirojwong & Liamputtong, 2009). In this study, a health concept consists of physical, psychological, spiritual and social well-being. Second, empowerment is a complex, multidimensional and multifaceted concept. It consisted of three components which were modified from Suominen and colleagues (2001), namely, (1) behavioral empowerment refers to the sense of control that students gain through his/her own actions over health, (2) verbal empowerment refers to ability to express views and opinions and defend these as it pertains to the health of students, and (3) outcome empowerment refers to the sense of how much the student can influence the outcomes of his/her own health. Finally, a measurement framework is used in this study. Norms are not standards or goals. Polit and Beck (2008) stated that norms indicate the “normal” values and distribution of values on the measure for a specified population. The general purpose of a norm-referenced measure is to compare a person’s score with the scores of other people. The implications of the norm-referenced framework have benefits for the identification of groups so anyone may be in need of intervention to increase their empowerment level.

Methods

In Thailand, the majority of people are Buddhist. However, most of them are Muslims who live in three southern provinces namely Yala, Pattani, and Narathiwat. There are differences between Buddhists and Muslims in terms of religion-based beliefs, ethnic differences, and responses to health. They have their unique life-styles, language, education, culture and society. To maintain ethnic identities, Muslims send their children

to the Private Islamic schools or the Pondok schools in which some are beyond official supervision. These schools are funded by private donations.

Population and Sample

In 2007, there were 26,915 students at level fourth (Grade 10, 11, & 12) in these three provinces. The samples in this study were obtained from two phases; the qualitative and the quantitative. In qualitative phase, the participants were from seven Muslim students of a school in one province of the Pondok school, southern Thailand. While in the quantitative phase, the multistage sampling method was used from eleven schools in three provinces, southern Thailand.

There is neither consensus among experts nor hard-and-fast rules in order to set the sample size (Polit & Beck, 2008). The more samples should be included in the analysis whenever the large number of items are factored and the large number of factors anticipated (DeVellis, 1991; Nunnally & Bernstein, 1994). The sample size in this study was composed of a ratio of 10 subjects for each item. There were 900 students who participated in the study from all the three provinces. With a power of .80 and an alpha of .01, the number of students needed in each of the three Muslim provinces was 319. With a power of .80 and an alpha of .05, the number of students needed in each of the three Muslim provinces was 62 (Polit & Beck, 2008). Therefore, it was clearly seen that the number of subjects were met the criteria.

The inclusion criteria for recruiting subjects were the ability to read Thai language and being study in the Private Islamic schools in the three southern border provinces of Thailand.

Development of the Health Empowerment Scale (HES) and testing psychometric properties

The HES was developed by the researchers using a two-phase process: the qualitative method (Figure 1) and the quantitative method (Figure 2).

Figure 1: The qualitative phase of the Health Empowerment Scale (HES)

Protection of Human Subjects' Rights

Upon approval from the Institutional Review Board of the Faculty of Nursing, Prince of Songkla University, teachers, and parents and Muslim students in the Islamic schools of three southern provinces, Thailand, were contacted for permission to take part in the study.

Data Collection

To collect the qualitative data, tape recordings and written text formats were used in in-depth individual interviews. When no new information was identified, the interviews were concluded. Tape recordings were transcribed fully. Written and transcribed data were typed on a word processor. Furthermore, to collect the quantitative data, a questionnaire including the Demographic Data Form and the HES was sent to students to request that they complete and return the questionnaires by helping from research assistants. There were four research assistants who were trained and available for data collection during the qualitative and quantitative study.

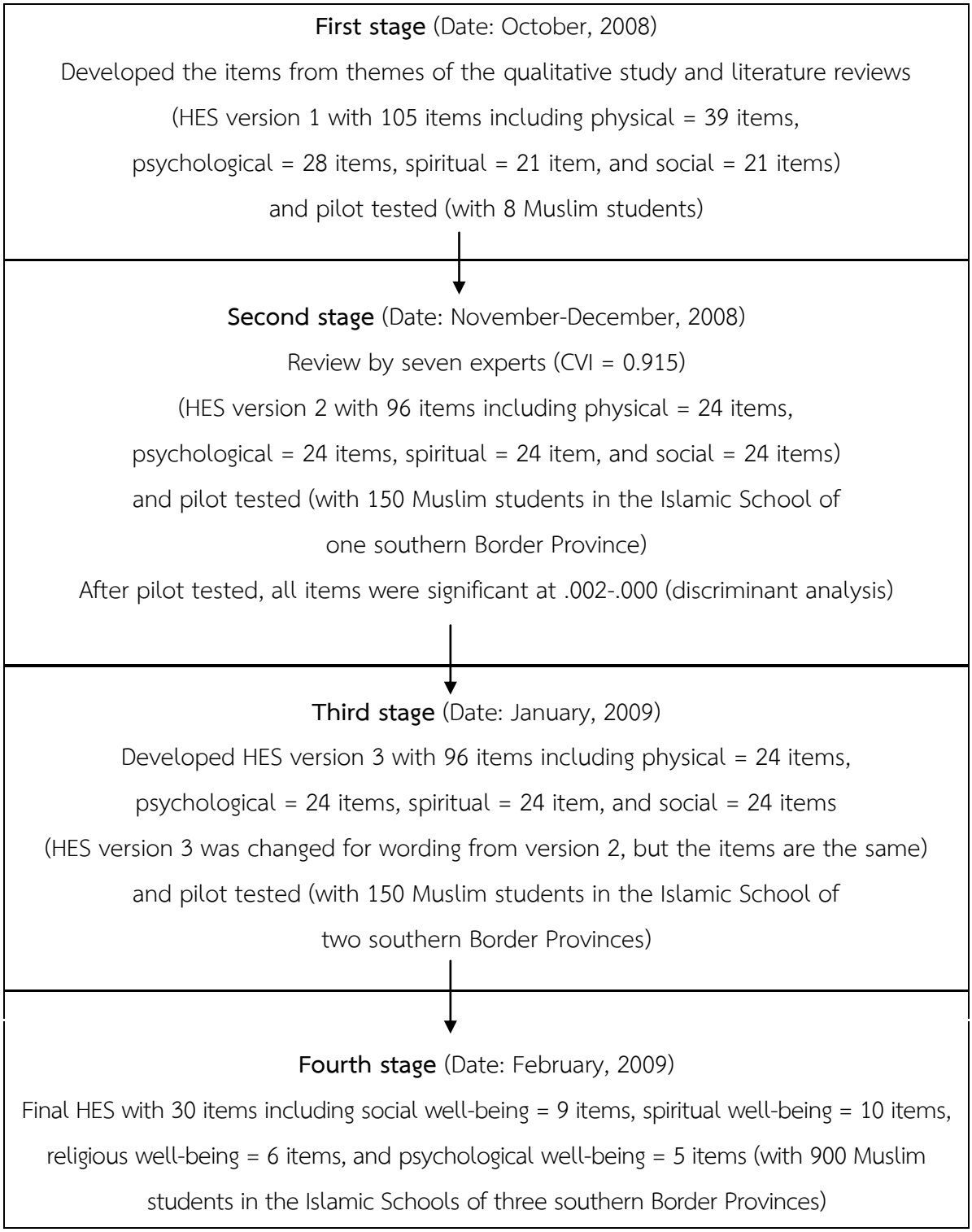

Figure 2: The development and testing psychometric properties of the Health Empowerment Scale (HES)

Data Analysis

Only those questionnaires with complete data were included in the analysis. Demographic Data was computed using descriptive statistics. To assure the quality of the HES, differentiating item selection and reliability testing were conducted in all pilot testing using t-test and Cronbach's coefficient alpha respectively.

Results and Discussions

Results

1. Characteristics of the sample

Of the 900 surveys distributed by the researcher assistants, 894 were returned (99.33%). Of this number, 3 (0.34%) surveys were incomplete, leaving 891 (99.66%) completed surveys for the study sample. The majority of the students were 17-19 years old (69%) and female (70.6%). Their educational level was Grade 10 (28.6%), Grade 11 (35.4%), and Grade 12 (36.0%). They were the students in the Private Islamic schools (or Pondok schools) of three southern Border provinces, Thailand, namely; Narathiwat (33.6%), Pattani (33.2%), and Yala (33.2%).

2. The components of the HES

By subjecting the 89-item HES which the reliability equal to 0.926 to principal component analysis, for analyzing and interpreting the factor analysis, four criteria were set including: (1) the factors with Eigenvalues greater than 1, (2) the Scree Plot, (3) an item loading cutoff point of at least .4, and (4) theoretical congruence in each factor. Examination of the initial solution yielded 4 factors with Eigenvalue greater than 1. An examination of the Scree plot indicated that 4 factors should be examined. From the literature review, HES was hypothesized to have 4 underlying dimensions; a 4-factor solution using varimax with Kaiser normalization was originally specified. Finally, the 4-factor varimax solution was judged to be the most parsimonious and theoretically interpretable. The four factors consisted of 30 items and displayed a total of 35.783% of variance. The resulting four factors included:

Factor I consisted of 9 items with factor loadings ranging from 0.475-0.713, and accounted for 21.331% of variance with an eigenvalue of 18.984. An examination of the item content revealed that these items focused on participation for social well-being (3 items), discussion for social well-being (3 items), and changing behaviors for social well-

being (3 items). Thus this factor was labeled as "Participation, discussion, and changing behaviors for social well-being."

Factor II consisted of 10 items with factor loadings ranging from 0.420-0.736, which accounted for 5.696% of variance with an eigenvalue of 5.070. An examination of the item contents revealed that these items focused on participation for spiritual well-being (3 items), discussion for spiritual well-being (3 items), and changing behaviors for spiritual well-being (4 items). Thus this factor was labeled as "Participation, discussion, and changing behaviors for spiritual well-being."

Factor III consisted of 6 items with factor loadings ranging from 0.520-0.720, and accounted for 4.569% of variance with an eigenvalue of 4.067. An examination of the item content revealed that these items focused on participation for religious well-being (3 items), and discussion for religious well-being (3 items). Thus this factor was labeled as "Participation and discussion for religious well-being."

Factor IV consisted of 5 items with factor loadings ranging from 0.726-0.801, and accounted for 4.186% of variance with an eigenvalue of 3.726. An examination of the item content revealed that these items focused on participation for psychology well-being (2 items), discussion for psychology well-being (2 items), and changing behaviors for psychology well-being (1 items). Thus this factor was labeled as "Participation, discussion, and changing behaviors for psychological well-being."

3. The psychometric properties of the HES

To be a valuable tool, the construct validity or the component of the HES was presented above. In addition, the 30-Item HES was tested for reliability. Cronbach's coefficient alpha was computed on each derived factor. The reliabilities of the four factors and the total scale ranged from 0.850-0.899, and 0.926 respectively. The highest value of reliability (alpha = 0.899) went to Factor II: Participation, discussion, and changing behaviors for spiritual well-being, while the lowest value of reliability (alpha = 0.850) went to Factor III: Participation and discussion for religious well-being. However, all four factors and the HES total score had internal consistency reliabilities.

Discussions

1. The components of the HES were discussed as following:

Factor I: Participation, discussion, and changing behaviors for social well-being. This consisted of nine items with factor loadings ranging from 0.405-0.635. The first factor

explained the social well-being. As Chamberlin (1997) stated that empowerment does not occur to the individual alone, but it has to do with experiencing a sense of connectedness with other people. For pre-adolescent and early adolescent group, parents are the greatest source of support while in young adults, friends remain important to them. In addition, the family networks and friends are essential sources of support for the elderly (Pender, Murdaugh & Parsons, 2002). Furthermore, the Family Empowerment Scale (FES), system advocacy such as professionals and families is one component of the FES (Singh & Curtis, 1995). Finally, the ability to maintain health and well-being is tenuous (Eugenie, 2002).

Factor II: Participation, discussion, and changing behaviors for spiritual well-being. The second factor consisted of 10 items with factor loadings ranging from 0.405-0.698. This factor was labeled as "Participation, discussion, and changing behaviors for spiritual well-being." Chandler and colleagues (1992) mentioned that spiritual aspect is an essential part of the human being that needs to be fostered the same as mind and body. Spiritual beliefs could offer a means for reconciliation and understanding of life (Brooke, 1987).

Factor III: Participation and discussion for religious well-being. The third factor consisted of six items with factor loadings ranging from 0.423-0.685. This factor was labeled as "Participation and discussion for religious well-being" because all items reflected participation and discussion regarding being religious for example in the statement number 50 of the HES, it reads: To read the Al-Qur'an with the family" and in the statement number 51 that reads: "To share the idea of reading the Al-Qur'an with the family."

Factor IV: Participation, discussion, and changing behaviors for psychological well-being. The fourth factor consisted of 5 items with factor loadings ranging from 0.405-0.708. The fourth factor in this study incorporated items from issues of mental health such as illustrated in the HES statement number 25, which reads "When stressed, talk with friends in order to relax" and number 26 which reads: "To join activities to help relax with friends." Empowerment does not appear if without a basic sense of well-being and quality of life (Eugenie, 2002; Rogers, Chamberlin, Ellison, & Crean, 1997).

2. The psychometric properties of the HES were discussed as following:

The reliabilities of the four factors and the total scale ranged from 0.850-0.899, and 0.926 respectively. The highest value of reliability (alpha = 0.899) went to Factor II: Participation, discussion, and changing behaviors for spiritual well-being, while the lowest value of reliability (alpha = 0.850) went to Factor III: Participation and discussion for religious well-being. However, all four factors and the HES total score had internal consistency reliabilities. The reasons of the psychometric properties of the HES are shown as follows:

First, the process of developing the HES consisted of various steps including qualitative and quantitative study. For instance, this study started with the extensive review of literature and discussed the framework of the HES with and expert committee from Thailand and Australia. It is congruent with the suggestion for an expert panel to a new measure (Rubio, Berg-Weger, Tebb, Lee & Rauch, 2003).

Second, the HES had a sufficient pool of items from the initial phase of developing the scale. More details included: the HES was made up of 105 items with four factors of the scale. After review from experts, pilot testing, and assessing an item's ability to discriminate and reliability twice, the HES remained at 89 items. By subjecting the 89-item HES to principal components analysis with a whole group (N = 891), four factors of 30 items had a high reliability of 0.956.

Third, the items of the HES were written in the five-point Likert scale format appropriate to measure the construct of empowerment. Chamberlin (1997) suggested the format to make choices: "yes or no" was not appropriate to measure a concept of empowerment.

Forth, the appropriate of the language, culture, ethnic difference, and the content of the HES were considered in the process of developing the HES. For example, discussion of religious for Muslim people in the first step of qualitative study.

Finally, for each item, Munro (2001) and Polit & Beck (2008) presented a ratio of at least 10 subjects is desirable for scale development. In this study, a ratio of subject for each item was 10:1. Similarly to the development of the short Muslim practice and belief scale, internal consistency of the full scale and subscales were all above 0.80. This study is strengthened by the large sample size (AlMarri, Oei, & Al-Adawi, 2009).

Conclusions

HES comprised of thirty items and four factors that explained a total of 35.783 % of variance. Factor loadings of the HES were ranged from 0.475-0.801. The four factors consisted of: *Factor I*: Participation, discussion, and changing behaviors for social well-being (9 items) with factor loadings ranging from 0.475-0.713 and accounted for 21.331% of variance with an eigenvalue of 18.984; *Factor II*: Participation, discussion, and changing behaviors for spiritual well-being (10 items) with factor loadings ranging from 0.420-0.736 and accounted for 5.696% of variance with an eigenvalue of 5.070; *Factor III*: Participation and discussion for religious well-being (6 items) with factor loadings ranging from 0.520-0.720 and accounted for 4.569% of variance with an eigenvalue of 4.067; and *Factor IV*: Participation, discussion, and changing behaviors for psychological well-being (5 items) with factor loadings ranging from 0.726-0.801 and accounted for 4.186% of variance with an eigenvalue of 3.726. Finally, the 30-Item of HES was tested for reliability using Cronbach's coefficient alpha, the result of which was 0.926.

Recommendations

The HES was developed to measure the extent of health empowerment of students in specific context namely Muslim adolescent group (14-25 years old). This measurement concentrated on the individual level of empowerment. The HES from this study had robust psychometric properties that will be useful to assess the empowerment status related to health in four dimensions including the social, spiritual, religious, and psychological well-being. The HES may prove to be a useful measure to the success of health professionals, education, administration, and research. Finally, norms and the criterion to interpret and meaning of the Health Empowerment Scale are important and presented as following: (1) Less than 35 means empowerment related to health at the lowest level, (2) 35-44 means empowerment related to health at the low level, (3) 45-54 means empowerment related to health at the moderate level, (4) 55-65 means empowerment related to health at the high level, and (5) More than 65 means empowerment related to health at the highest level.

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