

Development and Psychometric Evaluation of the Thai Nurses' Job Satisfaction Scale

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Abstract: The purposes of this research were to: develop the "Job Satisfaction Scale for Thai Nurses (TNJSS)"; and, determine the psychometric properties of the TNJSS. The researcher-developed TNJSS was based on an analysis of the concept of job satisfaction within the context of Asian cultures, in-depth interviews of Thai nurses and an extensive review of the literature. The scale's psychometric properties were determined using 963 randomly-selected nurses from 12 general hospitals, administered by the government, that represented all regions of Thailand. Due to a large power distance (extent to which the less powerful members of organizations/institutions accept and expect power to be distributed unequally) and Kreng Jai (not causing discomfort or inconvenience to others) being of importance in the Thai culture, the Social Desirability Scale-17 (SDS-17) was distributed to subjects along with the TNJSS.

Content validity of the scale was examined via three experts in administration and instrument development. The three experts also determined the tool's items adequately represented the content domain. The instrument's construct validity was assessed via factor analysis and hypothesis testing. The scale's internal consistency reliability was examined by way of Cronbach's alpha and its stability was tested using the test-retest method.

The final version of the 107-item TNJSS was found to measure eight factors: incentives; professional autonomy and recognition; nursing supervisor; social aspect at work; workload; work environment; nursing policies and system; and, assertiveness in confronting difficulties. A significantly weak correlation was found between the total scores of the SDS-17 and the TNJSS, suggesting the presence of a large power distance and Kreng Jai were not factors in the nurses' responses. The construct and content validity, and the reliability of the scale were found to be satisfactory.

The results revealed the TNJSS to be a psychometrically valid and reliable tool for evaluating Thai nurses' job satisfaction. However, future research is needed to refine the instrument and to assess its applicability in measuring job satisfaction of nurses working in hospitals, throughout Thailand, that are not administered by the government.

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Introduction

Health care delivery systems go to great lengths to deliver quality care, so as to obtain accreditation from organizations such as the Hospital Accreditation Association. However, because of the extensive

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documentation and required health care delivery tasks associated with obtaining accreditation, an increase in workload is placed upon hospital employees, especially nurses. In addition, due to an increased access to health care, as a result of government policies,¹ patients have developed expectations regarding their care, and, as a result, are demanding receipt of quality nursing care. The requirements of professional performance, related to accreditation, and patients' demands have led nurses to become frustrated with their roles within their respective health care organization. Thus, many have resigned or left nursing because of feeling physically exhausted, being frustrated, and experiencing a sense of low satisfaction with their jobs.² This situation has occurred even though Thai nurses, in both the public and private health care systems, have received consistent increases in salary.³

In addition to accreditation and job related responsibilities, Thai nurses have to contend with aspects of the culture that impact their beliefs and how they perform within their respective work settings. For example, the presence of a power distance (extent to which the less powerful members of organizations/institutions accept and expect power to be distributed unequally)⁴ and *kreng jai* (not to cause discomfort or inconvenience for another person)⁵ have an influence on Thai nurses. Hence, the nurses tend to concede to individuals with higher authority, in their health care organizations (i.e. senior nurses, physicians and administrators), and, as a result, because of the need to live harmoniously with others, neither question nor confront these individuals. Consequently, when nurses are asked to perform physician-related functions, they do the tasks despite the risk of possibly losing their professional licenses.³

In Thailand, it has been noted that despite salary increases, there is a high turnover rate of nurses within various health care systems;⁶ an insufficient number of nurses currently exist;⁷ and, an increase in the number of elderly individuals requiring health care has

led to the need for additional nurses.⁷ Consequently, health care administrators need to take a serious look at how to improve the work environment of nurses and, ultimately, foster their job satisfaction for the purpose of enhancing nurse retention and quality patient care. Unlike nurses in western cultures, who indicate salary to be the strongest indicator of their retention,^{8,9} Thai nurses tend to resign from their jobs despite earning a high salary.⁶ Thus, it remains unclear as to whether components of job satisfaction instruments, developed in western countries, are culturally sensitive when used to measure Thai nurses' job satisfaction. This is particularly important given that job satisfaction is influenced by the culture to which a person adheres.¹⁰ At present, none of the available job satisfaction instruments are considered sensitive to the Thai culture. Hence, the aims of this study were to: develop the "Thai Nurses' Job Satisfaction Scale (TNJSS)"; and, determine the psychometric properties of the TNJSS.

Review of Literature

In general, job satisfaction has been viewed as the degree to which employees like their work experiences.¹¹ In other words, job satisfaction is a positive or pleasurable feeling one has as a result of an evaluation of his/her job or job experiences. Since one's culture plays a major role in how one evaluates his/her occupation, the primary author, in preparation for this research, conducted a concept analysis of job satisfaction within the context of Asian cultures.¹² The analysis, using Walker and Avant's guidelines,¹³ found that seven major components of job satisfaction (social support/relationships, workload, incentives, professional status, work environment, administration and autonomy) appeared to be important to nurses working within Asian cultures, i.e. Thailand. Each of these seven components are explained and discussed below in descending order of importance.

Social support/relationships: In the Thai culture, collectivism, the interdependence of human

beings or the belief that group goals have priority over individual goals, is practiced.¹⁴ In other words, collectivism is viewed as the reverse of individualism. Thus, not surprisingly, social support/relationships have been noted to be an important factor for Thai nurses regarding job satisfaction. In this regard, positive social support/relationships among nurses and administrators has been found to lead to a reduction in workplace stress and the nurse turnover rate.³ No doubt this is because support from others gives one a sense of belonging to a specific group, which is vital for those who are collectivists. For such persons, helping, caring and sharing among group members are common practices that help them create a system of connections (i.e. people they know who are in a position to help them).¹⁴ As a result, an employee may tend to feel more secure when he/she can maintain a good relationship with a manager who is part of his/her personal system of connections. As noted in prior research, having a positive social relationship with a nurse manager can be one of the best predictors of an Asian nurse's job satisfaction.¹¹

Workload: Prior studies have found workload to be the number one predictor of Asian nurses' job satisfaction.^{3,11,15-20} An increase in nurses' workload can be attributed to increasing financial constraints of health care organization, as well as changes in societal and institutional expectations within health care organizations. Financial constraints have forced health care organizations to reduce the number of employees hired,²¹ which can result in the remaining employees (often nurses) taking on additional work-related responsibilities. Changes in societal and institutional expectations, within health care organizations, often have caused nurses to perform beyond their scope of practice, deal with a lenient implementation of advanced directives, and contend with more life and death situations.³ All of these issues can contribute to a higher workload for nurses.^{3,19} Since Thais are a "humble" group of people who do not believe they are

better than others,¹⁴ the creation of *kreng jai and mai phen rai* (showing flexibility to uncomfortable/difficult situations) are intensified. As a result of such cultural practices, Thai nurses tend to fail to vocalize their feelings of discomfort or to negotiate with those in authority within the workplace. Thus, difficult workplace situations go unresolved, with an increase in workload often becoming the outcome.

Incentives (i.e. salary, benefits, continuing education offerings and job promotion) have been noted to be significant factors related to job satisfaction among Asian nurses.^{11,15,22} As a result of the presence of a large power distance, within the Thai culture, nurses expect work-related incentives that reflect their social status and power within their respective workplaces. However, because of the "humbleness" of Thais, if appropriate workplace incentives for nurses are not forthcoming, they tend not to negotiate with appropriate parties for suitable and reasonable incentives. What remains interesting is that, although nurses have experienced increases in their salaries,^{3,21} the presence of this particular incentive still does not hinder their resignation rates from their places of employment.⁶

Professional status, one's position relative to others within the workplace, has been found to foster nurses' sense of job satisfaction.²³ When one has been granted appropriate professional status, he/she is more likely to: be given an opportunity to utilize his/her work related abilities; have a feeling of accomplishment within the organization; and, be involved in work-related governance activities. Having a sense of professional status has been found to foster one's commitment to the work-related organization.^{3,17,23} In addition, being involved in governance activities and being recognized (i.e. having status) for professional work performance have been found to be major motivators of nurses' sense of job satisfaction.^{21,22}

Work environment (i.e. natural surroundings and physical infrastructure) have an impact on one's

job satisfaction.¹⁸ Natural surroundings involve good ventilation, comfortable temperature, adequate lighting, and cleanliness. On the other hand, physical infrastructure refers to those with whom one works and the resources (supplies and equipment) one requires to accomplish his/her work-related responsibilities. All of these factors are important in providing a functional and pleasant environment in which one can carry out work-related activities. A good workplace environment also shows the social status of workplace employees. For example, a Thai hospital with a reputation of being a center of medical knowledge and fame has been found to foster pride and happiness among the nurses who work there.^{24,25} By comparison, inadequate space and resources have been noted to be obstacles related to nurses' abilities to perform, which, in turn, can decrease job satisfaction.^{15,17,19,21,22}

Administration involves the presence of supervisors and an organizational system (i.e. administrators and policies). As collectivists, Thai nurses expect supervisors to treat them as family members, which involves working closely together, giving advice on personal matters and being directly involved in work-related tasks. However, because of the presence of a large power distance, within the Thai culture, a health care organization, such as a hospital, often becomes transformed into a passive-defensive, conservative, traditional, non-participative, bureaucratic system.²⁶ Centralization of administration, within a health care organization, is perceived as providing less consultative and participative management among its members, and as preventing their involvement in managerial decision-making. When Thai nurses are not involved in managerial decision-making, supervisors are perceived as misunderstanding their needs.^{3,21} However, as previously noted, nurses' involvement in their hospitals' governance processes fosters their job satisfaction.³

Autonomy, the act of being self-governed or having self-directed freedom, has been found to be of

importance among nurses with higher levels of education, compared to nurses with lower levels of education.²⁷ It has been noted that Thai nurses' autonomy has increased in public hospitals, but slightly decreased in private hospitals.³ The fact Thai nurses continue to demand more autonomy is not surprising given they have more education today than they did in the past. Unfortunately, Thai nurses continue to experience high levels of stress, due to low levels of autonomy (i.e. lack of the opportunity to be involved in self-governance), in many health care organizations.³ This tends to be brought on by the fact that many Thai physicians continue to view nurses, regardless of level of education, as passive workers rather than as active colleagues. The fact physicians tend not to provide nurses opportunities to discuss, with them, the care of patients, nurses' creativity and role independence becomes limited. Autonomy becomes fully functionally when those in positions of power (i.e. supervisors and physicians) authorize, support, and develop subordinates to think and act independently. When the health care administrators and physicians centralize their power, it is not possible for nurses to practice autonomously. On the other hand, an increase in autonomy among nurses has been shown to enhance their satisfaction in the workplace.²⁸ Thus, given that Thai cultural practices and workplace situations can influence the components of job satisfaction, it is imperative that these aspects be taken into consideration when developing an instrument for measuring job satisfaction among Thai nurses.

Conceptual Framework

The conceptual framework, used in development of the TNJSS, included various aspects of Herzberg's Motivation Theory²⁹ and Vroom's Expectancy Theory.³⁰ Herzberg's motivator factor and hygiene factor helped in explaining the elements that are important in creating happiness at work. Valence, instrumentality and expectancy concepts, from Vroom's theory, assisted

in focusing on motivation and reward. The various domains, used in development of the TNJSS, were obtained from the primary author's analysis of the concept, job satisfaction, within the Asian context,¹² while Herzberg's and Vroom's theories were used to explain each of the job satisfaction domains. Aspects of the Thai culture, along with a norm-referenced framework, also were incorporated into the development and psychometric testing of the TNJSS.

Method

Design: This instrument development research involved, utilizing guidelines set forth by Waltz, Strickland and Lenz,³¹ and DeVellis,³² two stages: development and psychometric evaluation (see **Figure 1**). The development stage consisted of: domain identification; item generation; and, item format determination. The psychometric evaluation stage was comprised of: content validity examination; reliability determination through pre-testing; construct validity and reliability determination through field testing; and, validity and reliability confirmation.

Ethical considerations: The study was approved by the Institutional Review Board of the principal investigator's (PI) academic institution, as well as the administrators of the hospitals used as study sites. Each potential subject was informed, in regards to all stages of the study, about: the purpose of the study; what was involved in participating; confidentiality and anonymity issues; and, the right to withdraw at any time without repercussions. Those selected for involvement in the development stage of the scale (i.e. interviews) were asked to sign a consent form prior to participating. Completion and return of one of the versions of the TNJSS served as consent to take part in the psychometric evaluation stage of the research.

Setting and participants: The setting included 13 randomly-selected, general hospitals, administered

by the government and represented all six regions (northern, northeastern, western, central, eastern and southern) of Thailand, and one purposively selected general hospital. Of the 14 hospitals, subjects from the purposively selected hospital were used for the development phase of the study. From the remaining 13 hospitals (all randomly-selected), subjects from one was used for reliability determination through pre-testing, while subjects from one or all of the other 12 hospitals were used for the remaining psychometric testing phases of the instrument. Of the 12 hospitals, there were two from each of the six regions of Thailand. These hospitals were selected because of the large number of registered nurses they employed, the wide range of health care services they offered (i.e. general health care) and the similarity of their hospital administration (i.e. government). At the time of data gathering, the 12 hospitals employed a total of 3227 nurses: (northern, n = 771; northeastern, n = 672; western, n = 450; central, n = 440; eastern, n = 505; and, southern, n = 389).

The sole inclusion criterion for registered nurses participating in the study was being employed full-time, for at least one year, by the hospital. This criterion was used since it has been shown that the work adjustment period for a nurse, in a hospital, may range from six to 12 months after being hired.³³ Names of potential subjects, used in the development phase, were identified via response to a posted announcement about the study. For the psychometric testing phase, potential subjects were identified, under the supervision of each hospital's Director of Nursing, via a systematic random sampling technique. A total of 1,101 subjects were used throughout the various stages of the study (instrument development, n = 3; reliability determination through pre-testing, n = 30; construct validity and reliability through field testing, n = 963; reliability confirmation, n = 35; and, validity confirmation, n = 70). Each subject was used only once.

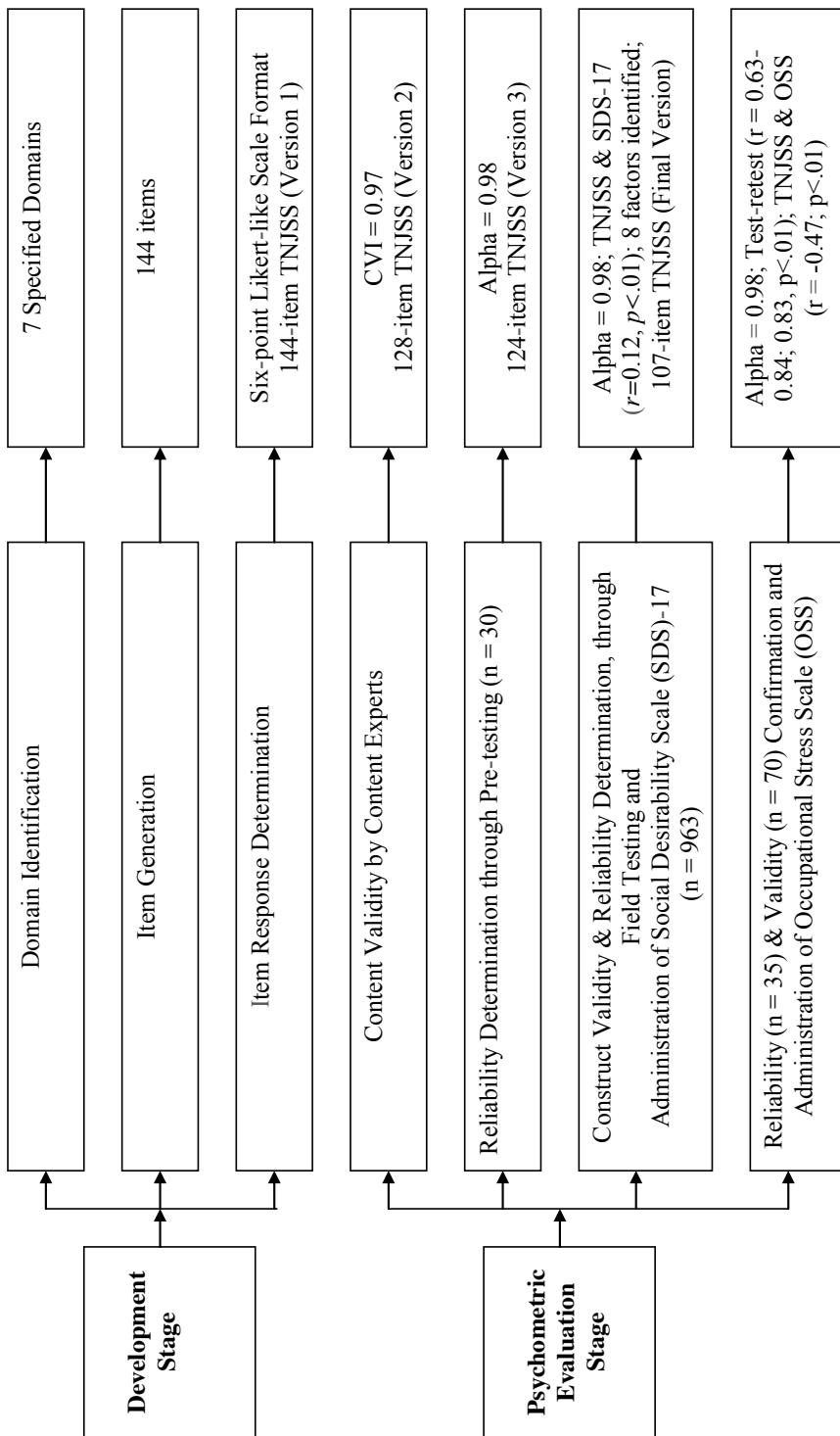


Figure 1 Stages and Results of the Development & Psychometric Evaluation of the TNJSS

The three nurses who took part in the domain identification component of the development stage of the study were: 44 to 48 years of age (mean= 46.33 years); female; married; living with their spouse; baccalaureate prepared; earning an average monthly income of 33,000 baht (range = 31,000 to 35,000 baht); and, working on either a medical/surgical, obstetrical/gynecological or out-patient hospital unit. In addition, one of them was an administrator and two were staff nurses with an average of 25.67 years of nursing experience. They all were working at the purposefully-selected, general hospital.

The 30 nurses used in the reliability determination, through pre-testing, predominately, were: 26 to 59 years of age (mean= 45.87); baccalaureate prepared; equally divided between administrators and staff nurses; earning 31,000–35,000 baht per month; and, nurses for an average of 22.83 years. Each of them was from the same randomly-selected hospital.

The sample size, for assessing construct validity and reliability through field testing, was determined using the guideline of five to 10 subjects per scale item.³⁴ Based upon the projected number of scale items (n = 124), a sample size of 620 to 1,240 was needed. Testing the construct validity and reliability was successfully completed by 963 registered nurses (RNs). The RNs were 22 to 62 years of age (mean age = 38 years) and, predominately, were: female; married; living with their spouse; baccalaureate prepared; earning an average monthly income of 28,000 baht (range = 10,000 to 40,000 baht); and, working on a medical or surgical hospital unit. In addition, they had an average of 13 years of nursing experience. These nurses were from 12 of the 13 randomly-selected hospitals used as study sites.

The 35 nurses used in confirming the scale's reliability (test-retest), primarily, were: 28–49 years old (mean= 40.06); female; married and living with spouse; baccalaureate prepared; staff nurses; earning 21,000–25,000 baht per month (n = 10; 28.6%);

working on a medical/surgical floor; and, nurses for an average of 17.21 years. All of them were from the same hospital (one of the 12 used for field testing).

The 70 nurses used in confirming the scale's construct validity (hypothesis testing) primarily, were: 28–59 years old (mean= 42.55); female; married and living with spouse; baccalaureate prepared; staff nurses; earning 21,000–25,000 baht per month; working on a medical/surgical floor; and, nurses for an average of 22.50 years. All of them were from the same hospital (one of the 12 used in field testing and the same hospital used for conducting test-retest reliability.).

Procedure for creating the TNJSS: As previously indicated, creation of the TNJSS consisted of two stages (development and psychometric evaluation). The development stage consisted of: domain identification; item generation; and, item format determination. The psychometric evaluation stage consisted of: content validity examination; reliability determination through pre-testing; construct validity and reliability determination through field testing; and, validity and reliability confirmation. Details involving the development and psychometric evaluation of the TNJSS are shown in Figure 1.

Development stage: Identification of the instrument's seven domains were determined by way of: integration of the PI's analysis of the concept, job satisfaction within the context of Asian cultures; review of the literature (primarily Korean, Chinese and Thai); and, in-depth interviews of three Thai nurses. The purpose of the interviews was to determine whether the job satisfaction components, identified from the concept analysis and literature review, were the same as or different from those identified by the nurses. Each nurse was interviewed once (average of 60 to 90 minutes), by the PI, via use of an interview guide. The interviews were done, in a private office in the hospital, while the nurses were at work. The two-part interview guide, developed by the researchers, sought information

regarding each subject's demographic characteristics and satisfaction with her job. Nine open-ended questions were used to elicit information regarding level of job satisfaction. Examples of the interview questions were: "When talking about job satisfaction, what do you think about?"; "What would make you have job satisfaction?"; "What do you think about your job environment and the people you work with?"; "Are you satisfied with your job environment and the people you work with?"; "If you are satisfied with the job environment and the people you work with, in what ways are you satisfied?" and, "Is there anything else you want to talk about regarding your satisfaction or dissatisfaction at work?".

Content from the interviews were examined via thematic analysis. The results of the thematic analysis revealed the job satisfaction components were similar to those identified during the literature review and concept analysis. An integration of data from all three sources (literature review, concept analysis and interviews) was conducted, resulting in creation of seven domains for the TNJSS: workload; work environment (physical infrastructure and natural surroundings); administration (supervision, policies and system); social aspects at work (relationships and support); autonomy; professional status; and, incentives (pay/benefits, continuing education and promotion).

Following identification of the seven domains, item pool generation took place. Since it is advisable to create a large item pool rather than a small item pool,³² 144 items were generated (workload, n = 16; work environment, n = 14; administration, n = 25; social aspects at work, n = 18; autonomy, n = 23; professional status, n = 16; and, regarding incentives, n = 32). All items were constructed based upon data obtained from the literature review, concept analysis and interviews.

After the items were generated, the format for possible item responses was developed. Since Thais have high respect for authority figures, are collectivists and are concerned about embarrassing others,⁴ a strong

need to maintain harmony exists. In an attempt to maintain harmony, when possible item responses consist of an odd number (i.e. 3, 5 or 7) Thais tend to pick the middle response (neutral).³⁵ This response action can lead to inadequate sensitivity of a scale that has an odd number of responses. Thus, a six-point, Likert-like response scale (1 = "absolutely not true" to 6 = "absolutely true") was created so that a middle response (neutral) did not exist. Completion of the three steps of the development stage resulted in creation of the first version of the TNJSS.

Psychometric evaluation stage: The first step of the psychometric evaluation stage involved content validity examination, of the first version of the TNJSS, by three experts (one nurse educator experienced in tool development, one nurse researcher experienced in job satisfaction studies, and one nurse administrator experienced in the nursing policies and systems). The purpose of this stage was to judge the relevance, clarity and conciseness of each of the 144 items that constituted the seven domains. The content validity index, among the three experts, was 0.97. Based upon the experts' input, 16 of the items were removed due to redundancy of content (one from workload; two from work environment; one from administration; four from autonomy; five from professional status; and, three from incentive). Of the remaining 128 items, 66 were reworded to enhance clarity and simplicity of item content. For example, the item, "Your ward has adequate and suitable equipment for your work, which makes your implementation process easier, quicker and more convenient" was reworded to read, "Your ward has adequate equipment for delivery of patient care." In addition, the item, "You are confident that your superior will support your appropriate decision even though it will bring problems later," was reworded to read, "You are confident your superior will support your decisions regardless of the results those decisions will bring." The outcome of step one of the evaluation stage was generation of the second version of the TNJSS.

The *second step* of the psychometric evaluation stage involved determination of the scale's reliability, through pre-testing, for the purpose of noting possible problems prior to field testing. Thus, the second version of the TNJSS (128-items), along with a demographic questionnaire that requested information regarding each subject's gender, age, marital status, level of education, monthly income, current position/department of employment, and years of nursing experience, was administered to 30 registered nurses. These nurses were asked to assess the clarity of the items and the length of time it took them to complete the scale. In addition, they were asked to make suggestions regarding the scale. Based upon their assessment, four items (two from work environment, one from administration and one from professional status) were eliminated. Thus, the third version of the TNJSS consisted of 124 items.

Determination of the construct validity and reliability, through field testing, were accomplished during the *third step* of the psychometric evaluation stage. The aim of this step was to test the scaling properties of the instrument. Thus, the third version (124-items) of the TNJSS, the demographic questionnaire used in step two of the psychometric evaluation stage and the Social Desirability Scale-17,³⁶ were administered to 1,020 nurses (85 nurses in each of the 12 hospitals). Out of 1,020 questionnaires, 995 were returned (97.55% response rate), but only 963 of them were usable. The Social Desirability Scale-17 (SDS-17) was administered because of the presence of the large power distance in the Thai culture. The presence of the large power distance and the fact some of the scale's questions may have been perceived as socially undesirable could have contributed to the nurses giving answers that would prevent their authority figures from losing face. The SDS-17 was in the public domain. However, since it was originally written in English, translation into Thai and back translation into English was required to assure no changes in meaning occurred during the translation process.

Item analysis, which was part of the third step of the psychometric evaluation stage, was conducted based on the principle of corrected item-scale correlation.^{32,37} This action was undertaken to deal with elimination of items that had content different from other items in a domain (item to item correlation: $\alpha \leq 0.3$) or items that were redundant (inter-item correlation: $\alpha > 0.7$). As a result of the item analysis, four items (one from workload, two from social aspects at work and one from professional status) were eliminated. The inter-item correlations noted six items (two in work environment, one in administration, one in social aspects at work, one in autonomy and one in incentives) needed to be eliminated due to redundancy ($\alpha > 0.7$). As a result, a total of 10 items were eliminated from the scale, leaving 114-items.

As part of step three of the psychometric evaluation stage, the construct validity of the TNJSS was examined by performance of an exploratory factor analysis.³⁸ The outcome of the construct validity analysis resulted in elimination of seven items (three from workload, two from social aspects at work, one from autonomy, and one from incentives), resulting in 107 items comprising the final version of the TNJSS. In addition, eight, rather than seven, domains were found to exist within the scale. As a result of the factor loadings, one of the eight factors became a combination of two of the original seven domains and one of the original domains became two of the eight factors.

The *fourth step* of the psychometric evaluation stage involved reliability and validity confirmation of the final version of the TNJSS (107-items). The internal consistency of the data generated by the instrument was assessed. A result that was greater than 0.7 was considered satisfactory for group comparisons.³⁷ Next, the scale's stability over time was investigated, using the test-retest method. Thirty-five nurses were administered the final version of the TNJSS twice, within a two week interval. Lastly, the TNJSS was assessed, using the hypothesis that the

relationship between stress at work and job satisfaction would be in a negative direction. Thus, the 107-item, final version of the TNJSS and the Occupational Stress Scale (OSS)³⁹ were administered to 70 RNs. The results of this procedure assisted in making an inference as to whether the rationale underlying the scale's construction was adequate to explain the data collected.³⁸ The OSS was originally written in Thai and, thus, did not require translation. In addition, since it was in the public domain, permission for use of the OSS was not required.

Data Analysis: Descriptive statistics were used to analyze the subjects' demographic characteristics. The correlation between the TNJSS and the SDS-17 was calculated using Pearson's Product-Moment correlation. Since the data generated by the SDS-17 was dichotomous, the alpha for the scale was calculated through use of Kuder-Richardson (KR-20). Cronbach's alpha was used for calculating the internal consistency coefficient of the TNJSS. The test-retest reliability of the TNJSS and the correlation between the TNJSS and the OSS were evaluated using Pearson's correlation coefficient. Moreover, the alpha of the OSS was examined using Cronbach's alpha. Exploratory factor analysis (EFA) was used to examine the construct validity of the TNJSS. In the EFA, the principal component analysis with orthogonal rotation, using the varimax method, was utilized because it maximized a variable's loading on one factor and minimized its loading on all other factors, thereby making the interpretation clearer.³² The criteria for extraction were: eigenvalues > 1.0 ; satisfying scree plot; factor loading > 0.40 ; respectable reliability of each factor; and, theoretical interpretability.^{32,37,38}

Results

The EFA revealed the Kaiser-Meyer-Olkin measure of sampling was adequate (0.97) and the Bartlett's Test of Sphericity was 87634.02 ($p < .000$). Factor extraction found: eigenvalues > 1.0 ; the presence of eight factors; a total of 107 items [loadings between 0.41–0.84]; and, an explained total variance of 60.35% (See Table 1). The factors and their respective item numbers (see Table 1) were: Factor I – "Incentives" (27 items); Factor II – "Professional Autonomy and Recognition" (21 items); Factor III – "Nursing Supervisor" (13 items); Factor IV – "Social Aspects at Work" (13 items); Factor V – "Workload" (11 items); Factor VI – "Work Environment" (8 items); Factor VII – "Nursing Policies and System" (9 items); and, Factor VII – "Assertiveness in Confronting Difficulties" (5 items).

Moreover, the correlation between SDS-17 and the TNJSS was found to be at a very low magnitude ($r = 0.12$, $p < 0.01$). In addition, the alpha of the SDS-17 was found to be 0.67.

For reliability, the TNJSS's alpha in the pre-test, field test and reliability/validity confirmation were all 0.98. The alpha of the eight factors ranged from 0.84 to 0.97 indicating all factors were internally consistent. For stability, the scores of all factors and the total scores of the TNJSS were highly correlated between the two-time testing ($r = 0.63 - 0.84$ and 0.83 ; $p < 0.01$). For hypothesis testing, the total scores of the TNJSS and OSS revealed a moderately negative correlation ($r = -0.47$; $p < 0.01$). The Cronbach's alpha coefficient of the OSS was found to be 0.87.

Table 1 Examples of Items, Factor Loadings, Communalities (h^2), Eigenvalues, Percentages of Variance and Alpha of Factors (n = 963)

Items	Statements	Factor Loadings	h^2
Factor I: Incentives (n = 27; alpha = 0.96)			
Eigenvalue 39.99; Percent of total variance = 13.03			
TNJSS110	Hospital provides adequate budget for you to gain more knowledge and skill.	.79	.74
TNJSS111	Hospital has flexible time-leave policies for you to acquire more knowledge and skill when appropriate.	.76	.74
TNJSS99	When your work is outside the hospital, you get appropriate extra pay for per-diem, accommodations and mileage.	.74	.65
TNJSS101	Compared to other comparable professions, you receive a fair salary / incentive according to your special knowledge, difficult level of work and productivity.	.74	.69
Factor II: Professional Autonomy and Recognition (n = 21; Alpha = 0.96)			
Eigenvalue 8.02; Percent of total variance = 12.84			
TNJSS91	Patients and their relatives have confidence in your professional ability.	.79	.72
TNJSS74	You are independent to solve patient's problems under your scope of practice.	.77	.66
TNJSS72	You are independent to provide important information to patients under your scope of practice.	.74	.61
TNJSS73	You are independent to protect patient's rights.	.74	.61
Factor III: Nursing Supervisor (n = 13; Alpha = 0.97)			
Eigenvalue 6.58; Percent of total variance = 10.24			
TNJSS31	You are comfortable to bargain with your superior, as appropriate.	.84	.77
TNJSS38	Your superior judges you fairly.	.83	.80
TNJSS29	Your superior gives you opportunities to discuss or question when there is a problem or a doubt.	.82	.76
Factor IV: Social Aspect at Work (n = 13; Alpha = 0.96)			
Eigenvalue 4.15; Percent of total variance = 6.76			
TNJSS56	You and your co-workers are respectful and considerate of each other.	.76	.77

Table 1 Examples of Items, Factor Loadings, Communalities (h^2), Eigenvalues, Percentages of Variance and Alpha of Factors ($n = 963$) (continued)

Items	Statements	Factor Loadings	h^2
TNJSS52	When facing problems on your ward, everyone helps to properly solve problems.	.74	.75
TNJSS55	When you have problems or make mistakes, your co-workers will instruct, warn or assist you in smoothly handling the situation.	.74	.72
	Factor V: Workload ($n = 11$; Alpha = 0.87) Eigenvalue 2.92; Percent of total variance = 5.66		
TNJSS6	You can manage paper work without affecting your routine work.	.73	.61
TNJSS1	The quantity of assigned tasks is appropriate so you can complete it within 8 hours/day.	.71	.54
TNJSS7	You have time to help others on your ward without affecting your routine work.	.67	.53
	Factor VI: Work Environment ($n = 8$; Alpha = 0.92) Eigenvalue 2.76; Percent of total variance = 4.54		
TNJSS24	The workplace is organized and suitable for you to work.	.75	.73
TNJSS17	Your ward has good ventilation which facilitates a good working environment.	.73	.70
	Factor VII: Nursing Policies and System ($n = 9$; Alpha = 0.94) Eigenvalue 2.32; Percent of total variance = 4.24		
TNJSS44	The nursing administration department has a decentralized system which creates faster management.	.69	.77
TNJSS45	The implementation of nursing policies helps to promptly and appropriately solve problems.	.69	.78
	Factor VIII: Assertiveness in Confronting Difficulties ($n = 5$; Alpha .84) Eigenvalue 2.03; Percent of total variance = 3.05		
TNJSS78	You are free to report or write-up healthcare team members, who treat you wrong, and send it to your superior.	.66	.62
TNJSS77	You are free to report or write-up healthcare team members, who treat patient wrong, and send it to your superior.	.66	.61

Discussion

Even though a number of job satisfaction measures (i.e. Home Healthcare Nurse Job Satisfaction Scale,⁸ Nurse's Job Satisfaction Scale,¹⁵ Misener Nurse Practitioner Job Satisfaction Scale,⁴⁰ and McClosky/Mueller Satisfaction Scale⁴¹) have been developed, the TNJSS is different because it was developed specifically to measure nurses' job satisfaction, within the context of the Thai culture. Psychometric analysis of the data revealed eight factors were associated with Thai nurses' job satisfaction. The results of clustered factors confirmed the concept, job satisfaction, which has been explained by both Herzberg's Motivation Theory²⁹ and the Vroom Expectancy Theory.³⁰

The fact Factor I, "Incentives," was found to consist of pay/benefits, continuing education and promotion was similar to the contents of other job satisfaction instruments.^{8,15,40,41} Similar to this instrument, other instruments possess incentives as one of their most important factors.

The contents of Factor II, "Professional Autonomy and Recognition," was found to be very different from the contents of a comparable factor in other instruments.^{8,15,40,41} This, no doubt, was due to the fact Thai nurses are aware they cannot exercise autonomy because of their culture. As previously noted, Thai nurses are unhappy with their jobs secondary to their perceived inability to have autonomy and, as a result, not always being able to provide care at a desired level.⁴²

Factor III, "Nursing Supervisor," was found to be unique to this instrument. Other job satisfaction instruments^{8,15,40,41} do not have a similar factor. This may be because the other instruments were developed in western cultures, where individualism is espoused. On the other hand the Thai culture supports collectivism. Thus, Thais share their actions and feelings with members of their group, including the supervisors with

whom they work. The fact that western cultures focus more on individualism, rather than collectivism, may explain why this factor has not existed in other job satisfaction instruments.

Factor IV, "Social Aspect at Work," was comparable to a similar factor in other job satisfaction instruments.^{8,15,40,41} Not surprisingly, this factor reflected the collectivism practiced by Thais. For example, one item in the final version of the instrument was: "Your co-workers demonstrate courtesy (Nam-Jai) when helping others." The presence of collectivism tends to create a connected system that provides personal warmth in the work environment.

Similar to other job satisfaction instruments,^{8,15,41} this instrument was found to have a factor called "Workload" (Factor V). When nurses' workloads increase, they do not have time to help each other (collectivism) with patient care. As a result, they become unhappy.⁹ Reflective of workload related collectivism was the instrument item: "You have time to help others on your ward without affecting your work responsibilities."

Unlike a number of other job satisfaction instruments,^{8,15,40,41} this instrument was found to have a factor entitled "Work Environment" (Factor VI). No doubt, this was because most job satisfaction instruments, with the exception of the Nurses' Job Satisfaction Scale (NJSS),¹⁵ were developed in western countries where facilities, equipment and surroundings are of better quality/quantity than those found in Asian countries. Even though the NJSS was developed in an Asian culture (Taiwan), it also did not include a factor addressing the work environment. The fact the presence of a quality work environment, one aspect of demonstrated social status,^{24,25} is important to Thais helps explain why this factor was important for inclusion in this instrument.

Factor VII, "Nursing Policies and System," was unique to this instrument and not found in other job satisfaction instruments^{8,15,40,41} Because Thailand

is a large power distance culture, there is decentralization of decision-making that often delays working processes. Instrument items, stated in a positive direction, addressing this fact were: "Decentralized nursing administration creates faster management" and "Nursing administration can solve problems promptly and appropriately."

Factor VIII, "Assertiveness in Confronting Difficulties," also was unique to this instrument. No other job satisfaction instrument was found to have a similar factor.^{8,15,40,41} Different from autonomy, this factor addressed assertiveness that nurses use when dealing with an awkward or unpleasant situation. Because of the Thai culture's large power distance, sense of humbleness and "Kreng Jai," nurses tend to respect authority and, as a result, feel uncomfortable in voicing their opinions, questioning an order or confronting a co-worker.

The fact the construct and content validity, and the reliability of the scale were found to be satisfactory suggest the TNJSS is a psychometrically valid and reliable tool for evaluating Thai nurses' job satisfaction. Unlike other instruments that measure nurses' job satisfaction, this instrument is unique in that it contained factors and items specific to the context of the Thai culture.

Limitations and Recommendations

Like all studies, this study has limitations that need to be taken into consideration when interpreting its findings. First, there was a potential issue regarding how the nurses were selected for receipt of questionnaires during the psychometric testing phase of the study. Although the nurses' were identified by each hospital's personal systematic random sampling technique, under the supervision of the Director of Nursing, there was no guarantee that bias did not exist in the selection process. Since the researchers were not involved in this selection process they did not have knowledge

regarding how each hospital randomly selected the nurses that took part in the study. Secondly, only government administered general hospitals were used as study sites. Thus, future studies, using the instrument, need to include other types of hospitals (i.e. private, specialty, military).

The instrument was long (107 items) and took the nurses approximately 20 to 60 minutes to complete it. Thus, future researchers need to consider whether creation of a shortened version of the instrument is warranted so as to eliminate fatigue and facilitate usage in a variety of settings.

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การพัฒนาและประเมินคุณสมบัติเครื่องมือวิจัยวัดความพึงพอใจในการทำงานของพยาบาลไทย

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บทคัดย่อ: วัตถุประสงค์ของวิจัยนี้คือการพัฒนาเครื่องมือวิจัยวัดความพึงพอใจในการทำงานของพยาบาลไทยและประเมินคุณภาพของเครื่องมือนี้ ผู้วิจัยพัฒนาเครื่องมือนี้จากการวิเคราะห์แนวความคิดของความพึงพอใจในการทำงานภายใต้บริบทวัฒนธรรมເเซีย การลัมภากษณ์พยาบาลไทยและการทบทวนวรรณกรรมอย่างลึกซึ้ง การตรวจสอบคุณภาพเครื่องมือทำโดยใช้การสุ่มตัวอย่างพยาบาล 963 คน จากโรงพยาบาลทั่วไปของรัฐบาล 12 โรงพยาบาลซึ่งเป็นตัวแทนจาก 6 ภูมิภาคของประเทศไทย และเนื่องจากวัฒนธรรมไทยโดยเฉพาะเรื่องความแตกต่างของชนชั้น (ผู้ที่ต้องกว่าในองค์กรยอมรับและคาดหวังให้มีการกระจายอำนาจจากอย่างเท่าเทียมกัน) และความเกรงใจ (ไม่ทำให้ผู้อื่นไม่สบายใจหรือไม่สะดวก) ผู้วิจัยจึงแบบจำลองแบบสอบถามความเป็นที่พึงพอใจของสังคมควบคู่กับเครื่องมือวิจัยนี้ให้กับผู้ร่วมวิจัยด้วย

การทดสอบความตรงตามเนื้อเรื่องของเครื่องมือทำโดยผู้เชี่ยวชาญ ในขณะที่การประเมินความตรงตามโครงสร้างได้ใช้การวิเคราะห์องค์ประกอบและการทดสอบสมมุติฐาน ส่วนการวัดความเที่ยงทำโดยการวัดความสอดคล้องภายนอกโดยการคำนวณค่าลัมประสีด์และฟ้าของครอนบากและความคงเส้นคงวาโดยการทำวิธีการสอบช้ำ

เครื่องมือวิจัยนี้มี 107 ข้อคำถามซึ่งประกอบด้วย 8 องค์ประกอบคือ ผลตอบแทน การมีเอกสารที่ และการได้รับการสำคัญทางวิชาชีพ ผู้ตรวจการทำงานทางการพยาบาล สังคมที่ทำงาน ภาระงาน สิ่งแวดล้อมที่ทำงาน นโยบายและระบบทางการพยาบาล และการแสดงออกที่เหมาะสมในการเผยแพร่สถานการณ์ที่ล้ำก้าวไป ความลับพันธ์ระหว่างคณะและแนวนรวมจากเครื่องมือวิจัยนี้พบว่า มีนัยสำคัญน้อยมากซึ่งสะท้อนให้เห็นว่า วัฒนธรรมความแตกต่างของชนชั้นและความเกรงใจไม่ได้มีผลกับการตอบแบบสอบถามของพยาบาล ส่วนผลการทดสอบความตรงตามโครงสร้าง ความตรงตามเนื้อเรื่อง และการวัดความเที่ยงนั้นให้ผลเป็นที่น่าพอใจ

เครื่องมือวิจัยนี้มีความเที่ยงและความตรงเพียงพอที่จะใช้ในการประเมินความพึงพอใจในการทำงานของพยาบาลไทย อย่างไรก็ตาม การวิจัยในอนาคตเป็นสิ่งจำเป็นเพื่อการปรับปรุงเครื่องมือให้ดีขึ้นและประเมินการนำไปใช้ในการวัดความพึงพอใจในการทำงานของพยาบาลในโรงพยาบาลสังกัดอื่นๆ ทั่วประเทศไทย

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คำสำคัญ: ความพึงพอใจในการทำงาน การประเมินคุณสมบัติเครื่องมือวิจัย พยาบาลไทย และการพัฒนาเครื่องมือวิจัย

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