

Psychometric Testing of the Quality of Nursing Work Life Scale: Thai Version

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Abstract:

Objective: The Brooks Quality of Nursing Work Life Survey has been widely used to assess the quality of nursing work life. In Thailand, this scale was translated and used by nurse practitioners. However, many items designed for use have contextual differences from the hospital and have never been tested for their construct; including issues of cultural differences. Therefore, such a scale must be revised. This study aimed to translate and test the psychometric properties to justify its use in a hospital context.

Material and Methods: This was methodological research. The process consisted of two phases; including: 1) translation using the forward-backward translation method, and 2) psychometric properties testing; content validity, cognitive interview, construct validity, and reliability would be used to evaluate psychometric properties. Content validity was considered by a panel of experts. Ten registered nurses were asked to participate in a cognitive interview. Two hundred and fourteen registered nurses were recruited, using convenience sampling for conducting the construct validity and reliability testing.

Results: The findings revealed excellent content validity. Twenty-three items were revised in the phase of cognitive interviews. Internal consistency was calculated: Cronbach's alpha was 0.959. Confirmatory factor analysis yielded four factors, and was consistent with the original version.

Conclusion: The scale may be utilized by registered nurses working in Thailand's hospital context to assess the quality of nursing work life. Further study needs to test this in larger and heterogeneous samples.

Keywords: hospital, psychometric properties testing, quality of nursing work life, Thailand, translation

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Introduction

Registered nurses make up the highest number of workers in the healthcare system of Thailand¹. Their essential role is contributing to the health and well-being of people. They must contend with social, economic, and political developments, more complex diseases, and an aging population². Although, they have been trained to deliver quality care and improve the quality of life of their patients, their personal needs and quality of nursing work life (QNWL) have been mostly overlooked³. Furthermore, evidence has recently revealed that registered nurses have a negative attitude toward work⁴. As a result, patient care quality and productivity might be affected⁵.

Quality of nursing work life (QNWL) refers to the degree of registered nurses' satisfaction in meeting individual needs through experience in the organization until achieving the organization's goal. This consists of a work-life home-life balance, work design, work context, and external factors of work (work world)⁶. If an organization can provide a healthy working environment for registered nurses, their perception of QNWL will increase, and the quality of patient care will improve. In contrast, if registered nurses continue to have poor QNWL, patient care cannot be of a high-quality⁵.

In Thailand, numerous studies have indicated an impairment in the average overall mean QNWL score among registered nurses⁷. Even though officials have attempted to address the issues via several strategies, only local areas use these policies, which indicates that the QNWL needs to be appropriately responsive⁸. Sawaengdee⁹, who examined the working life table and predicted the supply of registered nurses' work-force in Thailand; from 2008 to 2022, revealed that registered nurses' resign between the ages of 20 and 49. All public areas have faced this problem^{10,11}.

The QNWL is culturally specific, and the Thai context may differ from the Western context; in terms of values, attitudes, and behaviors¹². Collectivism, a significant power

distance, a connection system, and humility could represent cultural practices in Thailand¹³. Hence, registered nurses' thoughts, roles, actions, and coworkers' expectations are also influenced by cultural practice¹⁴.

Based on the QNWL being culturally specific, finding an appropriate instrument is essential. Hence, a comprehensive review of published instruments measuring the QNWL was conducted, and thirteen instruments were retrieved. When considering existing tools, guided by the congruence of operational definition, construction, theoretical foundation and purpose, the structure of the scale, and so forth¹⁵, the: "Brooks Quality of Nursing Work Life Survey" (BQNWL) English version was selected¹⁶.

The BQNWL survey was developed by Brooks¹⁶. This scale is a self-completion questionnaire, consisting of 42 items; divided into four subscales: 1) homelife/work life, 2) work design, 3) work context, and 4) work world. This scale has been used in the hospital by registered nurses with accepted reliability. This scale's Cronbach alpha coefficient was 0.83: structural validity was discovered through factor analysis.

The BQNWL survey is used in Thailand, having been translated into Thai in 2017, by Komjakraphan, Balthip, and Jittanoon; wherein it is used to assess the QNWL among nurse practitioners (NPs)¹⁷ that are specialists in community practice; with the ability to initiate treatment to deal with the common health problems of communities¹⁸. Nurse practitioners quite differ from registered nurses working in hospitals, in regards to their completed clinical hours and work contexts, as they have more autonomy, responsibility, and higher education¹⁹.

Similar to the original version, the previous BQNWL survey, the Thai version, contains 42 items related to four dimensions. It uses the back translation method, by translating devices followed by a panel of three bilingual experts in public health research and health management. The questionnaire was reviewed, and its validity was

ensured, and then field testing was conducted. Although test-retest reliability was used ($r=0.91$) ($n=30$)¹⁷, this scale did not undergo construct validity, which is critical for scale translation²⁰.

Regarding theoretical foundation, Kanter's Theory of Structural Empowerment²¹ was selected to explain the Thai phenomena. As registered nurses can gain power from the autonomy of decision-making, and receiving enough resources, information, and opportunities, and based on the reason mentioned above, it could be stated that the BQNWL survey can reflect the entire domain needed to assess the QNWL in a Thai context.

However, cultural specificity should be taken into account for the BQNWL Survey English version. At the same time, the previous BQNWL Survey Thai version did not undergo construct validity, which is necessary for scale translation. Moreover, the items were designed for nurse practitioners, which differs from registered nurses in a hospital context. Hence, if these instruments were chosen, a problem in measuring the QNWL could arise; therefore, it needs to be revisited.

Study aim

This study aimed to translate and test the psychometric properties of the Quality of Nursing Work Life Scale in a Thai hospital context.

Material and Methods

Study design

This study is a part of the dissertation entitled: "A Causal Model for the Quality of Nursing Work Life among Professional Nurses in Public Hospitals, Thailand." The main study selected transformational leadership, job characteristics, organizational climate, and job satisfaction as predicting factors, while the QNWL was the outcome variable.

A methodological study design was undertaken for this study. The BQNWL Survey, English version, was selected to measure the quality of nursing work life and translated into the Thai version. The study was divided into two phases: 1) the forward-backward translation technique was conducted in the translation process, using the guideline Brislin²²; and 2) psychometric properties were assessed by content validity, cognitive interviews, construct validity, and reliability. The data were collected via the convenience sampling technique.

The process of translation

Step 1: Forward translation

The author asked for permission from Brooks¹⁶. The forward translation step was started by two bilingual, native Thai translators working at Chulalongkorn University Language Institute.

Step 2: Review of the translated version by reviewers

The first draft of the BQNWL Survey Thai version was investigated by two reviewers to verify conceptual equivalence, with the definition of the QNWL based on the original version. Content equivalence among each item was discussed until reaching a consensus among reviewers.

Step 3: Back translation

The second draft of the BQNWL survey, the Thai version, was sent to the third and fourth translators at the Chulalongkorn University Language Institute. These two translators had never seen the original English version as a blinding method for reducing bias²². As a result, the first draft of the back-translated English version of the BQNWL Survey was produced.

Step 4: Comparison of the original version and the back-translated version

This step started by comparing the original and back-translated versions of the BQNWL Survey for both linguistic congruences; ensuring the translation was

comprehensible. Five experts in nursing administration were invited to examine items regarding comparability and interpretability, as recommended by Sperber and Devellis²³. The panel of experts worked independently to avoid lending their ideas to each other²⁴.

Psychometric properties testing

Sample and setting

Based on prior literature, it was indicated that registered nurses ages ranged from 20 and 49, from all public areas, tended to resign from the nursing profession⁹⁻¹¹. Therefore, the inclusion criteria for the samples were those that received at least a bachelor's degree in nursing, aged lower than 49 years, had work experience of greater than one year, were at an operational level, were registered nurses working in hospitals within in the five public sectors of Thailand. Additionally, they were willing to take part in this study.

Data collection

Data were collected from registered nurses working at Bhumibol Adulyadej Hospital, in December 2021.

Ethical considerations

This study was approved by the Institutional Review Board of Bhumibol Adulyadej Hospital (IRB no. 33/64). All subjects gave informed consent, and the study maintained participant privacy and rights.

The methods utilized for testing the psychometric properties were: content validity, cognitive interviews, construct validity, and reliability testing.

1. Content validity testing

Three steps for content validity testing, recommended by Lynn²⁵, were performed; including 1) selecting and inviting experts, 2) quantifying content validity, and 3) revising and reconstructing the instrument. The content validity index (CVI) was computed as the Item-CVI (I-CVI). Scale-level-CVI (S-CVI/UA)²⁶ was then tested.

The Item-CVI (I-CVI) was calculated as the number of experts rating: "very relevant" for each item, divided by the total number of experts, while S-CVI/UA was calculated by adding all items with I-CVI being equal to 1, divided by the total number of items. Five experts were invited to participate in this step²⁶.

2. Cognitive interviews

This approach was performed as a strategy for cultural adaptation, with ten registered nurses meeting the inclusion criteria. The researcher conducted a scripted interview, with each interview lasting 90 minutes. The BRUSO model; which stands for: brief, relevant, unambiguous, specific and objective, guided the revision, so as to keep questions short and simple²⁷. The researcher submitted all information from the interviews; including item suggestions, to the advisors for approval before revising the items. Ten registered nurses were invited to be involved in this step.

3. Construct validity testing

Confirmatory factor analysis was utilized to evaluate the factors, which explained the relationship between factors. This used the following indices: χ^2 statistics and degrees of freedom for the overall fit of the model to data²⁸, the Goodness-of-Fit index (GFI)³⁹, the adjusted goodness of fit index (AGFI), the relative mean square error of approximation (RMSEA)³⁰, and Comparative fit index (CFI)²⁸. In addition, a corrected-item total correlation greater than 0.30 was considered³¹.

The recommended subject, counted for each instrument item, varies depending on the field testing for the CFA: Devellis³² suggested five to ten, while Kline³³ recommended two. Therefore, the other four scales were subjected to field testing in light of this. The most extended questionnaire is the Thai Nurses' Job Satisfaction Scale (107 items). According to the abovementioned generalization, the sample size for a CFA in the field test can range from 214 to 1,070.

Moreover, this study used Monte Carlo data simulation techniques to evaluate minimum sample size requirements to detect the effect of recommending 150 subjects³⁴. In addition, tools4dev³⁵ suggested that the minimum sample size could provide meaningful results. Therefore, the researchers used the 2:1 ratio proposed by Kline³³ to recruit at least 214 responders for field testing.

Data were analyzed using Statistical Package for the Social Sciences (SPSS) software version 26.0. The LISREL software version 8.7 was used to perform confirmatory factor analysis. Before performing construct validity testing, the returned questionnaires were examined for errors—the SPSS program fixed missing data. Data checking for human error was also considered. Moreover, assumption tests were performed in terms of normality²³.

Reliability testing

Internal consistency reliability was tested by considering Cronbach's alpha. Two hundred and fourteen registered nurses were recruited in this step. A coefficient alpha of 0.70 or greater was considered.

Results

Characteristics of the participants

One hundred of the participants returned the questionnaires (n=214). The age range was between 22–48 years old. The majority of them were Y generation (86.4%), female (97.6%), and had graduated with a bachelor's degree (94.9%). More than half of them were single (67.2%), and all of them were full-time nurses. The majority of them worked in the In-Patient Department (75.2%). More detail is illustrated in Table 1.

Table 1 Characteristics of participating nurses (N=214)

Characteristics	Min	Max	Mean	S.D.
Age (years)	22	48	30.05	5.89
Work experiences (years)	1	24		
Salary (Baht)	15,000	48,000	25,274.18	
	N	%		
Generation				
X Generation (born between 1973–1979)	19	8.9		
Y Generation (born between 1980–1997)	185	86.4		
Z Generation (born in 1998 or beyond)	10	4.7		
Gender				
Male	4	1.9		
Female	209	97.6		
Unspecified	1	0.5		
Marital status				
Single	144	67.2		
Married	67	31.3		
Spouse	1	0.5		
Divorced	1	0.5		
Separated	1	0.5		
Education				
Bachelor degree	203	94.9		
Master degree	11	5.1		
Type of workplace				
Out Patient Department	52	24.3		
In Patient Department	161	75.2		
Other Department	1	0.5		

Table 1 (continued)

Characteristics	N	%
Employment status		
Government official	204	95.3
Government employee	1	0.5
Temporary employee	9	4.2
Position in team		
Team leader	11	5.1
Charge nurse	63	29.5
Team member	140	65.4
Responsibility for child		
Yes		
Take care of children <12 years	48	22.5
Take care of children >12 years	5	2.3
No	161	75.2
Responsibility for the care of your (and/your spouse) elderly parent		
Yes		
Partial care (e.g., send home expenses, take parents to see a physician)	126	58.9
Complete care and live with their parents	8	3.7
No	80	37.4
Shift type		
8 hour shift (morning–afternoon–night)	181	84.6
Morning shift	33	15.4

S.D.=standard deviation, N=frequency

Psychometric properties testing

1. Content validity testing

The average I-CVI score of the BQNWL survey, Thai version, was 0.98, which indicated excellent content validity²⁵. The universal agreement (S-CVI) score was 0.90. The item-CVI ranged from 0.80 to 1.00: no item was removed. Based on expert comments, twenty-three items underwent revision.

2. Cognitive interviews

For this step, 23 items were revised to maintain the meaning, based on two reasons: 1) make the items shorter and more simply (item numbers: 1, 4, 6, 7, 10, 12, 13, 14, 16, 18, 21, 24, 27, 31, 41, and 42), and 2) make the items more understanding in a specific context (item numbers: 8, 19, 20, 25, 30, 40, and 36). The findings indicated that seven items provided words specific to a hospital context (item numbers: 4, 10, 20, 25, 27, 30, and 36) (Table 2).

3. Construct validity testing

Corrected-item total correlation and Confirmatory factor analysis

With 37 items left, all corrected item-total correlations were positive; the mean item-total correlation was 0.604 (range 0.302–0.793). The findings of normality showed the skewness as between -0.987 and -0.205, while kurtosis is between -1.150 and 1.886. The results of the second order of CFA revealed that four subscales were involved in the model, similar to the original version. This finding confirms the construct of the original version. However, five items were eliminated, based on factor loading of less than 0.5³⁶; covering item numbers 3, 11, 16 (work design subscale), 10, and 20 (work-life home-life balance subscale) (Table 3). The highest dimension that provided complete standardized factor loading was the dimension: “work context;” which was 0.99, and could explain the

variance of BQNWL; wherein, $R^2=89.0\%$. The second dimension was: “work world,” which was 0.97, and could explain the variance of BQNWL, at $R^2=87.0\%$. While the third subscale: “work design,” was 0.95, which could explain the variance of BQNWL; wherein, $R^2=84.0\%$, and the final subscale: “work–life homelife balance,” was 0.92, which could explain the variance of BQNWL; wherein, $R^2=82.0\%$ (Figure 1). All indicators of model fit were acceptable; as shown in Table 4.

4. Reliability testing

The reliability coefficient alpha was 0.929. For each subscale, it was found that the work–life home–life balance subscale was 0.819, work design was 0.910, work context was 0.934, and work world was 0.912, respectively.

Discussion

The findings revealed that the average of the I–CVI scores across each item of the BQNWL survey, Thai version, was 0.98, and S–CVI was 0.90. Twenty–three items were revised in the phase of a cognitive interview. Once, internal consistency was calculated, the Cronbach’s alpha was 0.959. Confirmatory factor analysis yielded four factors, and was consistent with the original version. These finding aligns with the content validity assessment in a previous study³⁷. However, the total content validity index (CVI), regarding the item clarification of sentence structure, still needs revision. This might be explained by equivalence from cultural, social, and historical disparities. After performing the cognitive interview technique, the findings showed that 23 items needed to be revised to fit each context. This was similar to the earlier version that ensured accuracy by face validity¹⁷.

Table 2 Example items of compared edition among the BQNWL survey, Thai version

No	Thai BQNWL (Komjakraphan et.al, 2017)	Preliminary Thai version (Phase 1)	Expert’ suggestion	Thai BQNWL current version (Cognitive interview version)
4	ฉันเชื่อว่าสังคมโดยรวมรับรู้ภาพลักษณ์ของงานพยาบาลเวชปฏิบัติในทางที่ถูกต้อง In general, society has an accurate image of nurses.	โดยทั่วไป สังคมรับรู้ภาพลักษณ์ของพยาบาลได้อย่างถูกต้อง In general, society has an accurate image of nurses.	ท่านเชื่อว่าโดยทั่วไปสังคมรับรู้ภาพลักษณ์ของพยาบาลได้อย่างถูกต้อง In general, society has an accurate image of nurses.	สังคมรับรู้ภาพลักษณ์และบทบาทหน้าที่ของพยาบาลได้อย่างถูกต้อง In general, society has an accurate image of nurses.
10	ฉันสามารถจัดการเวลาเพื่อดูแลบุตรได้ในระหว่างเวลาทำงาน It is important for a hospital to offer employees on–site childcare services.	โรงพยาบาลพึงจัดหาศูนย์ดูแลเด็กในโรงพยาบาลเพื่อเป็นสวัสดิการให้กับพนักงาน The hospital should have a child care center for the staff.	โรงพยาบาลมีศูนย์ดูแลเด็กในโรงพยาบาลเพื่อเป็นสวัสดิการให้กับพนักงาน The hospital should have a child care center for the staff.	โรงพยาบาลพึงจัดศูนย์ดูแลบุตรของบุคลากรในโรงพยาบาลเพื่อเป็นสวัสดิการให้กับพนักงาน The hospital should have a child care center, as a welfare benefit for the staff.
20	ตารางหมุนเวียนส่งผลกระทบต่อทางลบกับชีวิตของฉัน Rotating schedules negatively affect my life.	การหมุนเวียนตารางเวลาทำงานมีผลกระทบเชิงลบต่อชีวิตของฉัน Rotating of my working schedule has negative impacts on my life.	การหมุนเวียนตารางเวลาทำงานมีผลกระทบเชิงลบต่อชีวิตของฉัน Rotating of my working schedule has negative impacts on my life.	การเข้าลือคเวร เข้า บ่าย ดีก มีผลกระทบต่อชีวิตของท่าน Rotating of my working schedule has negative impacts on my life.
25	หน่วยงานของฉันมีนโยบายในการให้ลาภกิจในเรื่องของครอบครัวอย่างเพียงพอ	นโยบายของหน่วยงานที่ฉันสังกัดในเรื่องจำนวนวันลาภกิจมีความเหมาะสม	หน่วยงานของท่านมีนโยบายให้ลาเพื่อดูแลครอบครัวได้ตามความเหมาะสม	หน่วยงานของท่านมีเกณฑ์เรื่อง การลาเพื่อดูแลครอบครัวได้อย่างเหมาะสม

BQNWL=Brooks Quality of Nursing Work Life Survey

Table 3 Example items of the BQNWL survey; current Thai version

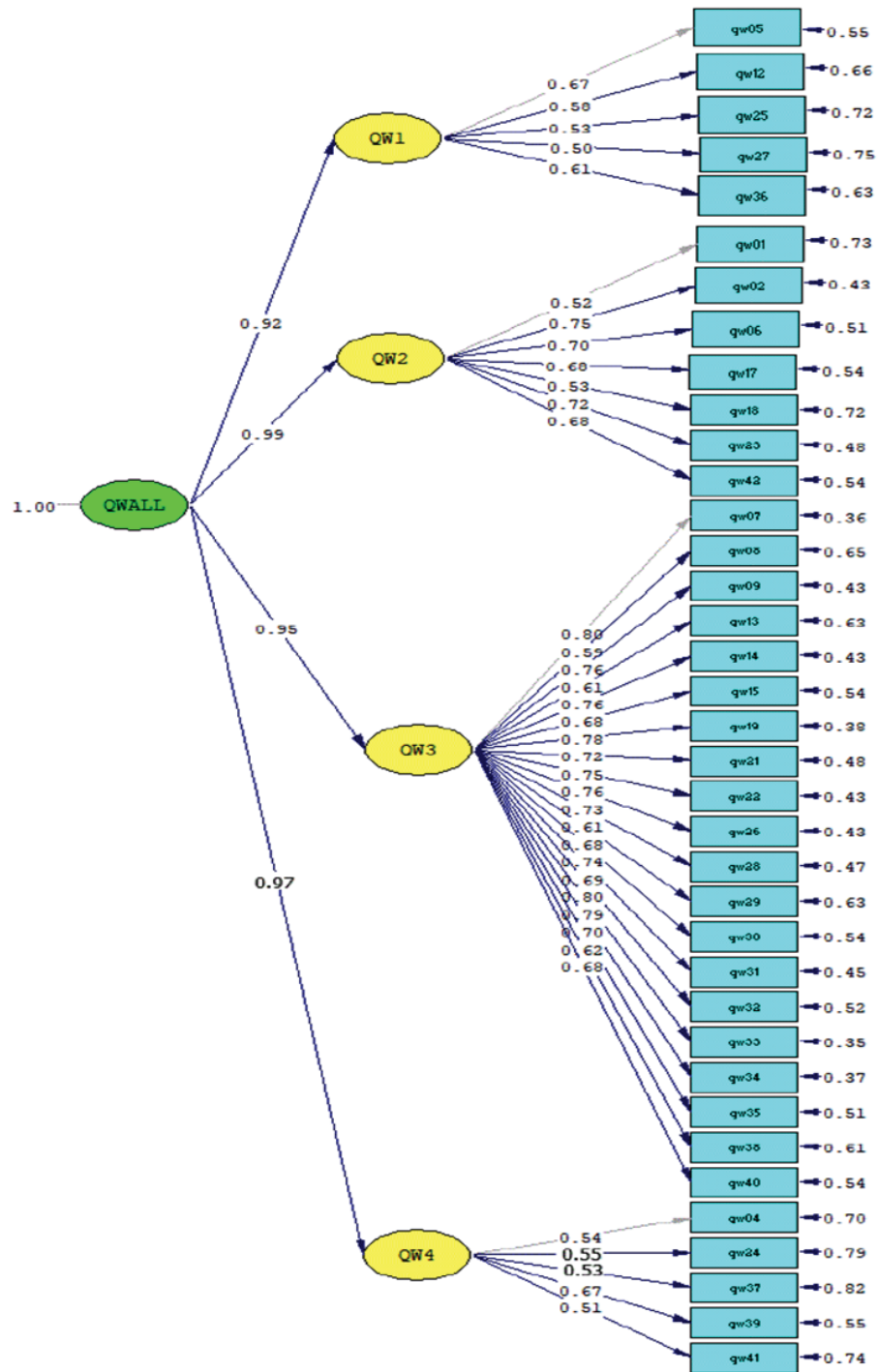
Item No.	Quality of Nursing Work Life	
	Thai version	English version
	ด้านสมดุลระหว่างชีวิตการทำงานกับชีวิตครอบครัว	Work-life / home-life balance subscale
4	ท่านสามารถรักษาสัมดุลระหว่างเรื่องงานกับความต้องการของครอบครัว	I am able to maintain a good balance between work and family demands.
9	ท่านสามารถไปทำภารกิจอื่นได้หลังจากหมดเวลางานโดยที่ไม่รู้สึกเหนื่อยเกินไป	I still have energy left after working hours.
	ด้านการออกแบบงาน	Work design subscale
1	ท่านได้รับความช่วยเหลืออย่างเพียงพอจากบุคลากรสายสนับสนุนที่ไม่มีใบประกอบวิชาชีพทางการแพทย์พยาบาล	I receive enough assistance from support staff, who do not have a nursing license.
2	ท่านพึงพอใจกับงานของตนเอง	I am satisfied with my work.
	ด้านบริบทการทำงาน	Work context subscale
6	ท่านสามารถสื่อสารกับหัวหน้าพยาบาลและผู้ตรวจการพยาบาลได้เป็นอย่างดี	I am able to communicate well with my chief nurses/supervisors.
7	ในหน่วยงานของท่านมีวัสดุ เครื่องมือ และอุปกรณ์ทางการแพทย์ที่ใช้ในการดูแลผู้ป่วยอย่างเพียงพอ	I have adequate equipment to take care of patients.
	ด้านปัจจัยภายนอกงาน	Work world subscale
3	สังคมรับรู้ภาพลักษณ์และบทบาทหน้าที่ของพยาบาลได้อย่างถูกต้อง	In general, society has an accurate image of nurses.
19	เมื่อพิจารณาปริมาณงานกับเงินเดือนที่ท่านได้รับถือว่ามีความเหมาะสมเมื่อเทียบกับทุกอาชีพในตลาดงานในปัจจุบัน	I receive a suitable salary for my job assignment compared to the current job market conditions.

BQNWL=Brooks Quality of Nursing Work Life Survey

Table 4 The result of the CFA (2nd order) of the BQNWL survey, Thai version (n=214)

Factors	Factor loading	se	t-value	R ²	CR	AVE
1. Work-life / home-life balance สมดุลระหว่างชีวิตการทำงานกับชีวิตครอบครัว	0.92	0.04	17.39**	0.82	0.87	
2. Work design การออกแบบงาน	0.95	0.02	18.65**	0.84		
3. Work context บริบทการทำงาน	0.99	0.05	13.92**	0.89		
4. Work world ปัจจัยภายนอกงาน	0.97	0.03	11.92**	0.87		

 $\chi^2=997.83$; $df=540$; $p\text{-value}=0.064$; $GFI=0.98$; $AGFI=0.97$; $CFI=1.00$; $RMSEA=0.024$; $RMR=0.025$; $CN=622.07$ se=standard error, R²=R-squared, CR=composite reliability, AVE=Average Variance Extraction, χ^2 =chi-square, df =degree of freedom, GFI=goodness-of-fit index, AGFI=the adjusted goodness of fit index, CFI=comparative fit index, RMSEA=the relative mean square error of approximation, RMR=root mean square residual, CN=critical n, BQNWL=Brooks Quality of Nursing Work Life Survey



chi-square=997.83, df=540, p-value=0.6428, RMSEA=0.024, df=degree of freedom, RMSEA=the relative mean square error of approximation, BQNWL=Brooks Quality of Nursing Work Life Survey

Figure 1 Confirmatory factor analysis of the BQNWL, Thai version

The pretesting instrument, reliability was tested, and the results indicated a satisfactory value. This finding was in line with previous studies^{17,38}. When considering the results of construct validity testing, the five eliminated items (items: 3, 10, 11, 16, and 20) were deleted, based on a factor loading of less than 0.5. The results revealed that four items aligned with a previous study (items: 3, 10, 11, 16)³⁹. However, the removal of item number 20 was discovered in the absence of earlier evidence. These findings indicated the discrepancy from the BQNWL survey's previous Thai version.

Regarding the five eliminated items, the statements of these items were taken into consideration: "Rotating schedules negatively affect participants' lives." Wherein, the perception of rotating shifts as harming nurses' ability to maintain a healthy work-life balance, and their engagement in their families and communities is supported by evidence. The detrimental effects on family engagement are further increased by demographic factors; such as marital status, employment of the spouse, and children under 12. While having children under the age of 12 and having a spouse who works worsen the effects on community engagement⁴⁰. When examining the specifics of the current study, it was found that nearly 70.0% of participants were single. Three-fourths of them had no children (75.2%), and more than half had a responsibility to care for their parents. However, this was only partial care (58.9%). Therefore, it could be said that the situation regarding responsibility for the care of elderly parents or children has little impact on the subject. The fit indices result demonstrates good model-data compatibility for the CFA result. These findings suggest that such a scale is a valid and reliable measurement tool.

Limitations and future research

This study used a relatively small homogenous sample. The Thai BQNWL survey needs to be further

tested in larger (N=300) and heterogeneous samples. Generalization should be taken into account.

Implication for nursing staff

This instrument provided alternative ways of QNWL assessment. The findings will interest nurse administrators and researchers in QNWL; particularly Thai nurses working in a Thailand hospital context.

Conclusion

The findings revealed that the instrument was reduced from 42 original items to 37 items for the Thai version. The current version covers four sub-dimensions; 1) work-life/home-life subscale; covering 5 items (item numbers: 4, 9, 20, 22, and 31), 2) work design subscale; covering 7 items (item numbers: 1, 2, 5, 13, 14, 18, and 37), 3) work context subscale; covering 20 items (item numbers: 6, 7, 8, 10, 11, 12, 15, 16, 17, 21, 23, 24, 25, 26, 27, 28, 29, 30, 33, and 35), and 4) work world subscale; covering 5 items (item numbers: 3, 19, 32, 34, and 36). This study provides a starting point for the acceptable reliability and validity of the 37-item BQNWL Survey, Thai version; which was translated to measure the perspectives of registered nurses in Thailand Hospitals for their QNWL. Further study is necessary to validate these results, using CFA, by extending the sample size, and heterogeneous samples; including confirming the results of weight scoring.

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Conflict of interest

No conflicts of interest are declared.

References

1. Statista. Number of medical personnel in Thailand in 2020, by type [homepage on the Internet]. New York: Statista [cited 2023 Mar 3]. Available from: <https://www.statista.com/statistics/1185049/thailand-number-of-healthcare-professional-by-type/>
2. Health Systems Research Institute. Strategic plan of Health Systems Research Institute: 2565–2569. Nonthaburi: Health Systems Research Institute; 2021 [homepage on the Internet]. [cited 2023 Feb 12]. Available from: https://hsri.or.th/sites/default/files/statgic_plan-2569.pdf
3. Varma MM, Kelling AS, Goswami S. Enhancing healthcare quality by promoting work–life balance among nursing staff. *J Hosp Adm* 2016;5:58.
4. Upasen R, Saengpanya W, Sambuthanon J. Strategies to cope with moral distress among mental health nurses in Thailand. *J Health Sci Med Res* 2021;39:47–55.
5. Ebadi A, Tabanejad Z. Evaluating the quality of work life among nurses: a systematic review. *J Arch Mil Med* 2022;10:1–6.
6. Tubsoongnoen P. A causal model for the quality of nursing work life among professional nurses in public hospitals, Thailand [dissertation]. Bangkok: Chulalongkorn University; 2021.
7. Thongkao S, Kangsanon K. Quality of work life of professional nurses Rajavithi Hospital. *J Nurs Healthc Res* 2020;36:225–37.
8. Hfocus. After using it for more than ten years, the Nursing and Midwifery Council instructed the Ministry of Public Health to adjust professional remuneration to 240 baht per shift [homepage on the Internet]. Nonthaburi: Hfocus; 2022 [cited 2022 May 9]. Available from: <https://www.hfocus.org/content/2022/11/26405>
9. Sawaengdee K. Working life table and projection of registered nurses workforce supply in Thailand over the next 15 years (2008–2022) [dissertation]. Bangkok: National Institute of Development Administration; 2009.
10. PPTV online. Phranangklao Hospital’s resignation nurse, 15 people after not seeing signs of progress [homepage on the Internet]. Bangkok: PPTV online; 2017 [cited 2019 April 4]. Available from: <https://www.pptvhd36.com/news/%E0%B8%9B%E0%B8%A3%E0%B8%B0%E0%B9%80%E0%B8%94%E0%B9%87%E0%B8%99%E0%B8%A3%E0%B9%89%E0%B8%AD%E0%B8%99/54628>
11. Yosthong D. Nursing shortage and management: personal level management. *JNSU* 2018;20:134–43.
12. Kim U, Triandis HC, Choi SC, Yoon G. Individualism and Collectivism: Theory, method, and application. Thousand Oaks: CA: Sage; 1994.
13. Sriratanaprat J. Development and Psychometric Evaluation of the Thai Nurses’ Job Satisfaction Scale (TNJSS) [dissertation]. Songkla: Prince of Songkla University; 2012.
14. Gantt LM, Lynda G. How does culture affect behavior? [homepage on the Internet]. Santa Maria: Santa Maria Times; 2020 [cited 2020 Sep 11]. Available from: https://santamariatimes.com/lifestyles/columnist/lynda-gantt-how-does-culture-affect-behavior/article_78b4f192-cb93-511e-9c0d-d1c309320623.html
15. Waltz CF, Strickland OL, Lenz ER. Measurement in Nursing and health research. 4th ed. New York: Springer Publishing; 2010.
16. Brooks BA. Development of an instrument to measure quality of nursing work life [doctoral’ dissertation]. Chicago: University of Illinois at Chicago; 2001.
17. Komjakraphan P, Balthip K, Jittanon P. Quality of work life among nurse practitioners working at Primary Care Setting in Thailand. *Songklanagarind J Nurs* 2017;37(Suppl):S98–105.
18. Thailand Nursing and Midwifery Council. Announcement of the Thailand Nursing and Midwifery Council’s policy on the workforce in the nursing team 2561 [homepage on the Internet]. Nonthaburi: Thailand Nursing and Midwifery Council; 2018 [cited 2023 Feb 12]. Available from: [https://www.tnmc.or.th/images/userfiles/files/003\(1\).pdf](https://www.tnmc.or.th/images/userfiles/files/003(1).pdf)
19. Regis College. Registered Nurse vs. Nurse practitioner: what’s the difference? [homepage on the Internet]. Weston, MA: Regis College; 2021 [cited 2022 Sep 11]. Available from: <https://www.regiscollege.edu/blog/nursing/registered-nurse-vs-nurse-practitioner-whats-difference>
20. Sousa VD, Rojjanasrirat W. Translation, adaptation and validation

- of instruments or scales for use in cross-cultural health care research: a clear and user-friendly guideline. *J Eval Clin Pract* 2011;17:268–74.
21. Kanter RM. Men and women of the corporation. New York: Basic Books; 1993.
 22. Brislin RW. Back-translation for cross-cultural research. *J Cross Cult Psychol* 1970;1:185–216.
 23. Sperber AD, DeVellis RF, Boehlecke B. Cross-cultural translation: methodology and validation. *J Cross Cult Psychol* 1994;25:501–24.
 24. Jones PS, Lee JW, Phillips LR, Zhang XE, Jaceldo KB. An adaptation of Brislin's translation model for cross-cultural research. *Nurs Res* 2001;50:300–4.
 25. Lynn MR. Determination and quantification of content validity. *Nurs Res* 1986;35:382–5.
 26. Zamanzadeh V, Ghahramanian A, Rassouli M, Abbaszadeh A, Alavi-Majd H, Nikanfar A. Design and implementation content validity Study: development of an instrument for measuring patient-centered communication. *J Caring Sci* 2015;4:165–78.
 27. Freeman L, Greenburg S. How do I ask good survey questions? Here's what you need to know [homepage on the Internet]. New York: Spark Wave; 2021 [cited 2021 Dec 25]. Available from: <https://www.positly.com/how-do-i-ask-good-survey-questions-heres-what-you-need-to-know/>
 28. Mattan S, Shachar B, Makowski D, Lüdecke D. Interpret of indices of CFA/SEM goodness of fit [homepage on the Internet]. California: GitHub; 2022 [cited 2022 Nov 7]. Available from: https://easystats.github.io/effectsize/reference/interpret_gfi.html
 29. Tabachnick B, Fidell LS. Using multivariate statistics. New York: Allyn and Bacon; 2007.
 30. Marsh HW, Hau KT, Wen Z. In search of golden rules: comment on hypothesis-testing approaches to setting cutoff values for fit indexes and dangers in overgeneralizing Hu and Bentler's (1999) findings structural equation modeling. *Int Multidiscip Res J* 2004;11:320–41.
 31. Field AP. Discovering statistic using SPSS. 2nd ed. London: Sage; 2005.
 32. DeVellis RF. Scale development: theory and applications. 3rd ed. Thousand Oaks, CA: Sage; 2012.
 33. Kline RB. Principles and practice of structural equation modeling. New York: Guilford Press; 1998.
 34. Soper D. Structural equation model sample size calculator [homepage on the Internet]. California: Analytic Calculators; 2015 [cited 2023 Jan 2]. Available from: <https://www.analyticcalculators.com/calculator.aspx?id=89>
 35. tools4dev. How to choose a sample size (for the statistically challenged) [homepage on the Internet]. Lilongwe: tools4dev; 2022 [cited 2022 Jan 2]. Available from: <https://tools4dev.org/resources/how-to-choose-a-sample-size/>
 36. Hidayat R, Syed Zamri SNA, Zulnaidi H. Exploratory and confirmatory factor analysis of achievement goals for Indonesian students in mathematics education programmes. *EURASIA J Math Sci Tech Ed* 2018;14. doi:10.29333/ejmste/99173.
 37. Utami U, Kusnanto H, Riyono B, Alim S. The validity and reliability of quality of nursing work life instrument for hospital nurses. *J Ners* 2018;13:227–32.
 38. Komjakraphan P, Tsuruta K, Hasagawa T, Yanagita T, Hombu A, Jitanoon P, et al. Quality of work life among public health nurses: a survey comparison between Thailand and Japan. *WJST* 2020;17:430–6.
 39. Sirin M, Sokmen SM. Quality of nursing work life scale: the psychometric evaluation of the Turkish version. *Int J Caring Sci* 2015;8:543–54.
 40. Halawi A, Khashfeh R. Effect of rotating shifts on work-life balance: case of nurses in Lebanese hospitals *IJMT* 2018;7:153–72.